



**Nexa Center for Internet & Society**  
*Politecnico di Torino*

# Annual Report 2019

*Studying the Internet, exploring its potential & experimenting new ideas*



# Nexa Center

*for Internet & Society*

Nexa Center for Internet & Society

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The Nexa Center for Internet & Society is a research center of the Department of Control and Computer Engineering at Politecnico di Torino ([www.dauin.polito.it](http://www.dauin.polito.it)).

This report was mainly curated by Mattia Plazio with the contributions of the Nexa Staff, Directors and Community.



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## FOREWORD

In the last year, the Nexa Center for Internet & Society strengthened its competence on Artificial Intelligence, both in terms of research and development. As usual, the research activities were multi-interdisciplinary, focusing on data and algorithms ethics, politics, law and semantic modelling through deep learning. The daily interaction between engineers and humanists took to some promising results, as a new research line on the potential political consequences of the use of AI tools based on different definitions of fairness was opened. At the same time, the other research lines started last year were carried on, on the inequalities provoked by the use of AI in cities and on how to understand if AI is projected to be fair. All these studies have been well received by the scientific community and will be continued in the coming years. Moreover, the Nexa Center will keep working on the laws that regulate AI, as it did this year under the request of TIM (Telecom Italia Mobile) on the privacy and ethical critical issues that AI raises in telecommunications, showing how such problems are faced in the European GDPR, in the e-privacy directive and in its revision process.

The research conducted on semantic modelling through deep learning took to another important achievement: the development of a new version of *TellMeFirst*, an open source tool designed for the semantic classification of documents with Linked Open Data (LOD), which was implemented with Relational Graph Convolutional Networks (R-GCN). Imagined for helping the Research Area of Politecnico di Torino create new collaboration opportunities between researchers and to reduce barriers for accessing Politecnico publications by citizens, this instrument proved to be very flexible, as it can be applied in many other fields. For example, there is the possibility of using it on a database of the publications of the Network of Centers on Internet and Society, which our Center is part of, together with many prestigious international universities, to open the academic research to the public sphere, so that scientific knowledge can be used to improve the formation of public opinion. To do so, some requests for funds were presented, some of which were rejected, while others are under evaluation.

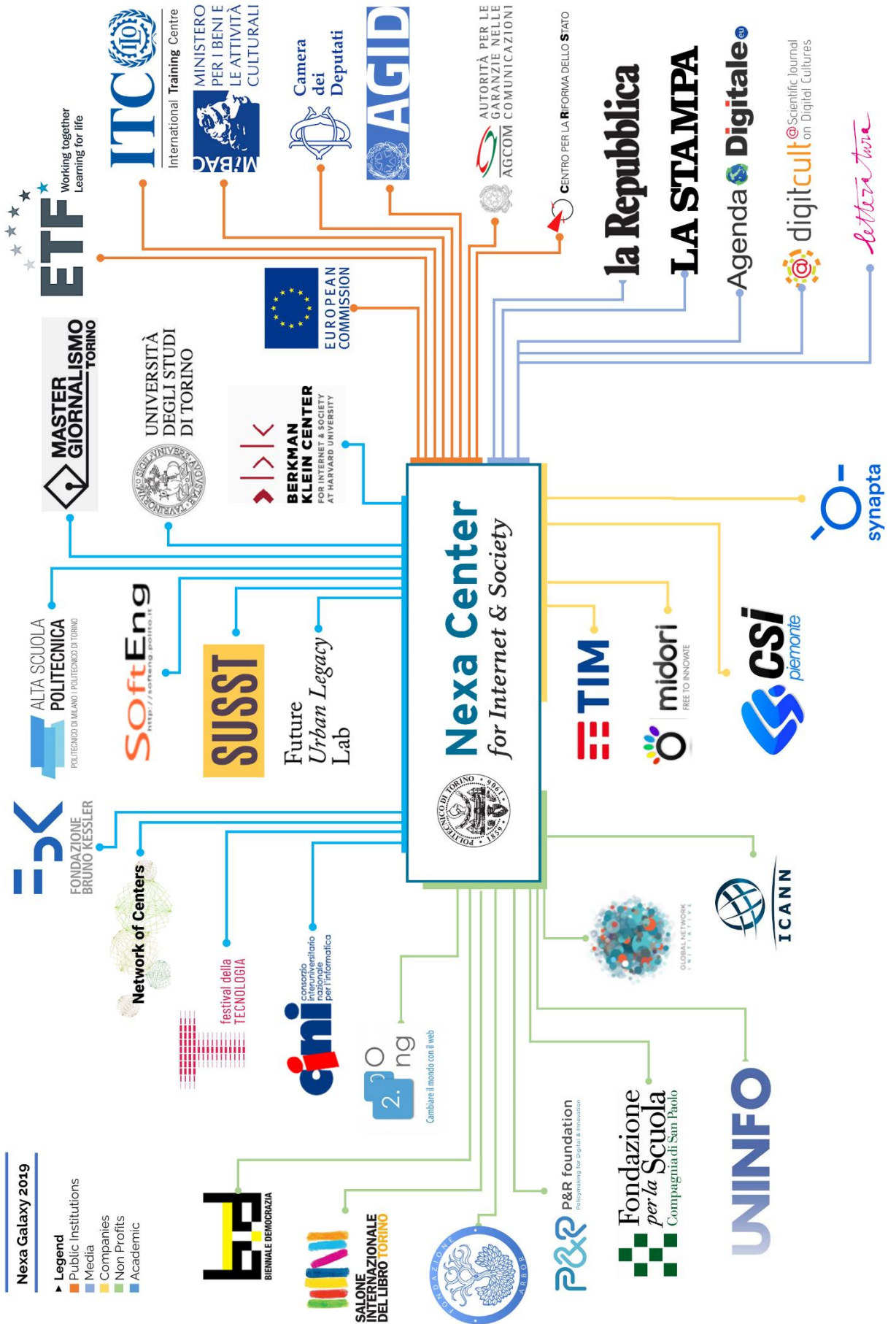
The attempt to attract funds for the research and development activity, focusing on the design of digital tools based on AI, but also on the blockchain, from an interdisciplinary point of view, was one of the main activities of the Nexa Center, this year. For example, a project (URBICC) which was based on the collaboration of semioticians and engineers, on the use of AI to help citizens work together on the creation of a common imaginary about their life in towns was submitted to the European Commission. Also, another project (DEMOCREATE) was presented, on the use of AI and of the blockchain to safeguard and favor cultural diversity in the European digital single market. The Nexa Center contributed to design, together with the architects, geographers and economists of Full (Future Urban Legacy Lab of the Politecnico di Torino), a Digital Open Urban Twin (DOUT) of the town of Turin, to collect and analyze big data coming from the territory. In short, our Center aimed at transforming its research into the development of some digital tools to be funded from public and private institutions.

The other main activity of the Nexa Center, in the last year, was to support Politecnico di Torino in its attempt to better understand and then to explain the relationship between technology and society. This meant to work on two major projects, *Festival della Tecnologia* and SUSST (Scienze Umane e Sociali per le Scienze e la Tecnologia). The former is a three days international event, directed by prof. Juan Carlos De Martin, which will take place in Turin from the 7th to the 10th of November 2019, to celebrate the 160th year from the foundation of the Politecnico and to show citizens how technical knowledge can influence our lives. The latter is an attempt to create a group of humanist scholars that can work side by side with engineers, conducting researches with them and teaching engineering students how to catch the deep cultural and societal meaning of what they will do in their professional life. To some extent, the Nexa Center has always embodied the philosophy that is behind these projects - for example, in the last year prof. Juan Carlos De Martin launched a new master degree course called *Digital technologies and society* - and this is the reason why Politecnico recurred to it to implement them.

On the specific relationship between computer science and society, in the last year the Nexa Center continued to work with AgCom, the Italian Communication Authority, to safeguard pluralism and information correctness on digital platforms, especially during electoral campaigns. Moreover, it continued its collaboration within the DECODE and VIRTEU European projects, respectively on how to increase digital sovereignty of European citizens and on how to use ethics in the design process of IoT objects. Marco Conoscenti concluded his Ph.D. research aimed at facing the well-known blockchain scalability issue, by analyzing capabilities and limitations of payment channel networks such as the Lighting Network. Furthermore, the Center conducted a research financed from TIM (Telecom Italia Mobile), to study the relevant legal framework for UAS (Unmanned Aircraft Systems) operations and the main legal issues raised by the civilian use of drones. Finally, it worked on the new Copyright Directive voted at the European parliament, a controversial package of legislation designed to update copyright law in Europe for the internet age, organizing seminars and taking a stand on it. This turned to be very helpful to draft the proposal in the above mentioned DEMOCREATE European Project, which is focused on the functioning of the European digital single market.

There are many other activities we would like to mention, such as the Edu-Hack Erasmus+ project on the use of open source digital technologies to improve teaching and learning in schools and universities, that this year entered its operative phase, with some very interesting results, but also the first Nexa Center's fellows weekend organized in September 2018, that proved to be a wonderful occasion to keep together our community, with the aim of finding new ideas, visions and projects to be developed. Anyway, let us conclude our foreword with an announcement we are very proud of, as one of us - prof. Marco Ricolfi - has just been appointed as Permanent Advisory Committee to the Italian Culture Ministry. This great achievement is of course also connected with the activity of the Nexa Center and will have an impact on it in the future. We will do our best to match the high expectations this new duty takes with it.

*Juan Carlos De Martin and Marco Ricolfi - Faculty Directors*



## DIRECTORS

Juan Carlos De Martin

*Founder and Co-Director*

Juan Carlos De Martin is full professor of the Politecnico di Torino (Italy) where he teaches computer science and digital culture and where, since March 2018, he serves as Rector's Delegate for Culture and Communication. Since 2011 he has also been associated with the Berkman Klein Center for Internet & Society at Harvard University, first as Faculty Fellow and now as Faculty Associate. Between 2007 and 2011 Juan Carlos De Martin was the coordinator of COMMUNIA, the European thematic network on the digital public domain, with 50 members from Europe and overseas. In 2012 he edited, together with Melanie Dulong de Rosnay, the book *The Digital Public Domain: Foundations for an Open Culture* (OpenBookPublishers, UK), while in 2017 he published a book on the future of university in the Internet age, *Università Futura - Tra Democrazia e Bit* (Codice Edizioni, 2017). Between 2014 and 2018 De Martin served as an expert member of the Study Commission on Internet Rights established by the President of Italy's Chamber of Deputies. Juan Carlos De Martin also serves as member of the Scientific Board of the Institute of the Italian Encyclopedia Treccani. He is an op-ed contributor to the national newspaper "la Repubblica" and he often acts as a commentator in Italian media.

Marco Ricolfi

*Founder and Co-Director*

Marco Ricolfi received his degree at the Faculty of Law of the University of Turin in 1974. Master of Laws, Yale Law School, 1975-1976. He is currently full professor of Intellectual Property Law at Turin Law School, where he also teaches Business Law. In 2007, Prof. Ricolfi was a member of the "High-Level Expert Group on the European Digital Libraries" created by the European Commission. He is currently a member of the European Copyright Society and, since May 2019, he is the President of the Italian Government Advisory Commission on Copyright. Among his works: *The Internet of Things and the Ages of Antitrust*, in *Concorrenza e mercato* 2017; *The new paradigm of creativity and innovation and its corollaries for the law of obligations*, in (eds) Peter Drahos-Gustavo Ghidini and Hans Ullrich; *Kritika: Essays on Intellectual Property*, Vol. I, Edward Elgar, Cheltenham, 2015, 134-205; *Trattato dei marchi. Diritto europeo e nazionale*, Voll. 1 e 2, Giappichelli, Torino, 2015.

## EXECUTIVE SUMMARY

The previous page shows the "Nexa 2018-2019 Galaxy", i.e. the main external entities with whom Nexa Center interacted. At the end of the executive summary, the reader will in turn find, the "Nexa 2018-2019 Timeline", which reports the most relevant events of the last 12 months for our Center's life, as well as "Nexa in the world", which displays the travels of our staff to participate to conferences, project meetings, etc.

The activities of the Nexa Center over the period July 2018-June 2019 can be summarized in four working areas: Artificial Intelligence and Society, Technology and Society, Internet Power and Rights and Education.

## ARTIFICIAL INTELLIGENCE AND SOCIETY

"Artificial Intelligence and Society" concerns the research and development work done in the field of AI, keeping in mind how this technology can have an impact on our everyday lives. The research focused on data and algorithms ethics, politics, law and semantic modelling through deep learning. The knowledge accumulated on the latter topic led to the production of a new version of TellMeFirst (see p. 15) and to the implementation of Geranium (see p. 16), to recognize the meaning of texts, classify and connect them to other texts. These technologies have been applied to the database of the scientific articles produced by the personnel of Politecnico di Torino, with the aim of making its consultation more effective and meaningful. Moreover, a Digital Open Urban Twin (DOUT) of the town of Turin has been projected (see p. 17), to collect and analyze big data coming from the territory, with the aim of helping researchers and policy makers spatially correlate and visualize, beyond the more consolidated uses of 3D city models and 3D GIS, how urban phenomena/problems are distributed across different areas of the city and how they are connected at multiple scales. Instead, from a more theoretical point of view, the problem of fairness of AI algorithms was studied, with attention to the problem of understanding if they are projected to be fair, which definitions of fairness they incorporate and what would be the consequences for our everyday lives if we used a definition or another (see p. 12). Finally, from a legal point of view, the privacy and ethical critical issues raised by the use of Big Data and Artificial Intelligence in telecommunications were analyzed, showing how they are faced in the European GDPR, in the e-privacy directive and in its revision process (see p. 18).

## TECHNOLOGY AND SOCIETY

More in general, the relationship between "Technology and society" was another very important topic for the Nexa Center this year, as prof. Juan Carlos De Martin was involved, under a specific request of the Rector of the Politecnico di Torino, in a study called SUSST (Scienze Umane e Sociali per le Scienze e la Tecnologia – see p. 20), on how to include the humanities in the context of the scientific research carried out at Politecnico itself, to help engineers better understand the social and cultural meaning of their work and, at the same time, to create a group of humanist scholars that can participate to the engineering research and divulgate it. With a similar goal, the Nexa Center took part in the organization of the Festival della Tecnologia (see p. 21), an international event which will take place in Turin in November 2019, to celebrate the 160th year from the foundation of the Politecnico. On that occasion, engineers and humanists will gather, to discuss on the relationship between technology and society at every level. On a smaller scale, this idea was the basis of the participation of the Nexa Center to the Biennale

Democrazia, where it organized some conferences (<https://nexa.polito.it/biennale-democrazia-2019>) on the relationship between technology and democracy (see p. 22), and of the promotion of Università futura, the book of prof. Juan Carlos De Martin on how universities should be today and how they should interact with our societies (see p. 23).

## INTERNET POWER AND RIGHTS

As to the topic "Internet Power and Rights", first of all a mention must go to the Declaration of Internet Rights (<https://nexa.polito.it/declarations-of-the-internet-rights>) which the Nexa Center contributed to draft in 2014, because its importance has now come to full fruition as the international dimension of the interface between AI, Big Data and surveillance has taken center stage. Moreover, during the reporting period, much was done to reflect on the new Copyright Directive voted at the European parliament, a controversial package of legislation designed to update copyright law in Europe for the internet age. The Nexa Center organized seminars and took a stand on it (<https://www.youtube.com/embed/lpEC2sE-GY4>). A Horizon 2020 project, Democreate (see p. 49), focused on the impact of old and new copyright laws on creators and online creative communities. Furthermore, prof. Marco Ricolfi, recently appointed Chairman of the Permanent Advisory Committee to the Culture Ministry, intends to involve the Nexa community at the implementation stage. Furthermore, the Nexa Center worked with AgCom (see p. 29), the Italian Communication Authority, to a round table created to safeguard pluralism and information correctness on digital platforms, especially during electoral campaigns. The aim was to monitor the diffusion of fake news and misinformation, to denounce it and to contain it through self-regulation of the main stakeholders. This job took to some publications that can be found on the website of AgCom (<https://www.agcom.it/documentazione>).

Finally, the Nexa Center conducted four financed researches: DECODE, VIRTEU, "Scaling solutions for the blockchain" and "The law of connected drones". DECODE (see p. 26) is an H2020 project that aims at increasing digital sovereignty of European citizens by enabling them to produce, access and control their data and exchange contextualized information in real-time, in a confidential and scalable manner. The Nexa Center analysed the legal and ethical frameworks that have to do with the adoption of the DECODE technology, including the cases where the processing of personal data is requested, with the aim to set up licensing guidelines to foster the generation of digital commons and an initial set of smart rules to be adopted in the pilots of the project. VIRTEU (<https://virteuproject.eu>) is instead an H2020 project aimed at studying how ethical considerations can be taken into account, when projecting IoT products. The Nexa Center worked on the dissemination activities but, due to some internal organizational problems, it decided to leave the consortium. Scaling solutions for the blockchain is a Phd research conducted by Marco Conoscenti, financed from DAUIN (Politecnico di Torino), to analyze capabilities and limitations of payment channel networks, to solve the well-known blockchain scalability issue (see p. 27). The laws of connected drones is instead a research project financed from TIM (Telecom Italia Mobile), to analyse the relevant legal framework for UAS operations and of the main legal issues raised by the civilian use of drones. Particular attention was devoted to the use of commercial drones in BVLOS (beyond the visual line of sight) activities (see p. 28).

## EDUCATION

In the field of "Education", instead, the Nexa Center continued to coordinate the Erasmus+ project Edu-Hack (see p. 32), that intends to support teachers' professional development through open online

## STAFF

**Antonio Santangelo**

*Executive Director*



Antonio Santangelo is a semiotician. He teaches *Semiotics and philosophy of language*, *Textual Semiotics and New Media Languages* at the eCampus University, and *Semiotics of television programmes* at the University of Turin. His main interest is the development of a mature vision of semiotics as a social science that can be used at the same time as an analytical and as a creative tool, to understand and also to predict the meaning people may give to their experience of communication products and to their mutual interactions around them. In the last two years, he has been working on Artificial Intelligence and on the way, it can affect the public sphere. Because of his expertise, he has worked for the Italian Institutions, as he contributed to draw up the Italian White Paper on Artificial Intelligence and Public Administration, together with the Agency for Digital Italy (Agid).

**Mattia Plazio**

*Managing Director*



Mattia Plazio earned a degree in Italian Literature from the Faculty of Humanities at the University of Turin. He worked in the field of e-learning as instructional designer. Since 2012 he has developed and coordinated cultural projects (i.e. *Borderscapes*; *Spaesamenti*; *Gamblers*) funded by private and public institutions. He writes about cinema and new media, and also collaborates with the film production company Azulfilm, as a screenwriter.

**Selina Fenoglietto**

*Administrative Manager*



Selina Fenoglietto joined the Nexa Center for Internet & Society in May 2009 as an administrative assistant. She holds a bachelor's degree in Economics from the University of Turin and her former experiences include the administrative management of projects funded by the European Commission, the World Bank, and the Italian Foreign Office. Since December 2010 she is the administrative manager of the Center

## STAFF

Francesco Ruggiero

*Communication Manager*

Francesco Ruggiero is the founder of the literary group *sparajurij* and is in the editorial board of the journal "Atti Impuri". He is specialized in contemporary Italian literature. He is the author of literary reportages for the journal "Il Reportage" and co-author of the book *Viaggiatori nel freddo. Come sopravvivere all'inverno russo con la letteratura*, published in 2015.

Giovanni Garifo

*IT Manager*

Giovanni Garifo is graduated in Computer Engineering at the Politecnico di Torino and he is currently attending the courses for the master's degree in software engineering. He joined the Nexa Center for Internet & Society in January 2017 as IT Manager. He's interested in web technologies, especially hybrid mobile application development, but also in photography and computer hardware.

Antonio Vetrò

*Senior Research Fellow*

Antonio Vetrò is Assistant Professor at the Department of Computer and Control Engineering at the Politecnico di Torino. He is also Senior Research Fellow at the Nexa Center for Internet and Society and at the Future Urban Legacy Lab, both at the Politecnico di Torino. Antonio is specialised in empirical methodologies and statistical analyses, applying such an empirical epistemological approach to study the impact of technology on society. Currently, he is conducting research on how to detect and mitigate potential discriminations deriving from biases in the data and in the algorithms of decision systems.

courses, by increasing their digital skills in creating innovative learning and teaching approaches and tools. The project was in its second year of life and it experimented its course on an online collaborative platform created by the Nexa Center. It also experimented hackathons at the end of the courses, so that teachers met face to face and created new useful digital tools for their professional activities.

## INSTITUTIONAL NETWORKS

Beyond the work done in the four working areas mentioned above, the Nexa Center participated in three important institutional networks, that are the Global Network of Internet & Society Research Centers (<https://networkofcenters.net/centers>), the Global Network Initiative (<https://globalnetworkinitiative.org/>) and CINI - Laboratory for Informatics and Society (<https://www.consortio-cini.it/index.php/it/laboratori-nazionali/lab-informatica-e-societa>). As to the Global Network of Internet & Society Research Centers, which is a collaborative initiative among academic institutions with a focus on interdisciplinary research on internet and society, the Nexa Center took part in the annual meeting held in Paris in November 2018, during the Internet Governance Forum. Furthermore, it presented the research paper "Ethical and Socially-Aware Data Labels" (Beretta et al, 2018) within the Conference "AI: Legal & Ethical Implications" held in the Center for Cyber Law & Policy, University of Haifa and it participated in the drafting of an Erasmus+ Jean Monnet project titled "Growing European Societies in the Digital Age: Sustainability, Social and Legal Issues", which will be officially submitted in 2020: the Nexa Center's focus will be on utopian and dystopian visions of Artificial Intelligence. Instead, as to the Global Network Initiative, which champions fundamental human rights online, with a focus on privacy and freedom of expression, the Nexa Center gave its contribution as a critical source of interdisciplinary research, informed by expertise in technology, law and economics, on internet policy from a European perspective. Finally, at CINI, that includes 44 public Italian Universities which work on computer science, the Nexa Center coordinated the activities of LabIS, that keeps together all the researchers and scholars who study the relationship between digital technologies and society.

## TEACHING

As to its teaching activities, this year the Nexa Center launched a new course for the master students of Politecnico di Torino, Digital Technologies and Society, which aims at raising awareness on what it means to be an informatics engineer in the age of AI and algorithms. The students who enrolled were 55. Examples of the topics covered are professions and code of ethics, history of computers and internet, interpretative models of technology, ethical and policy issues in information systems, data bias, algorithm fairness (see p.39). Moreover, the Nexa Center offered the Digital Revolution, undergraduate course at the Politecnico di Torino, with the aim of providing students with the multidisciplinary knowledge required to understand the digital revolution, and of teaching them practical online-world skills. In 2019, 153 students were enrolled (see p. 39). Some of the contents of this course were taught also to first and second-degree teachers in *Essere Digitali*, another course given at "Riconessioni", a project of Fondazione per la Scuola (Compagnia di San Paolo), aiming at creating a model of educational innovation at a national level (see p. 42). Furthermore, always inside the Politecnico di Torino an international summer school for Ph.D. and master's degree students on Artificial Intelligence was organized, with the aim of showing this technology in an utopian way, without forgetting its criticalities for our social life (see p.41). Out of the Politecnico di Torino, instead, the Nexa Center provided a course called New Media Languages (see p.40) for the undergraduate students of the eCampus on-line University, focusing on how intermedia and transmedia communication strategies, typical of nowadays digital media context, influence the formation and

the functioning of our culture. An important part of this course is on digital media and democracy. Moreover, in the WIPO Master (LL.M) in Intellectual Property Law at the ILO International Training Center in Turin (<https://www.itcilo.org/masters-programmes/ll-m-in-intellectual-property>) organized by the World Intellectual Property Organization and the University of Turin, the Nexa Center focused its teachings on the implications of ICT on IP and, in particular, on the nexus between data, Artificial Intelligence and knowledge. The 2018 annual conference of the LL.M focused on the intersection between AI and IP, and on trade secrets protection. Finally, in the Master School of Journalism at the University of Torino (<https://www.mastergiornalismo-torino.it/>), the Nexa Center held a series of lectures on information security, to increase the students' awareness on risks and opportunities in the use of digital technologies.

## FUNDING

A big effort was devoted to the funding activities. Eight projects were presented to the European Union and to some private American organizations (Google, Knight Foundation), mainly on Artificial Intelligence and its application in the fields of the formation of the public opinion, education, collective imaginary upon towns, fairness of algorithms, circulation of contents in the digital single market. The latter - digital single market - was the topic of a more juridical project focused on copyright, the above mentioned DEMOCREATE, where funds were asked also to experiment the use of the blockchain to facilitate micro-payments.

## ORGANIZATION AND COMMUNITY

As to the organizational aspects, there were no new entries in the Staff but only a farewell: Pasquale Pellegrino, who collaborated with the Center since 2016, working on the Virt-eu project, completed his job. Antonio Vetrò became an Assistant Professor with time contract at the Department of Control and Computer Engineering (Politecnico di Torino). Moreover, as every year, a significant number of interns and trainees (eleven) worked to support the staff, thanks to a more structured collaboration with the Faculty of Law (Università di Torino) and the degree course in Communication Sciences (Università di Torino) and Cinema Engineering (Politecnico di Torino).

A special mention must go to the community activities, as on the 22nd and on the 23rd of September 2018, at the Hotel Marina of the Viverone Lake, the Nexa Fellows met to talk informally about the present and the future of the Center and to discuss topics of pressing relevance linked to the relationship between technology and society (labor market, the power of platforms, blockchain, countervailing powers of tecno-capitalism). The event was an opportunity to meet and exchange information on each other's research and activities, but also to reflect on possible new studies to be conducted and potential joint projects to be developed. Given the great success of the initiative, which helped to further strengthen the Fellow community, a similar event will be held on the 21st and the 22nd of September 2019 at the Certosa 1515 in Avigliana (TO).

## OUTREACH

Finally, as to the outreach work, the 10th annual conference of the Nexa Center was organized in December 2018, with the title Urban digital commons and the future of cities (<https://nexa.polito.it/conf2018>) in collaboration with the DECODE project and Full (Future Urban Legacy Lab) of the Politecnico di Torino. Further than the success of the initiative, it was a special occasion to celebrate an important anniversary such as the 10th year from the very first Nexa Center's annual conference. Moreover, another remarkable result was the restyling and extension of Nexa City (<https://nexacity.org>), the transmedia storytelling project that aims at communicating in an easy and involving way

## STAFF

Eleonora Bassi

*Senior Research Fellow*



Eleonora Bassi is a researcher with a legal and philosophical background. She graduated in Law and holds a Ph.D. in Philosophy of Law and Legal Theory (University of Turin, Law School). She worked at the University of Turin (Law School, 2008-2012) and at the University of Trento (Computer Science Department, 2012-2015). Her research fields are legal theory and political philosophy, privacy law, open data policies, smart city and digital innovation for public administrations.

Pasquale Pellegrino (until January 2019)

*Research Fellow*



Pasquale Pellegrino received the M.Sc. degree in Public and Political Communication from the University of Turin in March 2015. During the M.Sc. he was part of the communication team of one candidate who ran for Piedmont Regional Council. After the graduation he spent five months in Cambodia in the framework of UNICOO research program, doing research on how NGOs communicate their activities and projects.

Marco Conoscenti

*Ph.D. Student*



Marco Conoscenti received the M.Sc. degree in Computer Engineering from the Politecnico di Torino in October 2015. He joined the Nexa Center for Internet & Society in November 2015 as Ph.D. student under the supervision of Prof. Juan Carlos De Martin. His research interests include the blockchain, Bitcoin, and especially the Lightning Network, an off-chain payment network built on top of the Bitcoin blockchain. He developed a simulator of the Lightning Network protocol to study its performances.

all the changes that our everyday life is going through, due to the influence of digital technologies.

## STAFF

Giuseppe Futia

*Ph.D. Student*



Giuseppe Futia is currently Ph.D. student at the Nexa Center for Internet & Society. His research interests concern Semantic Web, Linked Data, and Neural Networks applied to Knowledge Graphs. He is the Nexa project manager and the main developer of TellMeFirst, an open-source tool co-developed by the Nexa Center and the Joint Open Lab of Telecom Italia, designed for classifying and enhancing documents with Natural Language Processing and Linked Data technologies.

Elena Beretta

*Ph.D. Student*



Elena Beretta received the M.Sc. in Cooperation, Development, and Innovation in Global Economy from the University of Turin in September 2016, working on an experimental thesis that investigates the diffusion of innovation by agent-based models. In June 2017 she earned a second level master's degree in data science for Complex Economic Systems at the Collegio Carlo Alberto in Moncalieri (TO). Since November 2017, she collaborates as a Ph.D. student with Nexa Center for Internet & Society at the Politecnico di Torino, working on a project on Data and Algorithms Ethics under the supervision of Prof. Juan Carlos De Martin.

## LOOKING AHEAD

Looking ahead, the Nexa Center will continue to invest in the research on semantic modelling through deep learning, to develop tools such as the above mentioned TellMeFirst and Geranium, that may be used in many fields, to improve academic research, education, dissemination of scientific contents, etc. This research has already been used as the basis of many applications for funds and it will be used as such in the future. Nevertheless, the topic of data and algorithms ethics will be also improved, as another Phd research will be hopefully opened and the studies of most of the Nexa Center's personnel will go in that direction. Finally, the interaction between engineering science and humanities will be strengthened, with the same philosophy declared in the project SUSST.

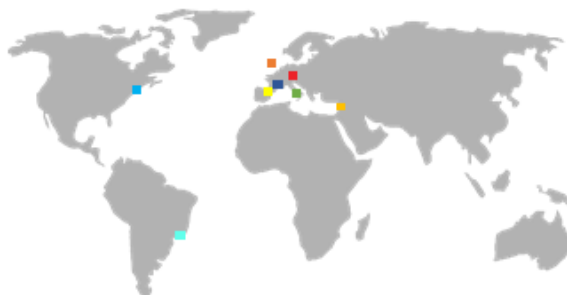
**Nexa Annual Story**



|   |
|---|
| <b>Logroño 14-17/05/2019</b>  |
| <i>M. Plazio, S. Fenoglietto</i><br>Project Meeting EDU-HACK  |
| <b>Trento 25/03-5/04/2019</b>   |
| <i>Elena Beretta</i><br>Bruno Kessler Foundation  |
| <b>Trento 06-07/03/2019</b>   |
| <i>Elena Beretta</i><br>Bruno Kessler Foundation  |
| <b>Barcellona 14-19/10/2018</b>   |
| <i>Marco Ciurcina</i><br>DECODE Seminar   |
| <b>Haifa 27-30/11/2018</b>  |
| <i>A. Santangelo, E. Beretta</i><br>AI - Legal and Ethical Implications conference (NoC)  |
| <b>Trento 19-20/12/2018</b>   |
| <i>Elena Beretta</i><br>Bruno Kessler Found. (visit)  |
| <b>Roma 12-13/10/2018</b>   |
| <i>Antonio Santangelo</i><br>Conference Maker Faire   |
| <b>Roma 25/10/2018</b>  |
| <i>Giuseppe Futia</i><br>Ital-IA, first National Convention CINI on AI  |
| <b>Bari 12-13/07/2018</b>   |
| <i>Antonio Santangelo</i><br>Annual meeting directors CINI  |
| <b>Roma 28/02/2019</b>  |
| <i>Juan Carlos De Martin</i><br>Meeting with the Presidente della Commissione Finanze e Tesoro del Senato della Repubblica      |
| <b>Verona 16-18/02/2019</b>   |
| <i>Juan Carlos De Martin</i><br>Meeting ASPEN ITALIA  |
| <b>Rome 25-26/03/2019</b>   |
| <i>Juan Carlos De Martin</i><br>"Presentazione Europa", organized by Istituto della Enciclopedia Italiana, Accademia dei Lincei |
| <b>Milano 26/10/2018</b>  |
| <i>Juan Carlos De Martin</i><br>Meeting on the actual university state at Università Cattolica del Sacro Cuore di Milano        |
| <b>Roma 08-09/10/2018</b>   |
| <i>Juan Carlos De Martin</i><br>Global Conversation at Università di Roma Tor Vergata and "Cultura 2030"                        |
| <b>Milano 16/05/2019</b>  |
| <i>Juan Carlos De Martin</i><br>Meeting "Se la somma non fa il totale. Riduzionismo e scienza"                                  |

|   |
|---|
| <b>Cagliari 10-12/05/2019</b>   |
| <i>Juan Carlos De Martin</i><br>Meeting "La nuova direttiva europea sul copyright"                                      |
| <b>Portorose 01-06/06/2019</b>  |
| <i>Futia Giuseppe</i><br>Workshop and main conference ESWC  |
| <b>Kingston 27/05-04/06/2019</b>  |
| <i>Elena Beretta</i><br>Canadian Conference of Artificial Intelligence  |
| <b>Ispra 27-30/03/2019</b>  |
| <i>Antonio Vetrò</i><br>DigiTranScope Workshop al Joint Research Centre (JRC) for Advanced Studies                      |
| <b>Barcellona 17-19/03/2019</b>   |
| <i>Marco Ciurcina</i><br>DDDC Manifesto Sprint (project DECODE)   |
| <b>Roma 26/10/2018</b>  |
| <i>M. Plazio, S. Fenoglietto</i><br>Project meeting EDU-HACK  |
| <b>Malta 14-16/11/2018</b>  |
| <i>M. Plazio, A. Santangelo</i><br>Project meeting EDU-HACK   |
| <b>Barcellona 14/11/2018</b>  |
| <i>Marco Ciurcina</i><br>DECODE Seminar   |
| <b>Coventry 3-6/04/18</b>   |
| <i>M. Plazio, A. Santangelo</i><br>Project meeting EDU-HACK   |
| <b>Vienna 11-14/09/2018</b>   |
| <i>Giuseppe Futia</i><br>Semantics conference   |
| <b>Spoletto 25-29/04/2019</b>   |
| <i>Juan Carlos De Martin</i><br>Strategic planning meeting Center for Arts, Design and Social Research                  |
| <b>Milano-Roma 15-16/04/2019</b>  |
| <i>Juan Carlos De Martin</i><br>Meeting at Sky and at Presidenza del Consiglio  |
| <b>Parigi 14-16/11/2018</b>   |
| <i>Juan Carlos De Martin</i><br>Internet Governance Forum 2018 and meeting of Rete Globale di Centri Internet e Società |
| <b>Venezia 12-14/10/2018</b>  |
| <i>Juan Carlos De Martin</i><br>Media and politics in the age of algorithms   |
| <b>Boston 02-07/10/2018</b>   |
| <i>Juan Carlos De Martin</i><br>Berkman Klein Center  |

## Nexa in the World



### Map details



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| <b>Londra 15-17/03/18</b>  |
| <i>Massimo Travostino</i><br>Meeting with Paul Kempton, author of "Finding Value in the Gap"                               |
| <b>Roma 25/10/2018</b>   |
| <i>Antonio Santangelo</i><br>AgCom - Table of pluralism  |
| <b>Bertinoro 01-07/07/2018</b>   |
| <i>Giuseppe Futia</i><br>International Semantic Web Research Summer School 2018  |
| <b>Milano 22/06/17</b>   |
| <i>Juan Carlos De Martin</i><br>Council of address of the Foundation Biblioteca Europea of information and Culture         |
| <b>Milano 28/09/2018</b>   |
| <i>Juan Carlos De Martin</i><br>Workshop Amici di Aspen  |
| <b>Rimini 23-24/08/2018</b>  |
| <i>Juan Carlos De Martin</i><br>"68 e Oltre. Scuola e Università in un mondo che cambia: sfide antiche in un mondo nuovo?" |
| <b>Milano 17/07/2018</b>   |
| <i>Juan Carlos De Martin</i><br>Meeting for the collaboration with P&R Foundation  |
| <b>Parigi 10-11/06/2018</b>  |
| <i>Juan Carlos De Martin</i><br>Seminar at École des hautes études en sciences sociales di Parigi                          |
| <b>Milano 29/06/2018</b>   |
| <i>Juan Carlos De Martin</i><br>Meeting with dott. Marco Polillo, (CDA Fondazione P&R)                                     |
| <b>Coventry 22-26/10/2018</b>  |
| <i>Francesco Mecca</i><br>Learning on/with the Open Web conference (EDU-HACK)  |
| <b>Bruxelles 02-04/07/2018</b>   |
| <i>M. Ciurcina, A. Santangelo</i><br>Mid Term Review DECODE  |
| <b>Lima 03-19/09/2018</b>  |
| <i>Elena Beretta</i><br>Track on Data-driven Software Engineering, conference (DISE 2018)                                  |
| <b>Trento 31/01/2019</b>   |
| <i>Juan Carlos De Martin</i><br>"Costruire il futuro", format created by Piero Angela.                                     |
| <b>Cagliari 07-09/11/2018</b>  |
| <i>Juan Carlos De Martin</i><br>AISA (IV annual meeting)   |
| <b>Pordenone 19-20/09/2018</b>   |
| <i>Juan Carlos De Martin</i><br>"L'impronta digitale": meeting with Lorenzo Tomasin  |
| <b>Udine 27-28/06/2018</b>   |
| <i>Juan Carlos De Martin</i><br>Meetings CRUI  |
| <b>Pisa 10-12/07/2018</b>  |
| <i>Juan Carlos De Martin</i><br>Speaker for the inauguration of CrossLab IT & Society                                      |
| <b>Milano 05/06/2018</b>   |
| <i>Juan Carlos De Martin</i><br>Seminar: Academic Rankings and Reactivity  |
| <b>Roma 18-19/07/2018</b>  |
| Meeting with Prof. Fioramonti (MIUR) On. Gianluca Vacca (Mibac)  |

*1. Artificial Intelligence and Society*

## 1.1 Data and Algorithm Ethics

*Data and Algorithm Ethics is a Ph.D. research project started at the Nexa Center for Internet & Society in collaboration with Fondazione Bruno Kessler (FBK)*

|                             |   |
|-----------------------------|---|
| <b>Project Website</b>      | <a href="https://nexa.polito.it/data-and-algorithm-ethics">https://nexa.polito.it/data-and-algorithm-ethics</a> |
| <b>Status</b>               | ongoing   |
| <b>Period</b>               | November 2017 - November 2020   |
| <b>Funding</b>              | 69,500 €  |
| <b>Funding organization</b> | Fondazione Bruno Kessler (FBK)  |
| <b>Persons in charge</b>    | Elena Beretta (Ph.D. Student)   |

Data and Algorithm Ethics is a Ph.D. research project started at Nexa Center for Internet and Society in collaboration with Fondazione Bruno Kessler. The main goal of the research project is to investigate the impact of machine learning algorithms in decision-making processes, combining data analytics techniques with an epistemological approach from social sciences and humanities.

### Background

We are living in an historical age in which the widespread and the extensive use for different purposes of large amounts of data is rapidly transforming several domain of our daily life; this is due to the enormous opportunity offered by these type of data to the academic and non-academic community in understanding human behavior and helping decision-makers make better decisions on socially relevant issues.

Automatic processes and algorithms, often based on the analysis of personal information, are therefore increasingly involved in decision-making. However, the increase in the use of automated-softwares and machine learning systems, for

example in the field of criminal justice, advertising, and credit scoring, is raising a wide range of legal and ethical issues, including confidentiality, transparency and accountability, bias and discrimination. For example, the use of evidence-based decision-making processes can lead to disproportionate negative outcomes for disadvantaged groups, in ways that resemble discrimination.

As a further development of



the emergence of adverse outcomes, many researchers are involved in finding solutions to overcome the problem of discrimination in automated software systems by embedding the idea of fairness in the algorithm's structure.

### Objectives

In the recent years, several formal definitions of fairness have been suggested by the machine learning community. The aim of the research is to contribute to the debate on fairness in machine learning in this way:

- i) by discussing the impact that its recent mathematical formalizations may have on societies;
- ii) by studying the meaning of each definition of fairness in relation to the different ideas of democracy and equality;
- iii) by proposing a new solution that re-calibrates the existing fairness definitions based on egalitarian principles.

The research is based on two hypothesis: on one side, we suppose different democratic cultures may foster the diffusion of different definitions of fairness; on the other side, the different ways of designing machine learning tools fit in different ways in the various societies and may fit better than others, especially because in a same social contexts various ideas of democracy may coexist.

### Results

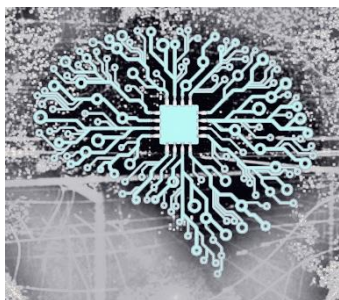
The first result of this research is a short paper on data labels, which are proposed to avoid future problems raised by incorrect use of statistical sampling methods.

## 1.2 Ethics and Politics of Algorithms

*A truly interdisciplinary project that keeps together the engineers and the philosophers of the Nexa Center and the philosophers of the University of Turin*

|                             |  |
|-----------------------------|--|
| <b>Project Website</b>      | N/A  |
| <b>Status</b>               | ongoing  |
| <b>Period</b>               | January 2019 - present   |
| <b>Funding</b>              | in-kind  |
| <b>Funding organization</b> | N/A  |
| <b>Persons in charge</b>    | Antonio Santangelo (Coordinator), Antonio Vetrò (Senior Researcher), Elena Beretta (Ph.D. Student) |

The Nexa Center for Internet & Society has started a collaboration with the scholars and researchers of the University of Turin led by Prof. Maurizio Mori, who teaches Moral Philosophy and Bioethics. The aim is to strengthen the Nexa Center's research line on philosophy and ethics of technology, with a particular - even if not exclusive - focus on AI.



### Background

Since 2017, with the launch of its Phd research project on data and algorithm ethics, in collaboration with Fondazione Bruno Kessler (FBK), the Nexa Center has focused its attention on the ethical consequences of the use of big data and AI.

Moreover, with SUSST (see p.20), Nexa Center has decided to contribute to the opening of Politecnico of Turin to humanities, convinced of the necessity

to study the social and cultural issues related to technology. At the same time, the research group on moral philosophy guided by Prof. Mori, that has been working for years on the relationship between technology and human life, especially in the field of bioethics, was looking for a partner to start a study on digital artifacts and their ethical implications.

### Objectives

This convergence of interests has led to draw a common research program on AI algorithms, with the aim of understanding how they should be projected to be fair. However, as fairness is a multifaceted concept which may derive from very different visions of justice and of our social life, the other aim of this collaboration is to imagine what kind of society we may give birth to, if we chose a certain criterion of fairness instead of another.

As this is a matter of politics, the objective of this part of the research is to help people understand what our democracies may become, if we let AI algorithms do something we as humans use to do, taking a partial or a total control of some of our social systems, as it is starting to

happen in economy, law, medicine, etc.

### Results

The first results of this collaboration are two articles: Beretta et al. 2019 (forthcoming) and Santangelo 2019 (forthcoming). The Nexa Center is starting to present the contents of these articles in some conferences. Antonio Santangelo has shared them within the Noc Network, while Elena Beretta has been to Canada (Canadian AI, Kingston, 2019) and Antonio Vetrò has illustrated them to the members of the Department of Computer Science (DAUIN) of the Politecnico di Torino and to some very important economic authorities of Turin itself, in a conference organised by Compagnia di San Paolo (<https://smartdata.polito.it/4th-smartdata-workshop-public/> and <https://dsaa2018.isi.it/program/trends-controversy-panel>).

The next step is to receive funding from Politecnico and University of Turin, from the public and private authorities of Turin and of Italy, and from the European Union.

## 1.3 Semantic Modeling through Deep Learning

Reconstructing the semantics of semi-structured sources to automatically build and complete Knowledge Graphs

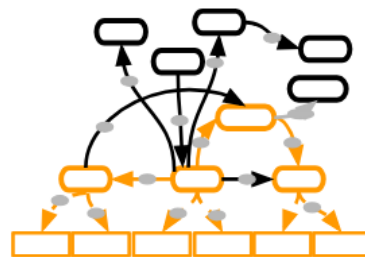
|                             |   |
|-----------------------------|---|
| <b>Project Website</b>      | <a href="https://nexa.polito.it/semantic-modeling-deep-learning">https://nexa.polito.it/semantic-modeling-deep-learning</a> |
| <b>Status</b>               | ongoing   |
| <b>Period</b>               | November 2016 - November 2019   |
| <b>Funding</b>              | 69,500 €  |
| <b>Funding organization</b> | Italian Ministry of Education – University and Research   |
| <b>Persons in charge</b>    | Giuseppe Futia (Ph.D. Student)  |

Semantic Modeling through Deep Learning is a PhD research project within the Nexa Center for Internet & Society. The goal of this project is to build (or refine) large-scale Knowledge Graphs (KGs), through the automatic *semantic modeling* of heterogeneous sources. Diverse Deep Learning techniques adopted for word embedding (Word2Vec), graph embedding (R-GCN), and link prediction (DistMult) have been explored to reach this purpose.

### Background

The integration of the vast amount of heterogeneous data sources is a key ingredient to build Knowledge Graphs (KGs). These labeled and directed multi-graphs encode information in the form of concepts and relationships that are formalized by a domain ontology. Large-scale KGs feed various data-driven systems developed for different purposes, from question answering to information retrieval tasks.

The generation of KGs requires the construction of a map between the attributes of a data source -for instance the fields of a CSV file- and concepts and relationships defined by an ontology. This map is formalized as a graph called *semantic model*. The manual generation of semantic models requires a significant effort and different domain expertises, due to the variety of data released on the Web and within legacy databases. For this reason, the automation



of the semantic model construction is an essential condition to build large-scale KGs.

### Objectives

The semantic model can be formalized as a graph where leaf nodes represent the attributes of the data source and the other nodes and relationships are defined by a domain ontology. Consider a CSV file with two fields respectively entitled "people" and "art pieces". The first operation in building a semantic model is to define a label (*semantic type*) for each of these fields, using the concepts specified by the reference ontology; for instance, "Person\_name" and "Art\_piece\_name". The second operation is to infer the correct connection (*semantic relationship*) between these two semantic types, for instance "is\_depicted\_in".

The goal of this research project is to investigate how diverse DL techniques can be adopted for both tasks of semantic type detection and semantic relationship inference.

### Results

The main achievements of this Ph.D. research project are:

(i) The development of SEMI (SEmantic Modeling machine - <https://github.com/giuseppe-futia/semi>), a tool that combines graph algorithms, a neural architecture called Relational Graph Convolutional Networks (RGCNs), and a link prediction method (DistMult) for the automatic semantic relationships inference.

(ii) An under-review journal publication: "Modeling the Semantics of Structured Sources with Steiner Trees and Relational Graph Convolutional Networks" (G. Futia, A. Vetrò, G. Carducci, D. Allavena, JC De Martin), describing the applications and the results obtained through SEMI in different domains, from academic publications to public procurement.

(iii) A conference publication: "Training Neural Language Models with SPARQL queries for Semi-Automatic Semantic Mapping" (G. Futia, A. Vetrò, A. Melandri, JC. De Martin), *Procedia Computer Science* 137, 187-198, describing the use of neural language model called Word2Vec for the semi-automatic semantic type detection.

(iv) A Technical Report "Linked Data Validity" carried out by researchers and students that participated in the International Semantic Web Research School (ISWS) 2018.

(v) A conference publication: "Removing barriers to transparency: A case study on the use of semantic technologies to tackle

procurement data inconsistency" (G. Futia, A. Melandri, A. Vetrò, F. Morando, JC. De Martin) - European Semantic Web Conference, 623-637

(vi) A workshop publication: "ContrattiPubblici.org, a Semantic Knowledge Graph on Public Procurement Information"

(G. Futia, F. Morando, A. Melandri, L. Canova, F. Ruggiero) - AI Approaches to the Complexity of Legal Systems, 380-393

The Nexa Center spin-off Synapta Srl, founded by the Nexa Fellows Federico Morando and Alessio Melandri, is

currently involved within this research project, providing data and background knowledge related to the public procurement domain.

More information is available at: <https://nexa.polito.it/public-contracts>

## 1.4 TellMeFirst for Education

*Automatically Building of Learning Paths on Internet & Society Topic*

|                             |  |
|-----------------------------|--|
| <b>Project Website</b>      | N/A  |
| <b>Status</b>               | ongoing  |
| <b>Period</b>               | January 2019 - present   |
| <b>Funding</b>              | in-kind  |
| <b>Funding organization</b> | N/A  |
| <b>Persons in charge</b>    | Antonio Santangelo (Senior Researcher), Giuseppe Futia (Ph.D. Student) |

TellMeFirst for Education (AI and Education) is a research project of the Nexa Center for Internet & Society aiming at automatically build Learning Paths (LP) to increase the awareness of citizens on the Internet & Society studies conducted by the Global Network of Internet & Society Research Centers (NoC).



### Background

The NoC produces publications on relevant and diverse research topics, such as AI, Cybersecurity, Online Privacy, etc. Citizens who have access to NoC publications could increase their awareness of such topics.

Nevertheless, the main audience of NoC publications consist of researchers with an interdisciplinary background. For

such reason, in order to enable citizens to access this knowledge, we require LPs that guide them during the exploration of publications.

### Objectives

A LP is described as the route which allows learners to build knowledge progressively (Wikipedia). Considering the amount of publications and topics covered by NoC centers, the manual construction of LPs is a prohibitive task. The automatic building of LPs could be a solution, but it presents two main issues:

- (i) publications included in NoC websites do not have semantic connections to each other;
- (ii) lack of context information for non-experts.

Our goal is to address such issues, proposing the following points:

- (i) Build a knowledge graph describing NoC publications.
- (ii) Automatically detect topics of publications using TMF and

adopting Wikipedia as ontology to describe such topics and discover relations between them.

(iii) Design an advanced algorithm to describe the meaning of a text, combining topic and focus, where focus is characterized by value + cause.

(iv) Starting from a paper, generate and show to the user a LP constructed exploiting the previous steps.

### Results

We conducted the automatic topic detection of NoC publications with TMF. This step has been realized by the Rivoluzione Digitale student, Mehdi Khrichfa, during his internship at the Berkman Klein Center.

For further developments, we plan to explore how to extract complex meaning of text in order to build interesting learning path for citizens. During the reporting period, we presented a proposal for this project to the Google AI for Social Good funding.

## 1.5 Geranium

*Empowering Open Access of Polito publications using Semantics and Deep Learning*

|                             |  |
|-----------------------------|--|
| <b>Project Website</b>      | N/A  |
| <b>Status</b>               | ongoing  |
| <b>Period</b>               | January 2019 - present   |
| <b>Funding</b>              | in-kind  |
| <b>Funding organization</b> | N/A  |
| <b>Persons in charge</b>    | Antonio Santangelo (Senior Researcher), Giuseppe Futia (Ph.D. Student), Giovanni Garifo (Researcher) |

Geranium is a research project carried out by the Nexa Center for Internet & Society with the Research Area of Politecnico di Torino (Polito) aiming at developing a platform to create new collaboration opportunities between researchers and to reduce barriers for accessing Polito publications by citizens.

We intend to achieve this twofold goal combining semantic analysis techniques on Polito publications and Deep Learning (DL) algorithms on graphs. In particular, we will employ TellMeFirst (TMF), a tool designed for the semantic classification of documents with Linked Open Data (LOD), and Relational Graph Convolutional Networks (R-GCN) to discover interesting connections between researchers that do not have a direct link.

### Background

Polito publications are currently available through the Institutional Research Information System (IRIS) platform developed by the Cineca, a not-for-profit Consortium made up of 67 Italian universities, 9 Italian Research Institutions, 1 Polyclinic and the Italian Ministry of Education.

The IRIS platform (<https://iris.polito.it/>) allows to explore publications of research institutions such as Polito, combining a search mask based on keywords with different filters. Nevertheless, from a se-

semantic point of view, the platform lacks an infrastructure to contextualize information related to publications and authors. In particular, such limitations consist in: Keywords ambiguity issue: "Deep Learning" and "DL" identify the same topic, but IRIS provides very different results. Lack of explicit semantic relations: "Convolution Neural Networks" is a class of "Deep Learning" applied in "Computer Vision" but searching for these keywords generate different results from IRIS.



### Objectives

The goal of this research project is to design and develop a semantic infrastructure for the publications available on the IRIS platform. In particular, we want to address the issues described in the background section as follows:

- (i) Build a semantic graph describing Polito publications;
- (ii) Automatically detect topics of publications using TMF and adopting Wikipedia as a general-purpose vocabulary for such topics;

- (iii) Exploit the Wikipedia ontology to define relationships between topics to provide new search opportunities;

- (iv) Provide an advanced recommendation system, supported by the R-GCN, creating connections between researchers that do not have a direct link;

- (v) Develop a Web interface to explore research material of Polito improved with the previous techniques.

### Results

We are currently developing a prototype based on a subset of publications (from year 2011 to 2017). In particular, we achieved the following points:

- (i) We automatically extracted topics from publications using TMF.

- (ii) We built a semantic graph describing Polito publications.

- (iii) We developed an initial version of the Web user interface to explore publications.

For future developments, we plan to:

- (i) Apply specific changes to TMF, in order to further adapt the system to the publications domain;

- (ii) Extend the semantic graph of publications with new data;

- (iii) Improve the Web user interface;

- (iv) Apply R-GCN on the semantic graph of publications.

The development team of this project is composed by: (i) Giuseppe Futia (PhD student

and project lead), (ii) Giovanni Garifo (lead software developer),

Mehdi Khrichfa (backend developer), Cosma Alex Vergari (frontend developer).

## 1.6 Urban artificial intelligence

*Full explores, imagines and designs the future of global and local urban legacy embodied in city form*

|                             |   |
|-----------------------------|---|
| <b>Project Website</b>      | <a href="https://full.polito.it">https://full.polito.it</a>   |
| <b>Status</b>               | ongoing   |
| <b>Period</b>               | April 2018 - present  |
| <b>Funding</b>              | 22.500 € for Nexa + standard funding by Politecnico di Torino   |
| <b>Funding organization</b> | Future Urban Legacy Lab at Politecnico di Torino + Nexa internal funding                                      |
| <b>Persons in charge</b>    | Antonio Vetrò (Senior Researcher), Antonio Santangelo (Senior Researcher), Juan Carlos De Martin (Supervisor) |

### Background

Advances in AI technologies have a substantial impact on everyday lives, and major changes are expected in the following years especially in urban context, where the majority of world population currently lives. AI is playing a growing role in our lives: by automatically gathering and processing information from human activities, AI technologies can perform several autonomous tasks, ranging from simple one such as voice recognition, to very complex like autonomous driving.

The reliability of these technologies is increasing; therefore, many human tasks today are delegated to machines, and with the fast-technological development pace, many more human activities will be automated in a close future. Notwithstanding the large number of current applications of AI in everyday life, many issues are still under debate in several research communities and civil society: systematic biases, liability concerns, transformation of labor, are a few examples of the socio-technological challenges to be faced.

### Objectives

The research project aims at

studying the impact of AI uses in the urban context, in relation to the social implications and the technological developments. The research is conducted in a multi-disciplinary setting, harnessing the collaboration between the Nexa Center for Internet and Society and the Future Urban Legacy Lab (which involves seven different engi-



neering departments of Politecnico di Torino).

The first operational goal of the project is the creation of Digital Open Urban Twin (DOU), i.e. a platform - open in terms of licenses of the data and adherence to open standards- that allows the co-presence of layers of data "above" the physical city, each one on a specific focus and with potentially different - but coherent- level of details.

The result is a "digital twin" of the city, which gives to researchers and policy makers

the possibility to spatially correlate and visualize, beyond the more consolidated uses of 3D city models and 3D GIS, how urban phenomena/problems are distributed across different areas of the city and how they are connected each other at multiple scales. An exemplary but not exhaustive list of urban dimensions of interest are pollution, arrests, poverty, education, energy consumption, traffic flows, commercial activities.

The second operational goal of the project concerns Cities & Inequalities and it is twofold: 1) spatialize current marginalities e inequalities in a sample of cities; 2) investigate on the role of artificial intelligence techniques and in general digital technologies in perpetuating, amplifying or reducing such inequalities.

### Results

At the time of writing, the project team has delivered a feasibility study for the Digital Open Urban Twin, which summarizes the state of the art in 3-D city modelling and how requirements for the DOU could be satisfied by existing digital tools. In parallel, the team is setting the specific research thread on Cities and Inequalities.

## 1.7 Artificial Intelligence and liability in the current Italian and European jurisdiction

*A project focused on privacy and ethical critical issues raised by the use of Big Data and Artificial Intelligence in telecommunications*

|                             |  |
|-----------------------------|--|
| <b>Project Website</b>      | N/A  |
| <b>Status</b>               | concluded  |
| <b>Period</b>               | May 2018 - December 2018   |
| <b>Funding</b>              | 27,000 €   |
| <b>Funding organization</b> | TIM S.p.A.   |
| <b>Persons in charge</b>    | Eleonora Bassi (Senior Researcher, Project Coordinator), Giacomo Conti (Junior Researcher), Antonio Vetrò (Senior Researcher), Antonio Santangelo (Senior Researcher), Elena Beretta (Ph.D. Student) |

### Background

The new 5G technology is changing telecommunication services. The use of Big Data analytics, Machine Learning and Artificial Intelligence software will be a core feature of 5G based telecommunication activities. Those methods and tools have a strong impact on society, both in ethics and in law (e.g. privacy law and liability).

### Objectives

The project focused on privacy and ethical critical issues raised by the use of Big Data and Artificial Intelligence in telecommunications. The research involved experts in law, sociology, ethics, and electronic engineering. The project's objectives included:

(i) an analysis of data protection European rules, including the GDPR, the e-privacy directive

and its revision process;

(ii) an analysis of liability rules for software and defective products;

(iii) a cross-disciplinary analysis (legal, ethical, technical) of the main issues raised by the use of AI algorithms;

(iv) dissemination activities.



### Results

The activities and the results by Nexa Center were:

(i) a report on privacy and artificial intelligence in telecommunications: G. Conti, "I.A. e Privacy

nel nuovo quadro normativo europeo";

(ii) a report on liability rules for the use of AI software: G. Conti, *Responsabilità e Intelligenza Artificiale nell'attuale quadro normativo europeo ed italiano*;

(iii) the research study Eleonora Bassi, "The GDPR protection against algorithmic biases", presented at the Data and Algorithm Bias DAB 2018, within the 27th ACM International Conference on Information and Knowledge Management (CIKM), Torino (Italy 22-26 October 2018)

(iv) the research paper Elena Beretta, Antonio Santangelo, and Antonio Vetrò, "Fairness e Machine Learning. Il concetto di equità e relative formalizzazioni nel campo dell'apprendimento automatico".

## *2. Technology and Society*

## 2.1 SUSST - Scienze Umane e Sociali per le Scienze e la Tecnologia

*A project that aims at (re)opening a fruitful dialogue between the engineering sciences and the humanities in order to find innovative solutions to nowadays challenges in the field of engineering*

|                             |   |
|-----------------------------|---|
| <b>Project Website</b>      | <a href="https://susst.polito.it/">https://susst.polito.it/</a> |
| <b>Status</b>               | ongoing   |
| <b>Period</b>               | 2018 - present  |
| <b>Funding</b>              | in-kind   |
| <b>Funding organization</b> | Politecnico di Torino   |
| <b>Persons in charge</b>    | Juan Carlos De Martin (Coordinator)                             |

### Background

The advancement of polytechnic culture requires an increasing interaction with human and social sciences. This fruitful collaboration would be a fundamental tool for the articulation of innovative solutions to nowadays challenges, especially in the field of engineering.

Due to this awareness, Politecnico di Torino, under the guide of Prof. Juan Carlos De Martin, has founded, in October 2018, the SUSST group of work, which is rooted in a pioneering experience that the Istituto Superiore di Scienze Umane started 20 years ago, and which treasures the existing experiences of PoliTo's Athenaeum (Dipartimento Interateneo di Scienze, Progetto e Politiche del Territorio - <https://www.dist.polito.it/> and Dipartimento di Ingegneria Gestionale e della Produzione - <https://www.digep.polito.it/>).

### Objectives

The core objective of SUSST group is identifying practical solutions that would permit PoliTo's alignment with the best Northern-European Polytechnics, which in the last 20 years have been renewing their teaching offer, their research activities and their third mission.

Following a well-established international path, they have been introducing the precious contributes of human and social scientists that operate in the field of science and technology. These actions are based on a

number of fundamental assumptions:

(i) the need to foster the social impact of technical universities, adopting an interdisciplinary approach and a specific focus on nowadays controversies and challenges;

(ii) the will to shape high-level professionals and engineers, more aware of technology's ethical, environmental and social impact;

(iii) the aim to strengthen student's critical thinking and, more precisely, their overall



comprehension of techno-scientific context in which they act.

The inclusion of social and human sciences into technical universities would lead to a less sectorial teaching approach, contributing to the education of more flexible and high-skilled professionals.

Being aware of the need of dialogue and confrontation with other Italian universities that are equally interested to renewing their teaching, SUSST group includes various professors and experts: Juan Carlos De Martin (coordinator); Giovanni Durbiano (Politecnico di Torino); Giovanni Vincenzo Fracastoro (Politecnico di Torino); Vittorio Marchis (Politecnico di Torino); Maurizio

Ferraris (University of Turin); Peppino Ortoleva (University of Turin); Cristina Becchio (IIT and University of Turin); Paolo Volonté (Politecnico di Milano); Luca De Biase (journalist and writer).

### Results

Hereafter, the first results and the outline program of SUSST activities:

(i) November 2018-March 2019: mapping of national and international initiatives and on-site visits in Paris (École Polytechnique, École Centrale, École des mines, CNRS, ecc.) and in Lausanne (EPFL);

(ii) April-May 2019: meetings with the main cultural areas of PoliTo and collection of further contributions;

(iii) May 31, 2019: public meeting (<https://susst.polito.it/eventi>) about national and international best practices at PoliTo's Aula Magna;

(iv) July 2019: first draft of the final report;

(v) September 2019: delivery of the final version of the report to PoliTo's Rector;

(vi) From October 2019: implementation of the decisions of PoliTo's governing bodies

## 2.2 Festival della Tecnologia

*A series of wide-ranging national and international appointments aimed at proposing a broad reflection on the relationship between technology and society and at strengthening the dialogue between universities and civil society*

|                             |  |
|-----------------------------|--|
| <b>Project Website</b>      | <a href="https://www.festivaltecnologia.it/">https://www.festivaltecnologia.it/</a>                                      |
| <b>Status</b>               | ongoing  |
| <b>Period</b>               | November 2018 - November 2019  |
| <b>Funding</b>              | in-kind  |
| <b>Funding organization</b> | Politecnico di Torino  |
| <b>Persons in charge</b>    | Juan Carlos De Martin (Coordinator), Antonio Santangelo (organisation assistant), Mattia Plazio (organisation assistant) |

On the 160th anniversary from its foundation, from November 7th to November 10th 2019, under the coordination of Juan Carlos De Martin, Politecnico di Torino will organize the first edition of the *Festival della Tecnologia*, a series of meeting to discuss, with an accessible language and in an interdisciplinary manner, the relationship between technology and society and at strengthening the dialogue between academia and civil society.

### Background

In times of social, cultural and technologic turbulence, *Festival della Tecnologia* is conceived as one of the first large events specifically devoted to a broad reflection on technology, its role on society and on the related future challenges. The Festival is aimed at describing technology through society and people and society through technology, with the adoption of multiple languages (including literature, cinema, and music) and exploring many domains (including sport, disabilities and education).

The Politecnico di Torino promotes and organizes the Festival with the collaboration of local and national public institutions, cultural institutes, and other entities. The result will be a festival that, while focused on the Politecnico campus, will involve large parts of the city of Torino.

### Objectives

*Festival della Tecnologia* will

embrace the Politecnico di Torino and the entire city with many meetings and events, starting with the inauguration on November 7th, with the extraordinary contribution of Joseph Stiglitz, Nobel Prize in Economic Sciences, who in that occasion will receive a *laurea honoris causa*. The reflection on technology's impact on our society will be explored using panels, *lectiones magistrales*, laboratories, concerts, plays and exhibitions which will involve scientists, technologists, writers, musicians, philosophers, journalists and actors with the specific purpose of analysing the relationship between technol-



ogy and society through the adoption of diverse languages and artistic forms, i.e., literature, music, environment, cinema, art, etc.

One core objective of the Festival is that of opening Politecnico di Torino to the general public, maximizing its impact on society and promoting debates and in-depth analyses of nowadays most relevant challenges. *Festival della Tecnologia* represents a contribution of the Politecnico di Torino to the City of Torino, to Piedmont and to Italy: a key element of its civic role and of its strategy of

shared knowledge. The Festival is therefore aimed at promoting the image of Torino as the city of technology, with the hope of becoming, from 2020, the festival of technology of the entire city.

### Collaborations

Even if entirely financed and organized by Politecnico di Torino, the *Festival della Tecnologia* has from the beginning been open to collaborations and partnerships. It has been conceived, in fact, not as an exclusive expression of the Politecnico, but as a broad and shared reflection on technology and society.

The long list of collaborations includes public administrative bodies such as the Ministero dell'Istruzione dell'Università e della Ricerca ([www.miur.gov.it/](http://www.miur.gov.it/)), Regione Piemonte ([www.regione.piemonte.it/web/](http://www.regione.piemonte.it/web/)), Comune di Torino ([www.comune.torino.it/](http://www.comune.torino.it/)) and Città Metropolitana di Torino ([www.cittametropolitana.torino.it/cms/index.php](http://www.cittametropolitana.torino.it/cms/index.php)), plus several national and international research centers and Universities (starting from University of Turin - [www.unito.it/](http://www.unito.it/)), publishing houses, local institutions such as Unione Industriale di Torino ([www.ui.torino.it/menu/english/about-us/](http://www.ui.torino.it/menu/english/about-us/)) and Camera di Commercio di Torino ([www.to.camcom.it/about-us](http://www.to.camcom.it/about-us)).

The main cultural actors of the territory are also included:

Circolo dei Lettori ([www.circololettori.it/](http://www.circololettori.it/)), Museo Nazionale del Cinema ([www.museocinema.it/](http://www.museocinema.it/)), Museo Egizio ([www.museoegizio.it/](http://www.museoegizio.it/)), Polo del '900 ([www.polodel900.it/](http://www.polodel900.it/)), Museo dell'Automobile ([www.museoauto.it/website/it/](http://www.museoauto.it/website/it/)), Museo della Fantascienza ([www.mufant.it/](http://www.mufant.it/)), Fondazione Adriano Olivetti ([www.fondazioneadrianolivetti.it/](http://www.fondazioneadrianolivetti.it/)), Fondazione Sandretto Re Rebaudengo (<http://fsrr.org/>).

Furthermore, the *Festival della Tecnologia* has been planned for a period (November) that is particularly rich of important cultural events, such as Artissima ([www.artissima.art/](http://www.artissima.art/)), Paratissima (<https://paratissima.it/>) and Torino Film Festival ([www.torinofilmfest.org/](http://www.torinofilmfest.org/)), which will dialogue with PoliTo's Festival through shared events and other forms of collaborations.

## Venues

*Festival della Tecnologia* will be a widespread event, which, starting from PoliTo's campuses, will involve numerous local cultural spots. The core location will be Politecnico's Main Campus, while its surrounding area will be equipped with geodetic structures that will converge into a "Village of Technology", which will be animated by laboratories, school and family events. The Castello del Valentino, prestigious venue of Politecnico's School of Architecture, will also be one of the main locations, hosting several events and debates.

Among the other locations: Circolo dei Lettori, one of the most popular and vibrant spots of the city of Torino, which for three days will be a core venue for Festival's events focused on technology and narrative; Museo Nazionale del Cinema, where there will be an entire

night of projections organized by Torino Film Festival; Piazza Castello, the heart of Turin, which will host an installation, an info point and a live streaming of the Festival; Polo del '900, a huge cultural space entirely dedicated to last century, which will host events and exhibits concerning the relationship between technology and society, seen from an historical perspective; OGR-Officine Grandi Riparazioni ([www.ogrtorino.it/](http://www.ogrtorino.it/)), the monument of Torino's industrial history, the old train workshops that have turned into a new spot for culture and innovation, and where, on the November 9th, Samantha Cristoforetti will receive her Honorary Degree.

## Programme

The programme of the *Festival della Tecnologia* is under construction and will be officialised in October 2019.

## 2.3 Biennale Democrazia

*Bringing an Internet & Democracy perspective within "Biennale Democrazia"*

|                      |   |
|----------------------|---|
| Project Website      | <a href="https://nexa.polito.it/biennale-democrazia-2019">https://nexa.polito.it/biennale-democrazia-2019</a> |
| Status               | ongoing (next edition in the Spring 2021)   |
| Period               | April 2009 - present  |
| Funding              | in-kind   |
| Funding organization | N/A   |
| Persons in charge    | Juan Carlos De Martin (scientific board member)   |

The Nexa Center is playing a leading role in the organization of the "Internet & Democracy" activities within the program of Biennale Democrazia (the "Biennial of Democracy").

### Background

Since 2009, the City of Turin hosts and supports Biennale Democrazia, a national event with international guests devoted to democracy in the broadest sense. Juan Carlos De Martin, Nexa co-director, is a member of the scientific committee of Biennale.

The Nexa Center supports

Biennale Democrazia since 2009 and it took a more relevant role within the 2011 edition, supporting the organization of events such as Lawrence Lessig's *Lectio Magistralis* "In sunlight. The nature of corruption within the US Congress or of the Torino Open Data Contest".

In 2013 the Nexa Center organizes three major public events, involving Philippe Aigrain, Roberto Casati, and Stefano Rodotà.



### Objectives

The Nexa Center nurtures the "Internet & Democracy" related themes within the program of Biennale Democrazia. It also uses this venue to reach a broader public, including high school students.

## Results

The 2019 Biennale Democrazia edition took place from 27th to 31st March in Turin. Juan Carlos De Martin and Gustavo Zagrebelsky talked about the ethical and democratic issues behind every technological evolution; Jean-Claude Guédon, in a lecture chaired by Juan Carlos De Martin, illustrated the role of "open science" as a barrier to the forms of power inherent in the process of production of scientific knowledge

In occasion of the 2017 edition of Biennale Democrazia, the Nexa Center proposed five public conferences: "Emergencies on the Net. Hacking, Anonymous, Wikileaks" (Gabriella Coleman, Juan Carlos De Martin), "Democratic city technologies" (Francesca Bria, Juan Carlos De Martin), "Internet & Democracy. An ironical inversion" (Evgeny Morozov, Anna Maserà),

"Robotics and web: a new industrial revolution?" (Evgeny Morozov, Federico Pistono), "Collective Intelligence and Collective Stupidity" (Juan Carlos De Martin, Christian Raimo).

In occasion of the 2015 edition of Biennale Democrazia, the Nexa Center proposed three public conferences: "Memoria e oblio ai tempi di Internet" (Luciano Floridi), "Una Magna Charta per Internet" (Philippe Aigrain, Juan Carlos De Martin, Stefano Rodotà), "I social network: chi decide cosa vediamo" (Sara Bentivegna, Antonio Casilli, Fabio Chiusi).

During the Biennale Democrazia 2013 edition the Center organized three major public events: "Sharing knowledge", with Juan Carlos De Martin, Carlo Donolo, and Ugo Mattei and concerning digital commons, intellectual property and new enclosures; "The utopias of e-democracy", with Roberto Casati, Juan Carlos De

Martin, and Alexander Trechsel, coordinated by Riccardo Staglianò, also discussing the role of intermediaries and of transparency; "Is Internet a fundamental right?", with Juan Carlos De Martin and Stefano Rodotà, coordinated by Ferruccio De Bortoli, and analyzing the option of amending article 21 of the Italian Constitution.

In collaboration with Wikimedia Italia, CSP-Innovation in ICT and the Dschola Association, the Nexa Center also organized the meeting "Wikipedia as a tool for digital citizenship", which represented the final public event of a longer process called "Dai una Voce alla Democrazia" (i.e., "Give a voice to democracy", but also "Give an encyclopedia entry to democracy"). During this process, tens of high school students were tutored while editing Wikipedia items related with the concepts of utopia and democracy.

## 2.4 University in the Digital Age

*Re-thinking the University's role in Society in the Networked Age*

|                      |   |
|----------------------|---|
| Project Website      | <a href="http://www.universitafutura.it/">http://www.universitafutura.it/</a> |
| Status               | ongoing   |
| Period               | 2009 - present  |
| Funding              | N/A   |
| Funding organization | N/A   |
| Persons in charge    | Juan Carlos De Martin (Coordinator)   |

At February 2017, Juan Carlos De Martin, co-director of the Nexa Center, published his work on University in the digital age which he had started in 2011 during a stay at Harvard University. The book, titled: "Università futura. Tra democrazia e bit", was published by Codice edizioni (under a Creative Commons License).

### Background

This research originated in particular from the intuitions of Prof. Charles Nesson from the Berkman Center for Internet &



Society (<https://cyber.harvard.edu/>) at Harvard, who clearly saw – several years ago – the challenges and the opportunities that the cyberspace

posed to universities, also in terms of their civic role.

The first tangible result of these considerations, as elaborated at the Nexa Center, was the international conference University and Cyberspace: Reshaping Knowledge Institutions for the Networked Age ([www.communia2010.org/](http://www.communia2010.org/)).

The conference was organized by the Nexa Center together with the Berkman Center of Harvard and also represented the last public event of the Com-

munia European Thematic Network ([www.communia-project.eu/](http://www.communia-project.eu/)) on the Digital Public Domain.

### Objectives

"Università futura, Tra democrazia e bit" explores the (civic) role of Universities in the light of five global challenges for the 21st century: environmental, technological, economic, geopolitical and democratic. Universities are entrusted with the increasingly important responsibility of creating, sharing, and fostering the use of knowledge, and thus are the recipients of tremendous investments of time, money, space, and authority.

As we progress further into a networked age, our knowledge institutions are challenged by society to become a driving

force to create and disseminate knowledge, using innovative approaches derived from and for the networked world.

### Results

"Università futura, Tra democrazia e bit" has been discussed in public in several occasions, including the Berkman Klein Center for Internet & Society at Harvard University, the Senate of the Italian Republic, the Istituto Svizzero in Rome, the Politecnico of Torino, the University of Torino, the Politecnico of Milano, the University of Milan and the University of Naples Federico II.

In autumn 2017, the book *Università futura* was read and discussed by several secondary school classes. The students used a traditional educational method, as well as the social

reading app Betwill (<https://www.twletteratura.org/2015/05/betwill/>), fostering empathy in a digital environment. At the end of the project, Prof. De Martin met the students in a public occasion at Talent Garden, a coworking and learning space, in Turin.

In August 2018, Juan Carlos De Martin, as Rector's Delegate for Culture and Communication of the Politecnico di Torino, participated to the Conference: "68 and beyond. Schools and universities in a changing world: ancient challenges in a new world?", held in Rimini (<https://www.meetingrimini.org/eventi-totale/68-e-oltre-scuola-e-universita-in-un-mondo-che-cambia-sfide-antiche-in-un-mondo-nuovo/>).

*3. Internet Power and Rights*

### 3.1 Decode – Decentralised Citizens Owned Data Ecosystem (EU Project)

DECODE is a research & innovation project that won the Horizon 2020 ICT Call 2016

|                             |  |
|-----------------------------|--|
| <b>Project Website</b>      | <a href="https://www.decodeproject.eu/">https://www.decodeproject.eu/</a>  |
| <b>Status</b>               | ongoing  |
| <b>Period</b>               | December 2016 - December 2019  |
| <b>Funding</b>              | 4,987,673 € (185,125 € for Nexa)   |
| <b>Funding organization</b> | EU (Horizon 2020)  |
| <b>Persons in charge</b>    | Juan Carlos De Martin (Coordinator), Marco Ciurcina (Senior Researcher), Eleonora Bassi (Senior Researcher), Selina Fenoglietto (Researcher) |

Decode will increase digital sovereignty of European citizens by enabling them to produce, access and control their data and exchange contextualized information in real-time, and in a confidential, and scalable manner.

Decode will develop a modular privacy-aware IoT hub with a free and open source operating system backed by a state-of-the-art distributed ledger technology (DLT) infrastructure supporting smart-contracts and



privacy protections.

#### Background

Today's Internet is becoming increasingly centralized, slowing innovation and challenging its potential to revolutionize society and the economy in a pluralistic manner. Decode will develop practical alternatives through the creation, evaluation and demonstration of a distributed and open architecture for managing online identity, personal and other data, and collective governance in a citizen-friendly and privacy-aware fashion.

Strong digital rights that makes it possible for data subjects to determine access rights to their information through

flexible entitlements and open standard-based agreements regarding data governance (on the model of Creative Commons licenses) will be woven into the technological architecture.

#### Objectives

The Decode project develops a distributed and privacy-aware architecture for decentralized data governance and federated identities. The platform adopts Attribute-Based Cryptography (ABC) to sensitive information, ideas from Certificate Transparency (CT) for identification, and Blockchain Technology for federated data access, distribution and resilience.

The Decode architecture is fully decentralized and allows for a flexible and extensible data governance that can be applied to different regimes of data ownership and privacy, implemented through smart contracts that will define access to subsets of data for specific use(s) granted to specific subject(s), according to a defined ontology.

Decode allows the consensual use of personal data in anonymous form for personalized services and applications that may be authorized to manage it. This mechanism defines the rules for data flow among any type of data sets or indexes provided by data aggregators.

Once the access is granted

the data can be processed by services subscribed to its feed and entitled to access it. It can be collected by any of these services or IoT applications. The Decode platform aims to integrate the technical, economical and legal frameworks, managing common data, public data and personal data.

The results of the project (smart rules, platform specifications, protocols, ontology, semantic specifications) will be released under a Free and Open Source Software (FOSS) license. General Decode's objectives in which Nexa Center is involved are:

- (i) Create actionable legal and governance tools for European citizens, companies and cities running on a distributed cryptographic ledger that enable disruptive commons-based business models intrinsically respectful of privacy and digital sovereignty;
- (ii) Empower citizens to control and own their data;
- (iii) Contribute to an open standardization process in the fields of data portability, federated or distributed identity management, blockchains, and smart rules.

#### Results

The project is currently in its second year. The Nexa Center for Internet and Society is responsible for the task to analyze

the legal and ethical frameworks involved in the adoption of the Decode technology, including the cases where the processing of personal data is involved. In October 2018, the document "D1.8: Legal Framework for digital commons Decode OS and Legal Guidelines" was published. It concerns the review of the legal sets of rules

involved by the creation of digital commons including (or not) personal data through the use of the Decode OS technology, and guidelines to be practically used for the development of the Decode OS.

By August 2018 will be released a second document entitled "D1.9: Licensing of digital

commons including personal data". It will set up licensing guidelines to foster the generation of digital commons and an initial set of smart rules to be adopted in the pilots according to their needs. The Nexa Center is also involved in the dissemination activities of the project.

### 3.2 Scaling Solutions for the Blockchain

*Scaling Solutions for the Blockchain is a Ph.D. research project started at Nexa Center for Internet & Society*

|                             |   |
|-----------------------------|---|
| <b>Project Website</b>      | <a href="https://nexa.polito.it/scaling-solutions-for-the-blockchain">https://nexa.polito.it/scaling-solutions-for-the-blockchain</a> |
| <b>Status</b>               | ongoing   |
| <b>Period</b>               | November 2015 - November 2018   |
| <b>Funding</b>              | 69,500 €  |
| <b>Funding organization</b> | TIM S.p.A.  |
| <b>Persons in charge</b>    | Marco Conoscenti (Ph.D. Student)  |

Scaling Solutions for the Blockchain is a Ph.D. research project started at Nexa Center for Internet and Society. The goal of the research project is to analyze capabilities and limitations of payment channel networks, the most explored solutions which aim to solve the well-known blockchain scalability issue. Since June 2017, the research project is conducted by the Nexa Center in cooperation with Fulgur Lab.

#### Background

Bitcoin is a decentralized cryptocurrency that allows mistrusting peers to send and receive monetary value without the need for intermediaries. Bitcoin relies on the blockchain, a distributed peer-to-peer public ledger which stores all the history of Bitcoin economic transactions.

The blockchain protocol, which is designed to contain centralization and to allow any peer to actively participate in the system, limits the transaction throughput. For this reason, Bitcoin and other blockchain-based cryptocurrencies do not

scale. Payment channel networks are the most promising solution to address the blockchain scalability issue, as they enable off-blockchain payments which are not subject to the blockchain throughput limit.

Payment channels are two-party bidirectional channels which allow the two channel parties to exchange an unbounded number of off-chain payments. Payment channels are linked together to form a payment channel network, which allows off-chain payments also to parties not directly connected by a payment channel.

The Lightning Network (LN) is the mainstream payment channel network, built for Bitcoin. At its current state of development, the LN presents critical features that, if not properly understood, implemented and controlled, might undermine the development of a healthy payment network.

Example of these critical features are: channel economic capacity, which limits payment amounts; channel unbalancing, which makes payment channels

unusable in one direction; uncooperative behavior of nodes, which may cause payment failures and lock of funds.

#### Objectives

The goal of this research project is to analyze capabilities and limitations of payment channel networks. To accomplish with this goal, we developed CLoTH, a simulator for payment channel networks. CLoTH takes as input parameters defining a payment network (e.g., number of channels per node, average channel capacity) and parameters defining payments (e.g., payment amounts and payment rate). It



simulates the input-defined payments on the input-defined payment network.

It produces performance measures in terms of payment-related statistics, such as probability of payment failure and time to complete payments. CLoTH is a valuable tool to identify issues, analyze solutions and steer future developments

of payment channel networks. So far, we designed and conducted three groups of simulations using CLoTH:

- (i) simulations on the Lightning Network, which allowed to discover non-operative configurations of the Lightning Network, i.e., configurations in which a payment is more likely to fail than to succeed;
- (ii) simulations on synthetic networks generated by the simulator, which analyzed the impact of the simulator input parameters on payment network performance;
- (iii) simulations which studied different network and protocol modifications on the Lightning Network (such as removal of the most connected nodes from the network, and protocol optimizations which address the identified LN issues).

### Results

The main achievements of this research project are:

- (i) The development of CLoTH, a simulator for payment channel networks and especially for the

Lightning Network, which constitutes the main technical solution to address the well-known scalability problem of the Bitcoin blockchain. CLoTH helps to identify issues of payment channel networks and to estimate the effects of protocol optimizations on the network. It also allows to simulate attack scenarios and to experimentally study the evolution of payment channel networks.

- (ii) Simulation results on payment channel networks. The main findings proved that the current most relevant issues of the Lightning Network are payment failures due to insufficient channel capacities; channel unbalancing, which causes payment delays and failures. On the other side, simulations proved that the Lightning Network is resilient to the removal of the most connected network hubs and can support a contained level of node uncooperativeness. Another remarkable finding was that a rebalancing approach that we designed and simulated

proved to be effective against channel unbalancing.

- (iii) A journal paper titled "The CLoTH Simulator for HTLC Payment Networks with Introductory Lightning Network Performance Results", presenting the CLoTH simulator and the first simulation results. The paper has been published in the MDPI Information journal in 2018, with authors Marco Conoscenti, Antonio Vetrò, Juan Carlos De Martin and Federico Spini.

- (iv) A literature review on the blockchain, which highlights the main research challenges of the blockchain (scalability and anonymity) and discusses possible applications of this technology. The literature review has been published as a paper titled "Blockchain for the Internet of Things: a Systematic Literature Review" in the proceedings of the 2016 IEEE/ACS 13th International Conference of Computer Systems and Applications (AICCSA), with authors Marco Conoscenti, Antonio Vetrò and Juan Carlos De Martin.

## 3.3 The laws of Connected Drones

*The project focuses on the legal framework for Unmanned Aircraft Systems operations and the main issues raised by drone operations in urban contexts*

|                             |   |
|-----------------------------|---|
| <b>Project Website</b>      | N/A   |
| <b>Status</b>               | ongoing   |
| <b>Period</b>               | July 2018 - December 2018   |
| <b>Funding</b>              | 22,500 €  |
| <b>Funding organization</b> | TIM S.p.A.  |
| <b>Persons in charge</b>    | Eleonora Bassi (Senior Researcher), Giacomo Conti (Junior Researcher) |

### Background

The development of Unmanned Aircraft Systems ('UAS'), also known as Remote Piloted Aircraft Systems ('RPAS'), or simply drones, offers a wide range of possibilities for the benefit of society, from agriculture to security, from environmental control to journalism, from infrastructure

inspections to medical assistance and humanitarian aid, as well as a fascinating variety of commercial services.

For the performance of UAS operations, as well as for data processing during the flight, the communication of geo-localization data, and the drone identification for flight control and security monitoring, UASs

use mobile communication networks, including their cloud computing resources and services.

In the next years the integration of mobile networks is going to be stronger, and 5G technologies will play a crucial role. The legal framework for drone operations is evolving too, fostering the development

of new safe and lawful activities.

### Objectives

The project's objectives included:

- (i) an analysis of the legal framework for UAS operations, taking into account both the new European Regulation on civil aviation and the Italian legislation, and the different legal sectors that are relevant for their lawfulness (e.g. data protection law, liability rules);
- (ii) a cross-disciplinary analysis of the main issues raised by

drone operations in urban contexts;

(iii) the definition of strategies for lawful experimental UAS operations in identified public areas;

(iv) dissemination activities.

### Results

The activities and the results by Nexa Center were:

- (i) a report on the relevant legal framework for drone operations: G. Conti, "Il volo di droni nel contesto normativo italiano ed europeo: problemi presenti

e future";

(ii) several meetings for sharing competences and results with the UAS engineering expert research group of the Politecnico of Turin (DIMEAS) and with experts from TIM spa;

(iii) the organization of a workshop on the laws of connected drones for urban operations (Workshop "Volo di droni in contesto urbano", 16 novembre 2018, Politecnico of Turin, Nexa Center for Internet and Society).

## 3.4 Observatory on fake news – Technical table for pluralism and correct information on digital platforms

*Technical table created by AgCom (Authority for the guarantees in communication) to guarantee pluralism and information correctness on digital platforms*

|                             |   |
|-----------------------------|---|
| <b>Project Website</b>      | <a href="https://nexa.polito.it/observatory-on-fake-news">https://nexa.polito.it/observatory-on-fake-news</a> |
| <b>Status</b>               | ongoing   |
| <b>Period</b>               | February 2018 - present   |
| <b>Funding</b>              | in-kind   |
| <b>Funding organization</b> | N/A   |
| <b>Persons in charge</b>    | Juan Carlos De Martin (Coordinator), Antonio Santangelo (Delegate at the table)                               |

The Nexa Center for Internet & Society is involved in a round table created by AgCom, the Italian Authority for the guarantees in communication, to safeguard pluralism and information correctness on digital platforms, especially during the electoral campaigns.

### Background

Because of the success of "Persuasori social", a project that involve Agcom to develop recommendations for the Italian Parliament on how to guarantee pluralism in the political electoral campaigns, the Nexa Center for Internet & Society has been asked by Agcom itself to take part to an institutional table with the same aims.

The participants to this table are Google, Facebook, Rai, Mediaset, Confindustria, Guild of journalists, some universities,

advertisers and many other stakeholders who directly influence information and its circulation in the public sphere.

They have been called, due to the concerns about the diffusion of fake news and misinformation in general, something which may influence the political life of a nation.



### Objectives

The table mentioned above aims at helping some actors like Facebook and Google, but also other stakeholders of digital communication, to find a way to self-regulation, to guarantee pluralism and the diffusion of correct information through digital platforms. This means that the State, represented by

AgCom, doesn't want to make national laws that may undermine the expression freedom of citizens, but it wants to contain the diffusion of fake news and misinformation, thanks to the help of the most influential subjects who may contrast their circulation.

### Results

The table is divided into five topics: (i) the definition of the phenomenon of online misinformation and on the methods to study it; (ii) the financing strate-



gies of the protagonists of misinformation; (iii) the fact checking, (iv) the media literacy; (v) the communication strategies to involve citizens in the fight

against misinformation itself. Every topic will be discussed to produce studies, research activities and practical tools to help the stakeholders of this sector find their way to self-regulation. In the intentions of AgCom, this should diminish the impact of fake news and misinformation in our democratic life

## *4. Education*

## 4.1 EDU-HACK – Hacking Education through eLearning and Open Education

*A project that improves digital skills of teachers in Higher Education and works on a new approach for their's capacity building in the digital world*

|                             |  |
|-----------------------------|--|
| <b>Project Website</b>      | <a href="https://eduhack.eu">https://eduhack.eu</a>  |
| <b>Status</b>               | ongoing  |
| <b>Period</b>               | September 2017 - August 2020   |
| <b>Funding</b>              | 437,990 € (126,710 € for Nexa)   |
| <b>Funding organization</b> | European Commission (Erasmus+ Cooperation for Innovation and the Exchange of Good Practices / KA203 - Strategic Partnership)   |
| <b>Persons in charge</b>    | Juan Carlos De Martin (Coordinator), Mattia Plazio (Project Manager), Antonio Santangelo (Senior Researcher), Selina Fenoglio (Administrative Manager), Giovanni Garifo (Technician) |

Edu-Hack is an education project that intends to directly address the recommendation of the European Commission on Opening Up Education to "support teachers' professional development through open online courses" (2013) by increasing the digital skills of the higher education teachers in creating innovative learning and teaching approaches and tools.

Run by Politecnico di Torino (Italy), Universidad Internacional de La Rioja (Spain), Coventry University (UK), Knowledge Innovation Centre (Malta) and ATiT (Belgium), Edu-Hack develops a capacity-building methodology that uses online course (EduHack online course) and face to face intensive training activities (EduHackathons), whereby teaching professionals learn how to produce digitally-supported learning experiences and have the opportunity to experiment with creative models and approaches to teaching and learning, with a focus on fostering collaborative learning and student engagement.

### Background

A number of recent policy initiatives have put a renewed emphasis on the creation and pedagogically-sound use of digital resources for education. In particular, the research accompanying the Opening Up Education Communication found that 50%-80% of students

in EU countries never use digital textbooks, exercise software, broadcasts/podcasts, simulations or learning games, that most teachers do not consider themselves as 'digitally confident' or able to teach digital skills effectively, and that 70% of teachers would like more train-



Hacking education with digital pedagogies

ing in using ICTs.

Within Higher Education, the emergence of Open Educational Resources (OER), Massively Online Open Courses (MOOCs) and other blended methodologies (such as for example Flipped Classroom methods) is vastly increasing the demand for digital learning opportunities.

On the demand-side, the request for such opportunities is increased further by continued promotion of lifelong learning, leading students to ask for customizable and flexible study experiences, which can be taken along with other responsibilities such as work.

### Objectives

The Edu-Hack project aims to tackle this problem at its source by:

(i) improving skills of higher education teachers in developing new learning and teaching approaches using open web and digital tools;

(ii) networking groups of educators in different countries, so as to share and combine work and improve cross-border collaborations;

(iii) matching teachers with other professionals (media-production experts, quality-assurance professionals, web developers etc.) to allow the creation of trans-disciplinary teams.

In particular, the Edu-Hack project:

(i) develops a methodology for a 1-2 days intensive course (prepared through an online collaborative learning phase), modelled after hackathons, whereby the higher education teachers work together to design and produce new learning content and teaching approaches;

(ii) organizes 3 instances of university teachers' hackathons around Europe;

(iii) sets up a European open resource database and network, which promote the reproduction of these events by other institutions and in other countries, either independently or with the help and expertise of the Consortium.

### Results

The following results are expected upon completion of the project:

(i) Curriculum for the eLearning course. The course-curriculum define contents, learning method and activities of the EduHack online course (distance learning part), providing to detail the framework on how users can participate and be involved.

(ii) EduHack online course (<https://eduhack.eu/course/>). The EduHack online course consists of a 6-8-week course, composed of 4 macro-area of activities and 19 learning modules. It covers the topics and activities defined in the curriculum and is based on a "connectivist" approach, where every learner is granted a web-space and builds knowledge in collaboration with other learners.

(iii) EDU-HACK Intensive Training Sessions. The online course

runs in three successive-rounds, each followed up by a 3-day intensive training session, where participants design prototype eLearning courses, OERs and MOOCs. Thus, each activity step is repeated three times, once for each round of the course.

(iv) EduHack intensive training sessions. The EduHack online course runs in three successive rounds, each followed up by 1-2 day's intensive training session (EduHackathons), where participants work together to design and produce new learning content and teaching approaches and tools.

(v) EduHack Community Hub (<https://hub.eduhack.eu/>). The EduHack Community Hub collects the contents produced by teachers during the EduHack online course and the EduHackathons, connecting the authors of the contents, the contents themselves and the topics of the course. It is a

knowledge space where EduHackers can meet, read and comment on each other's posts, exchange ideas, experiences and innovative practices in education.

(vi) EduHack Toolbox. The EduHack Toolbox carries the activities and results forward beyond the project life. It aims to set up a structure for independently organised an EduHack course and an EduHackathon. Under the EduHack Toolbox all outputs are openly licensed to allow for re-use and/or modification by third-party organisations.

At the end of May 2019, the first experimentation of the EduHack capacity-building programme has been successfully performed and finalised at the Universidad Internacional de La Rioja (Spain).

*5. Institutional Networks*

## 5.1 Global Network of Internet & Society Research Centers

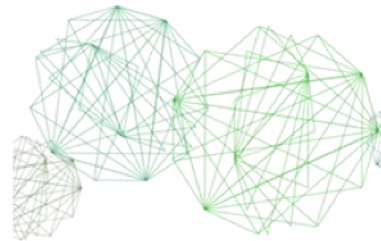
*A collaborative initiative among academic institutions with a focus on interdisciplinary research and a strong attention to the social impact and policy implications of their research agenda*

|                             |   |
|-----------------------------|---|
| <b>Project Website</b>      | <a href="http://networkofcenters.net/">http://networkofcenters.net/</a>     |
| <b>Status</b>               | ongoing   |
| <b>Period</b>               | October 2014 - present  |
| <b>Funding</b>              | 80.000 € (until 2016)   |
| <b>Funding organization</b> | Compagnia di San Paolo (in-kind from 2017)                                  |
| <b>Persons in charge</b>    | Juan Carlos De Martin (Coordinator), Antonio Santangelo (Senior Researcher) |

The Global Network of Internet & Society Research Centers (NoC) is a collaborative initiative among academic institutions (<https://networkofcenters.net/centers>) with a focus on interdisciplinary research and strong attention to the social impact and policy implications of their research agenda. Since late 2012, the Nexa Center is amongst its eight founding members and, between 2013 and 2014, has been involved in several NoC activities, as member of the Steering Committee. In particular, the roadmap and guiding principles for the NoC were discussed, with the aim to set up common practices for knowledge exchange amongst the NoC members (such as learning calls, workshops and conference), and joint research threads, focusing on interdisciplinary topics such as the role of online intermediaries, and Internet governance.

In October 2014 (until October 2016), the Nexa Center took the role of administrative coordinator of the Network, playing the role of contact point and facilitator. In particular, building on previous work and achievements, the main objective of the Nexa coordination strategy 2014-2016 is to contribute making the NoC the most relevant Internet & Society research community worldwide both as a group of institutions and as a

network of individuals. Several initiatives were foreseen in this respect. Some of them relate to internal management (including the online presence of the NoC), others with the facilitation of research projects, such as the ones on Internet Governance models and on the role of Online Intermediaries (see <https://www.networkofcenters.net/research>), as well as other special initiatives, such as the public consultation on the Italian Declaration of Internet Rights.



Between 2015 and 2017, the Nexa Center, in addition to actively participating in the informal (hangout calls) and formal (Berlin 2016, Rio de Janeiro 2017) meetings of the NoC, worked on the development and implementation of a semantic connected platform (<https://noc-wiki.nexacenter.org>), an umbrella tool that collects and connect knowledge, project, people, resources from the world of NoC.

During the reporting period the Nexa Center:

(i) participated (Juan Carlos De

Martin) in the NoC annual meeting held in Paris on November 15th, 2018 as part of the Internet Governance Forum (November 14th-16th, 2018);

(ii) presented (Elena Beretta) the research paper "Ethical and Socially-Aware Data Labels" ([https://nexa.polito.it/nexacenterfiles/Beretta\\_Data\\_Ethics.pdf](https://nexa.polito.it/nexacenterfiles/Beretta_Data_Ethics.pdf)) within the Conference "AI: Legal & Ethical Implications" held in the Center for Cyber Law & Policy, University of Haifa (<https://cyber.haifa.ac.il/>). The Conference is part of the initiatives promoted by the European Hub of the NoC (<https://noc-europeanhub.net/>);

(iii) is currently involved (Antonio Santangelo, Mattia Plazio) in the design and planning of an Erasmus+ Jean Monnet - Networks initiative in collaboration with other NoC European centers: Internet Interdisciplinary Institute (Barcelona), Alexander von Humboldt Institute for Internet and Society (Berlin), Center for Internet and Society (Paris), the Haifa Center for Law & Technology (Haifa), New Research on Digital Societies (Warsaw). The project, temporarily titled "Growing European Societies in the Digital Age: Sustainability, Social and Legal Issues", will be officially submitted in one of the next open calls of the Erasmus+ Jean Monnet - Networks programme.

## 5.2 Global Network Initiative

*A non-governmental organization with the dual goals of preventing Internet censorship by authoritarian governments and protecting privacy rights of individual*

|                             |   |
|-----------------------------|---|
| <b>Project Website</b>      | <a href="https://globalnetworkinitiative.org/">https://globalnetworkinitiative.org/</a> |
| <b>Status</b>               | ongoing   |
| <b>Period</b>               | March 2013 - present  |
| <b>Funding</b>              | in-kind (contributions from Fellows)  |
| <b>Funding organization</b> | N/A   |
| <b>Persons in charge</b>    | Carlo Blengino (Nexa Fellow), Monica A. Senor (Nexa Fellow)                             |

GNI champions fundamental human rights online, with a focus on privacy and freedom of expression.



GNI includes civil society and academic participants, but also investors and several major ICT companies (such as Google, Microsoft, Yahoo! or Facebook), with the aim of providing them with a standard framework to deal with fundamental rights online, ensuring accountability and enabling opportunities for policy engagement and shared learning across stakeholders. In March 2013, the Nexa Center for

Internet & Society joined the Global Network Initiative as the first Italian participant. Nexa was welcomed in GNI as "a critical source of interdisciplinary research, informed by expertise in technology, law, and economics, on Internet policy from a European perspective." During the reporting period, the Nexa Center participated in periodic calls and initiatives of the Network.

## 5.3 CINI – Laboratory for Informatics and Society

*Laboratory of the Italian National Inter-University Consortium for Informatics. It fosters research collaborations between Italian Universities for supporting policy making in understanding and governing the digital revolution*

|                             |   |
|-----------------------------|---|
| <b>Project Website</b>      | <a href="https://www.conorzio-cini.it/index.php/it/laboratori-nazionali/lab-informatica-e-societa">https://www.conorzio-cini.it/index.php/it/laboratori-nazionali/lab-informatica-e-societa</a> |
| <b>Status</b>               | ongoing   |
| <b>Period</b>               | April 2016 - present  |
| <b>Funding</b>              | in-kind   |
| <b>Funding organization</b> | N/A   |
| <b>Persons in charge</b>    | Juan Carlos De Martin (Director) Antonio Santangelo (Senior Researcher), Mattia Plazio (organisation)   |

The CINI - Italian National Inter-University Consortium for Informatics (<https://www.conorzio-cini.it/index.php/en/>) includes 10 national laboratories and 44 public Italian Universities, involving 1.300+ teachers in the scientific disciplinary sectors of Informatics and Computer Engineering.

It promotes and coordinates scientific activities - research and technology transfer - in the field of computer science, in

concert with the national scientific communities of reference.

The CINI - Laboratory for Informatics and Society (LabIS), whose director is Prof. Juan Carlos De Martin, includes 16 Nodes distributed throughout the national territory and corresponding to as many Universities consortiumed in the CINI (<https://www.conorzio-cini.it/index.php/it/home-informatica-e-societa/organizzazione-e-nodi>); each

Node is directed by a coordinator and includes teachers and researchers.

The LabIS aims at contributing to the national efforts in understanding and governing the digital revolution across several strategic sectors, from the economy to public administration, from geopolitics to education.

The research topics addressed in the Laboratory of Informatics and Society concern

the following macro areas: digital divide (infrastructural, cultural and economic), digital economy and competition, digital policy-making, automation and work, digital and education, privacy and human rights, ethical, legal, social and epistemological aspects of big data, net and platform neutrality.

Between 2016 and 2017, the Nexa Center supported the birth of the laboratory, its network and first activities, guiding the affiliation path to the LabIS of each node, creating, managing and animating its official mailing list, building a wiki-platform (<https://infsocieta-wiki.nexacenter.org/>) that collects and connect knowledge, project, people, resources from the world of LabIS.

The effort has been culminated in the organisation of the 1st annual event of the CINI - La-

boratory for Informatics and Society held in Torino on December 18th, 2017 as part of the 9th Nexa Conference entitled "Eth-



ics and Governance of Artificial Intelligence ([nexa.polito.it/conf2017](http://nexa.polito.it/conf2017)).

In addition, the LabIS collaborated with the Nexa Center to the organisation of the panel "Internet, Industry and Society" within the IEEE COMPSAC 2017 Conference held in Turin from 4 to 8 July 2017. A panel which was attended by one of the world's leading scholars on digital issues, Prof. Yochai Benkler of Harvard University.

During the reporting period, the Nexa Center:

(i) participated (Antonio Santangelo) to the CINI National Conference held in Bari in July 2018, illustrating the activities of the LabIS;

(ii) contributed (Antonio Santangelo) to draft to the Ethic Code of CINI - Italian National Inter-University Consortium for Informatics;

(iii) participated (Giuseppe Futia) to Ital-IA (<http://www.ital-ia.it/>), the first CINI National Conference on Artificial Intelligence held in Rome in March 2019 and organised by the CINI Laboratory on Artificial Intelligence and Intelligent Systems (AIIS) to develop and share common objectives between Italian public institutions, industry and universities.

*6. Teaching Activities*

## 6.1 "Digital Revolution": an Undergraduate Course at Politecnico di Torino

*A Politecnico di Torino undergraduate course, trying to understand the times we are living*

|                             |   |
|-----------------------------|---|
| <b>Project Website</b>      | <a href="http://rivoluzionedigitale.polito.it/">http://rivoluzionedigitale.polito.it/</a>                   |
| <b>Status</b>               | ongoing   |
| <b>Period</b>               | 2012 – present  |
| <b>Funding</b>              | Standard funding by Politecnico di Torino (additional support in-kind)                                      |
| <b>Funding organization</b> | Politecnico di Torino + Nexa internal funding   |
| <b>Persons in charge</b>    | Juan Carlos De Martin (lecturer), Giuseppe Futia (teaching assistant), Lorenzo Canova (teaching assistant). |

### Background

"Rivoluzione Digitale" (Digital Revolution) is an elective course for first-year students at Politecnico di Torino. It aims to contribute to the education of future engineers and architects as digital individuals, by providing students with the multidisciplinary knowledge required to

understand the digital revolution, and by teaching them practical online-world skills.

### Objectives

Ranging from business activities to culture, from politics to everyday life, digital-revolution effects are so deep and lasting that the traditional education of engineers and architects has to be complemented with selected multidisciplinary knowledge – legal, economic, historical and social to fully understand the aspects of the digital revolution and the related impact on society.

Moreover, on the practical side, responsible and aware digital citizens need to master online skills such as blogging, discussing on mailing lists and on twitter, producing short videos of themselves presenting their own work and ideas.

### Results

The course featured some guest lecturers among the Nexa Fellows (Carlo Blengino, Alessio Melandri) and the Nexa Research Fellows (Marco Conoscenti, Antonio Sant'Angelo). In 2019 we enrolled 153 students.

**RIVOLUZIONE  
DIGITALE**

plinary knowledge required to

## 6.2 "Digital technologies and society": a Master Course at Politecnico di Torino

*A Politecnico di Torino master course aiming at raising awareness on what being a computer engineer means in the age of the digital revolution*

|                             |   |
|-----------------------------|---|
| <b>Project Website</b>      | <a href="https://tds.polito.it/">https://tds.polito.it/</a>   |
| <b>Status</b>               | ongoing   |
| <b>Period</b>               | 2018 - present  |
| <b>Funding</b>              | Standard funding by Politecnico di Torino (additional support in-kind)                                |
| <b>Funding organization</b> | Polytechnic University of Turin + Nexa internal funding   |
| <b>Persons in charge</b>    | Juan Carlos De Martin (Coordinator and lecturer), Paolo Prinetto (lecturer), Antonio Vetrò (lecturer) |

### Background

In the age in which technological developments such as the Internet of Things, Artificial Intelligence, Big Data, social networks

and smartphones are revolutionizing economy, politics, culture, and personal relationships, the course aims at introducing the student to the reflection on the social impact of information technology and, vice versa,

on social conditioning on the development of information technology.



### Objectives

The goal of the course is to lead students to understand their role in society both as a professional and as citizens with certain technical and scientific skills.

The course is highly interdisciplinary, even though

it constantly refers to specific knowledge on information technologies.

### Results

The first edition of the course took place in the Academic Year 2018/2019. Lectures started in March 2019 and are programmed

until mid-June 2019. The students who enrolled in the course are 55. Examples of topics covered are professions and code of ethics; history of computers and Internet; interpretative models of technology; ethical and policy issues in information systems; data bias; algorithm fairness.

## 6.3 New media languages

*An undergraduate course at the online University eCampus*

|                             |   |
|-----------------------------|---|
| <b>Project Website</b>      | <a href="https://servizi.uniecampus.it/portale/erogaschedacorso.aspx?fn=SCCO032&amp;aa=2018">https://servizi.uniecampus.it/portale/erogaschedacorso.aspx?fn=SCCO032&amp;aa=2018</a> |
| <b>Status</b>               | ongoing   |
| <b>Period</b>               | 2015 – present  |
| <b>Funding</b>              | Standard funding of eCampus University  |
| <b>Funding organization</b> | eCampus University  |
| <b>Persons in charge</b>    | Antonio Santangelo (lecturer)   |

New media languages is a mandatory course for the second-year students of Communication Sciences at the University eCampus.

It is an online course which aims at illustrating how intermediate and transmedia communication strategies can be used, to turn "old media" like television, cinema, books, newspapers, videogames, etc., into "new media", which can offer their users new and meaningful communicative experiences.



Many examples are taken from political communication, so that students can learn how to use "new media" to involve people into communication projects that may help them

better participate to the democratic life.

### Background

Antonio Santangelo has always worked in the field of media studies. One of his main research topics is technological innovation and its cultural meaning. He has also worked as a TV author and as a spin doctor for political campaigns, to involve people into communication projects with the aim of empowering them with tools that may facilitate cooperation and knowledge sharing.

He has studied these projects from a linguistic point of view. His theory is that a certain usage of media language can move people to act in a clever way

### Objectives

The course aims at giving students two kinds of capacities:

some critical and some practical ones. The critical capacities are needed to distinguish clever intermediate and transmedia projects, the ones that can better raise the collective creation of knowledge and that can help people to share an intelligent and rich vision of the world.

The practical capacities are needed to help students to become media designers, so that they can project new interesting media experiences.

### Results

The course is attended from 350 students per year and is very appreciated, with a very high rank (5 points out of 5) in terms of the content's quality and interest. Many students do their final thesis on the topics of New Media Languages.

## 6.4 Nexa Summer School: AI: towards a critical utopia

*A summer school for Phd and MD students on AI, trying to see it in a positive way, without underestimating the dangers it may take to our democratic life*

|                             |  |
|-----------------------------|--|
| <b>Project Website</b>      | <a href="https://nexa.polito.it/nexa-summer-school-2019">https://nexa.polito.it/nexa-summer-school-2019</a>                              |
| <b>Status</b>               | ongoing  |
| <b>Period</b>               | June 2019 - July 2019  |
| <b>Funding</b>              | Politecnico di Torino + Nexa internal funding  |
| <b>Funding organization</b> | Politecnico di Torino  |
| <b>Persons in charge</b>    | Juan Carlos De Martin (Coordinator), Antonio Santangelo (Coordinator), Selina Fenoglio, Mattia Plazio, Francesco Ruggiero (organisation) |

In occasion of the Nexa Center's 2019 board of trustees, a summer school for Phd and MD students on Artificial Intelligence has been organized, to focus on AI from the point of view of a "critical utopia", that is of an anthropocentric technology, aware of the dangers it may take, if developed in the wrong direction. This perspective can only be interdisciplinary, and it has been built keeping together engineers, philosophers, social scientists, economists and ju-



rists.

### Background

The summer school was the natural development of a course for PhD students called "Topics in Internet & Society Interdisciplinary Studies", which had been given three other times, in the past, at Politecnico di Torino, in conjunction with the Nexa Center for Internet & Society's Board of Trustees.

### Objectives

The summer school aimed at strengthening the relationship between Politecnico di Torino and some prestigious foreign Universities, such as Harvard and Villanova (USA), Max Planck Institute (Germany), Université de Montréal (Canada), Bournemouth University (UK), Telecom ParisTech (France).

This goal had been pursued inviting some members of the Board of Trustees of the Nexa Center for Internet & Society (DAUIN) of the Politecnico di Torino - prestigious and very well known scholars coming from the Universities mentioned above - to give lectures, together with the personnel of the Nexa Center and with some of its Italian fellows, on Artificial Intelligence and its consequences on society, law and sustainability.

Another aim of this project was to give more visibility to the Nexa Center's teaching activities, by promoting them within the more than 90 members of the Global Network of Internet & Society Research Centers ([networkofcenters.net/](http://networkofcenters.net/)), which has been coordinated in the past by the Nexa Center itself and counts many very prestigious affiliate Universities from all over the world.

With some of these Universities - Von Humboldt Universität (Germany), Universitat Oberta de Catalunya (Spain), University of Haifa (Israel), Warsaw University (Poland), CNRS de Paris (France) - there is the idea of presenting in 2020 an Erasmus Plus Jean Monnet proposal to finance a research and teaching network that will include the Nexa Center's summer school as one of its main activities.

### Results

The summer school lasted 5 days and it involved the students in 18,5 hours of lectures and 19 of other cultural, recreational and sport activities.

It touched the following topics: Philosophy ("AI as a form of life"), Ethics ("For a fair AI"), Politics ("Algorithmic fairness and democracies"), Media ("Malfunctioning of the public sphere), Arts ("Visions of the AI"), Innovation and competitiveness ("The future of labour in an AI world), Property ("Data, algorithms, outputs. Who owns them?), Privacy ("How AI is affecting our private life?), Liability ("Who is responsible for activities performed with AI algorithms?), Open science ("AI as a common?")

## 6.5 Other teaching activities

*The other teaching activities of the Nexa Community linked to the life of the Center*

### *Riconessioni - Fondazione per la Scuola (Compagnia di San Paolo)*

Riconessioni is an education project ([www.riconessioni.it/](http://www.riconessioni.it/)) whose goal is to support teachers in bringing technological, organisational and didactic innovations in primary and junior high schools. The mission of the project is to create a model of educational innovation at a national level.

The Nexa Center participates to the project by organising and teaching to the laboratory "Essere digitali" ("Be Digital"), in which teachers are provided with an overview of the historical roots of the current digital revolution and of the latest technological developments.

In the reporting period (October, November, December 2018, and March 2019), Juan Carlos De Martin, Antonio Santangelo and Antonio Vetrò gave lectures (program and material available at [www.ricon-](http://www.riconessioni.it/notizie/laboratori/essere-digitali/)

[www.riconessioni.it/notizie/laboratori/essere-digitali/](http://www.riconessioni.it/notizie/laboratori/essere-digitali/)).

### *WIPO Master (LL.M)*

The World Intellectual Property Organization and the University of Turin organise a LL.M in Intellectual Property Law at the ILO International Training Center in Turin ([www.itcilo.org/masters-programmes/ll-m-in-intellectual-property](http://www.itcilo.org/masters-programmes/ll-m-in-intellectual-property)).

The LL.M is coordinated, starting from 2016, by Nexa Fellow Alessandro Cogo, who succeeded Nexa co-director Marco Ricolfi. Greater attention has been given in later editions of the LL.M to the implications of ICT on IP and, in particular, to the nexus between data, artificial intelligence and knowledge. The 2017 and 2018 annual conferences of the LL.M focused on the intersection between AI and IP, and on trade secrets protection.

### *Master School of Journalism*

From 2016, the Nexa Trustee Anna Masera is the director of the Master School of Journalism

at the University of Torino ([www.mastergiornalismo-torino.it/](http://www.mastergiornalismo-torino.it/)): such new leadership enables many opportunities of collaboration between the Nexa Center and the Master School of Journalism.

In the last year Marco Conoscenti and Giuseppe Futia, Ph.D. students at the Nexa Center, held a series of lectures on information security, to increase the master students' awareness on risks and opportunities in the use of digital technologies. In previous years Giuseppe Futia proposed practical laboratories on Web and semantic technologies.

Some insight on the drone journalism have been provided by Nexa Fellow Giovanni Battista Gallus and the co-Director Marco Ricolfi contributed with a lecture on copyright protection. On the other side, the students of the School of Journalism covered many events and initiatives carried out by the Nexa Center. In the following years, such collaboration will extend to joint projects.

*7. Funding, Organization, Relationships & Community*

## 7.1 Budget summary

Table 1 below summarizes the total costs sustained by the Nexa Center in fiscal year 2018.

|  |           |                     |
|--|-----------|---------------------|
| <b>Research personnel</b>  |           | <b>€ 269,400,00</b> |
| Nexa Center staff  | 152,000 € |                     |
| Tenured personnel  | 50,400 €  |                     |
| Research Ph.D.   | 67,000 €  |                     |
| <b>Other personnel</b>   |           | <b>83,000 €</b>     |
| <b>Other costs</b>   |           | <b>145,100 €</b>    |
| Events organization and communication  | 28,500 €  |                     |
| Travel (Nexa)  | 24,800 €  |                     |
| Travel (guests/speakers)   | 2,700 €   |                     |
| Equipment  | 4,300 €   |                     |
| Functioning costs (heating, phone, cleaning, etc.)   | 6,900 €   |                     |
| Outlays for the use of the Center venue  | 20,000 €  |                     |
| Surplus from projects to PoliTo personnel  | 38,400 €  |                     |
| Indirect costs (contribution to the Polytechnic University of Turin budget, deducted from Nexa projects) | 19,500 €  |                     |
| <b>Total costs</b>   |           | <b>497,500 €</b>    |

Table 1 Nexa Center: costs sustained in 2018

"Research Ph.D." (see Table 1) includes Ph.D. students: Marco Conoscenti (the scholarship financed by Telecom – now TIM) Giuseppe Futia (the scholarship financed by the Italian Ministry of Public Education) and Elena Beretta (the scholarship financed by Fondazione Bruno Kessler (FBK).

"Other personnel" (see Table 1) includes administrative per-

sonnel (Selina Fenoglietto), personnel dealing with events and communication (Francesco Ruggiero), technical personnel (Giovanni Garifo) and an estimate of the cost of other managerial activities, which are not directly related to research (e.g., 20% of the cost of Antonio Vetro from 1<sup>st</sup> April and 30% of Antonio Santangelo). Some cost entries (e.g., tenured personnel) include in kind contributions (see also Table 2 below).

The contribution of the Nexa Center to the budget of Polytechnic University of Turin is calculated as the share of the external funding deducted by the central administration or the Department of Control and Computer Engineering (DAUIN), mainly to cover indirect costs. This amount is going to increase: it was 19,500 € in 2018 and it will be at least 23,600 € in 2019.

## 7. Funding, Organization, Relationships & Community

| Project / other source of funding   | 2018             | 2019             | 2020             |
|---|------------------|------------------|------------------|
| EDU- HACK   | 36,300 €         | 40,800 €         | 36,700 €         |
| DECODE  | 36,000 €         | 28,000 €         | 20,600 €         |
| RRI-ICT Forum   | 12,300 €         |                  |                  |
| VIRT-EU   | 8,800 €          |                  | 6,600 €          |
| Past projects leftover  |                  |                  | 14,900 €         |
| Grant from Google – Copyright and Internet freedom                                  | 1,600 €          |                  |                  |
| Grant from Telecom Italia ("trade-off" privacy)                                     | 9,600 €          | 2,600 €          |                  |
| Grant from TIM S.p.A. (Connected Drones)  | 4,500 €          | 18,000 €         |                  |
| Grant from TIM S.p.A. (AI)  |                  | 27,000 €         |                  |
| Grant from AGID (White paper on Artificial Intelligence)                            | 19,900 €         | 21,200 €         |                  |
| Big Data Academy project -Intesa Sanpaolo   | 50,600 €         | 4,000 €          |                  |
| Riconessioni project - Fondazione per la Scuola della Compagnia di San Paolo        | 12,000 €         | 15,800 €         | 7,800 €          |
| POWER AWARE – Lights off, brains on   | 23,400 €         |                  |                  |
| Gift from eBay (Internet of Things)   | 39,100 €         | 4,200 €          |                  |
| Gift from Foundation P&P  | 3,000 €          | 27,800 €         | 17,100 €         |
| Gift from Urs Gasser  |                  | 1,000 €          |                  |
| Gift from Comitato ICT  |                  |                  | 30,000 €         |
| Research Ph.D.  | 67,000 €         | 50,400 €         | 28,700 €         |
| Research funding by Polytechnic University of Turin                                 | 32,200 €         | 28,000 €         | 12,200 €         |
| Contribution in kind from Polytechnic University of Turin (mainly personnel effort) | 111,200 €        | 147,400 €        | 147,400 €        |
| Contribution in kind from Prof. Marco Ricolfi                                       | 30,000 €         | 30,000 €         | 30,000 €         |
| <b>Total</b>  | <b>497,500 €</b> | <b>446,200 €</b> | <b>352,000 €</b> |

*Table 2 Nexa Center: expected funding in 2018, 2019 and 2020 (as of May 2018)*

Table 2 provides an overview of the sources of funding in 2018 and an estimation of the expected funding in 2019 and 2020, which are based on relatively conservative assumptions. In fact, only funding related to the ongoing relationships and agreements (even without strict

legal obligation to provide this funding, e.g. because it is subject to the discretionary evaluations of some funding institutions) is reported. No funding is listed in case of simple submitted and unapproved project proposals. It is also worth mentioning that some of the funding

threads are likely to be available and used by the Center also beyond 2018. In those cases, the figures reported do not capture the entire amount of the funding.

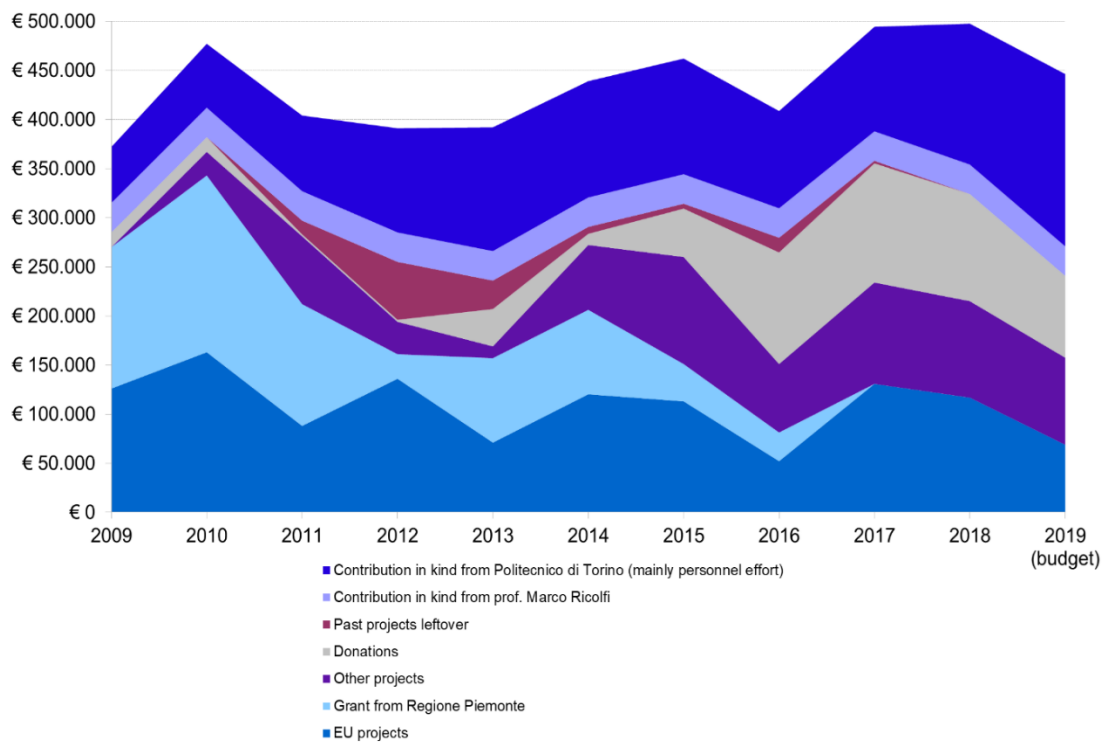


Figure 1 Composition of available financial resources (in Euros), 2009-2019

Figure 1 reports the composition of the available financial resources from 2009 to 2019 (forecasts only for 2019). It can

be noticed that funding from Regione Piemonte dried up in 2017 but is counter-balanced by donations and by contribution in

kind from Polytechnic University of Turin.

## 7.2 Accountability and transparency

The 'Accountability and transparency principles' of the Nexa Center are here reported, as finalized in December 10th, 2013, in light of the debate involving Nexa directors and trustees, and reported in the following page <https://nexa.polito.it/transparency-and-accountability>. The Nexa Center for Internet & Society is an independent research center. While the reputation of the center ultimately rests on the quality, consistency and integrity of its actions over the course of time, the Nexa Center also adopts several ex ante rules to support the independence of the center both in substance as well as in external perception. In this regard, the issue of funding is particularly sensitive. As a general principle,

the Nexa Center does not accept funding that may limit the ability of the center to carry out independent and unbiased research. The Center strives to ensure that its funding comes from a range of entities, including public sector bodies, foundations, the private sector and individuals, to minimize the dependency from any specific actor (or category of actors).

Since funding provided by for-profit entities is particularly sensitive, during each reporting period, including the one covered by this Report, the Nexa Center is committed to follow accountability and transparency guidelines concerning for-profit funding. Such guidelines are formalized as follows:

(i) The existence and the nature of all funding over € 1,000 will

be published on the website of the Nexa Center and regularly updated. Each year, the Nexa Center will also publish on its website the public version of its Annual Report, containing the same information.

(ii) In a given year, and as a matter of principle, funding coming from any single for-profit entity should not exceed 15% of the budget of the Center in that year. This threshold will be reexamined at each annual meeting of the Board of Trustees, according to the general principle that, if the Center budget increases, this threshold will be proportionally reduced.

(iii) The overall contribution coming from for-profit entities should in principle not exceed 1/3 of the overall budget of the Center in that year.

- (iv) If the aforementioned thresholds are to be exceeded, the case will be brought to the attention of the Board of Trustees which will issue a binding recommendation to be included in the Annual Report.
- (v) In any case, the relationship with for-profit funders will explicitly provide that the Nexa Center accepts to undertake a certain research activity based only on the scientific method and without being constrained by any previous indication or directive from the funder (e.g., in terms of expected deliverables and research products, apart from agreeing on the definition of the field of research and organizational details).
- (vi) Consultancy and similar activities involving more specific directives from a third party, if undertaken, will be clearly labeled as such.
- (vii) Any changes to these policies will be subject to the approval of the Board of Trustees.
- Regarding the reporting period, the funding guidelines have been respected as far as all points 1.–5. Regarding point 2., funding from a single for-profit entity (coming from Google Inc., Telecom, Intesa Sanpaolo, eBay, Foundation P&P and Fondazione per la Scuola della Compagnia di San Paolo) remained below the 15% cap (implying a maximum funding of about € 74,600 in 2018). The same goes for the criteria expressed at point 3. Given the estimations of the 2019 budget, all criteria will be respected also in the next reporting period.

| <b>Funding coming from for-profit entities</b>  | <b>% of 2018 budget (absolute value)</b> | <b>% of 2019 budget (absolute value)</b> |
|---|--|--|
| <b>Google</b>   | <b>0,32%</b>                             |  |
| Google Inc., 1600 Amphitheatre Parkway Mountain View, CA USA  | (1,600 €)                                |  |
| <b>Telecom Italia</b>   | <b>1,93 %</b>                            | <b>0,58 %</b>                            |
| Telecom Italia S.p.A., Piazza degli Affari n. 2, 20123 Milano                                       | (9,600 €)                                | (2,600 €)                                |
| <b>TIM</b>  | <b>0,90 %</b>                            | <b>10,09 %</b>                           |
| TIM S.p.A. Via G. Negri 1, 20123 Milano   | (9,600 €)                                | (45,000 €)                               |
| <b>Intesa Sanpaolo</b>  | <b>10,17 %</b>                           | <b>0,90 %</b>                            |
| Intesa Sanpaolo, Piazza San Carlo, 156 10121 Torino   | (50,600 €)                               | (4,000 €)                                |
| <b>eBay</b>   | <b>7,86%</b>                             | <b>0,94 %</b>                            |
| eBay Sweden AB Stockholm C/O Recall Deutschland GmbH<br>Landsbergerstrasse 140 Leipzig 04157 German | (39,100 €)                               | (4,200 €)                                |
| <b>Total from for-profit entities</b>   | <b>21,18 %</b>                           | <b>12,51 %</b>                           |

| <b>Funding coming from no-profit entities</b>                | <b>% of 2018 budget (absolute value)</b> | <b>% of 2019 budget (absolute value)</b> |
|--|--|--|
| <b>Foundation P&amp;P</b>                                    | <b>0,60 %</b>                            | <b>6,23 %</b>                            |
| Foundation P&R, <i>Via dell'Annunciata 23/2</i> 20121 Milano | (3,000 €)                                | (27,800 €)                               |
| <b>Fondazione per la Scuola della Compagnia di San Paolo</b> | <b>2,41%</b>                             | <b>3,54 %</b>                            |
| Corso Ferrucci, 3 10138 Torino                               | (12,000 €)                               | (15,800 €)                               |
| <b>Total from for-profit entities</b>                        | <b>3,01 %</b>                            | <b>9,77 %</b>                            |

## 7.3 Project Proposals

### 7.3.1 Proposals under evaluation

*Below are reported the abstract of the project proposals that has been submitted during the reporting period.*

#### 7.3.1.1 URBICC (EU Project)

*Fostering engagement with Cultural Heritage through Media, Playful Approaches and Collective Action in Urban Spaces*

|                             |  |
|-----------------------------|--|
| <b>Project Website</b>      | N/A  |
| <b>Status</b>               | Under evaluation   |
| <b>Period</b>               | N/A (duration: 36 months)  |
| <b>Funding</b>              | 3.450.056,25 € (360.625 € for Nexa)  |
| <b>Funding organization</b> | European Commission (H2020-SC6-TRANSFORMATIONS-2018-2019-2020 - Socioeconomic and Cultural Transformations In The Context Of The Fourth Industrial Revolution) |
| <b>Persons in charge</b>    | Juan Carlos De Martin, Antonio Santangelo, Mattia Plazio, Selina Fenoglio  |

#### Abstract

URBICC develops innovative ways of fostering engagement with both tangible and intangible cultural heritage by delivering and evaluating cultural experiences, activities and resources grounded on the principles of inclusivity, co-creativity and participatory cultures. This way, the project enriches traditional conceptions of cultural heritage by diverse cultural expressions catalysing a fruitful dialogue between the various local communities.

URBICC approaches cultural heritage through the lens of 'Urban Imaginaries' to diversify the range of voices involved in defining cultural heritage in different contexts. URBICC will research and produce innovative

use of a range of digital tools and applications to enable the cocreation, co-curation, remixing and sharing of personalised and collective cultural experiences, memories and artefacts.

The range of case studies from the diverse cities and towns across 8 different European countries will provide opportunities for comparative analysis and trans-local collaborations, producing insights on social, cultural and economic values.

The outcomes form an extended conception of cultural heritage, including new technologies and ephemeral digital artefacts, will serve to rejuvenate the work of traditional GLAM (Galleries, Libraries, Archives and Museums) and cultural tourism and help them

better connect with today's technologies to develop new audiences and reach marginalised groups.

URBICC targets a diverse set of communities across 8 countries, including those at risk of exclusion from experiencing cultural heritage because of different kinds of access barriers as a response to the Work Programme. The project will also engage with organisations, institutions and communities in the fields of cultural activism, tourism, and heritage in Europe.

The URBICC project will build upon the relevant expertise, skills and experience of the consortium partners (4 universities, 3 SMEs, 3 stakeholder bodies) across 8 European countries.

### 7.3.1.2 DEMOCREATE (EU Project)

*Digital European Market and Online Creative Regulation for an Entertainment, Art and Technology Ecosystem*

|                             |   |
|-----------------------------|---|
| <b>Project Website</b>      | N/A   |
| <b>Status</b>               | Under evaluation  |
| <b>Period</b>               | N/A (duration: 48 months)   |
| <b>Funding</b>              | 3,128,280,50 € (375,938 € for Nexa)   |
| <b>Funding organization</b> | European Commission (H2020-SC6-GOVERNANCE-2018-2019-2020 - Governance for The Future)       |
| <b>Persons in charge</b>    | Juan Carlos De Martin, Marco Ricolfi, Antonio Santangelo, Antonio Vetrò, Selina Fenoglietto |

#### Abstract

This project will assess the impact of the Digital Single Market (DSM) on EU Member States through the perspective of major actor and actants, including creators, users and online communities, Collective Rights Management Organizations University, Researchers and Educators, Cultural Heritage Institutions and Public Interest Organizations, Information Society Service Providers and Artificial Intelligence in order to assess and address cultural, legal and market hurdles involved with the DSM such as relevant effects on cultural diversity and identity, need for harmonization of national legal frameworks, competition in the market for cultural goods, and creation of

economic and cultural value through the promotion of alternative and innovative business models.

Focusing on actors or actants, and their network of relationships, rather than the markets within the DSM, the ultimate goal of the research project is nourishing people and their harmonious interplay and growth within the DSM.

To this end, this project aims at developing a theoretical framework and a research platform that would contribute to a further modernization of the existing policies for fostering creativity and innovation in the DSM, with special emphasis on the copyright law framework. This research platform will formulate and propose solutions

for securing fair and just remuneration for creators and creative communities in the DSM, while minimizing the EU digital divide, including competitive hurdles for smaller European cultural economies and major negative externalities for EU minority languages and cultures, promoting cultural diversity and identity, and protecting fundamental freedoms.

The advent of the DSM renders the much-awaited overhaul of the EU legal and policy framework on copyright and creative innovation in order to calibrate it to changes wrought by digitization and networked distribution a priority that can no longer be deferred.

### 7.3.1.3 OPEN SESAME (EU Project)

*Implementing Strategies to enable Open Science in Latin America*

|                             |   |
|-----------------------------|---|
| <b>Project Website</b>      | N/A   |
| <b>Status</b>               | Under evaluation  |
| <b>Period</b>               | N/A (duration: 36 months)   |
| <b>Funding</b>              | 995.165 € (58.900 € for Nexa)   |
| <b>Funding organization</b> | European Commission (Erasmus+ KA2 – Cooperation for innovation and the exchange of good practices – Capacity Building in the field of Higher Education) |
| <b>Persons in charge</b>    | Juan Carlos De Martin, Antonio Santangelo, Mattia Plazio, Giuseppe Futia  |

#### Abstract

Open Sesame Project aims to contribute to the strengthening of the scientific research capacity of Latin American universities by stimulating their incorporation into the Open Science movement according to national and international policies.

This general aim will be achieved through several specific objectives:

(i) Designing policies and institutional strategies (road-maps) based on national and international open science policies.

(ii) Integrating incentives and recognition to the academic career for the adoption of open science.

(iii) Developing a robust training program that strengthen the capacities of researchers and professionals in support of open science, with respect in particular to open access and FAIR data.

(iv) Developing information services and communication technology platforms that favor the Capacity Building in the field of Higher Education – Joint Projects Open Science in Latin America implementation of the

strategies identified.

(v) Adapting the institutional policies of publication/subscription in academic journals towards a

sustainable transition to open science.

(vi) Building bridges between institutional road-maps and national policies through the adaptation of good practices, the dialogue with policy-makers actors, and other actors of the national and regional Higher Education systems.

### 7.3.1.5 ALGO-AUDIT (EU Project)

*Network for Training Algorithm Auditors for Privacy-Preserving, Fair and Transparent Data-Driven Decisions*

|                             |   |
|-----------------------------|---|
| <b>Project Website</b>      | N/A   |
| <b>Status</b>               | Under evaluation  |
| <b>Period</b>               | N/A (duration: 36 months)   |
| <b>Funding</b>              | 413.728 € (85.200 € for Nexa)   |
| <b>Funding organization</b> | European Commission (H2020 - Marie Skłodowska-Curie Innovative Training Networks) |
| <b>Persons in charge</b>    | Juan Carlos De Martin   |

#### Abstract

ALGO-AUDIT is an international, multi-disciplinary, multi-sectoral training network coming together with the goal to train a first-of-its-class batch of fifteen Algorithm Auditors: innovative professionals able to evaluate and design privacy-

preserving, fair, accountable, and transparent algorithms; detect privacy threats and discriminatory situations and practices coming from algorithms; and mitigate algorithmic opacity, bias, and discrimination.

The ALGO-AUDIT network recognizes that concepts such

as privacy and fairness are not faceless statistical or computing concepts: they are ethical and societal constructs, anchored in law. At the same time, the analysis of data-driven algorithms requires technical expertise that goes far beyond the reach of ethics and social sciences scholars.

The Nexa Center is a Partner Organization of ALGO-AUDIT network and its role will be to award the Ph.D. degree to two Ph.D. students, supporting them in their researches and in the dissemination of the results.

### 7.3.2 Other (and previous) proposals

#### 7.3.1.4 c.i.t.A. (EU Project)

*Trusted and Crowdsourced Urban Artificial Intelligence*

|                             |  |
|-----------------------------|--|
| <b>Project Website</b>      | N/A  |
| <b>Status</b>               | Rejected   |
| <b>Period</b>               | N/A (duration: 36 months)                            |
| <b>Funding</b>              | 413.728 € (85.200 € for Nexa)                        |
| <b>Funding organization</b> | European Commission (UIA - Urban Innovative Actions) |
| <b>Persons in charge</b>    | Juan Carlos De Martin, Antonio Vetrò                 |

#### Abstract

Worldwide municipalities are trying to adopt data-driven technologies in order to implement evidence-based decision/policy making and to offer better services to citizens. However: (i) data are often missing or owned by private companies; (ii) there is a high risk of rejection in policies implementation if people do not understand/trust the adopted technologies; (iii) involving people in co-design is a must, though extremely complex.

City of Novara identified the digital transition as a key asset in the ongoing process of city requalification managed by the current Administration. Therefore, it identified a group of top-level local (and non) partners to develop a highly innovative project based on (i) frontier technologies; (ii) crowdsourced & inclusive approach; (iii) customer validation according to the Lean Methodology. Precisely c.i.t.A. aims at creating an urban Artificial Intelligence (AI)-based Virtual Assistant: (i) trained with data co-generated by citizens and temporary users (e.g. commuters, students); (ii) enriched

with open/private datasets; (iii) able to address people needs and to improve workability and life quality.

c.i.t.A. will enable a transition to digitally enriched interaction at urban level, while fostering technology awareness, social cohesion and participation. 3 use cases (City Experience, Urban Regeneration, Health) have been chosen, as the starting point, to leverage partners experiences and available data sources and to tackle key challenges addressed by the City Agenda.

### 7.3.2.1 DRONEDROME (EU Project)

*Innovative applications of drones for ensuring safety in transport*

|                             |  |
|-----------------------------|--|
| <b>Project Website</b>      | N/A  |
| <b>Status</b>               | Rejected   |
| <b>Period</b>               | N/A (duration: 48 months)  |
| <b>Funding</b>              | 2.000.000 € (170.000 € for Nexa)   |
| <b>Funding organization</b> | European Commission (H2020 - MG-2-8-2019 Innovative applications of drones for ensuring safety in transport - 1st stage of a two-stage submission procedure) |
| <b>Persons in charge</b>    | Juan Carlos De Martin, Antonio Santangelo, Eleonora Bassi  |

#### Abstract

Unmanned Aerial Vehicles (UAVs) are an attractive and rapidly growing business that is becoming a fundamental part of aviation in the near future.

UAVs have many potentially innovative applications across industries. As UAVs become an economically feasible option, it is important to enhance their autonomy so as to increase productivity. Unmanned aerial systems (UAS) are changing the nature of aviation, which is a

major driver for economic growth. Drones are driving numerous and evolving use cases, creating transformative socio-economic benefits. Drone operation requires wireless connectivity for communication between drones and ground control systems, among the drones themselves, and between drones and General Aviation's Air Traffic Management Systems (ATMS). In this context,

DRONEDROME aims at demonstrating the effectiveness of drones in four different

scenarios, related to transportation safety and transport infrastructure monitoring, by combining state-of-the-art hardware and software solutions, while sustaining an affordable prototype solution.

The proposed scenarios, all backed up by end-users, are: Air Transport (aircraft deicing inspection), Road Transport (traffic/road infrastructure monitoring), Railways Transport (rails monitoring), Railways/Waterborne (closed space monitoring).

### 7.3.2.2 AI Solutions for Education

*Facilitating access to scientific knowledge for the birth of a more conscious public opinion*

|                             |   |
|-----------------------------|---|
| <b>Project Website</b>      | N/A   |
| <b>Status</b>               | Rejected  |
| <b>Period</b>               | N/A (duration: 36 months)   |
| <b>Funding</b>              | 1.637.000 \$ (1.246.500 \$ for Nexa)  |
| <b>Funding organization</b> | Google (AI Impact Challenge)  |
| <b>Persons in charge</b>    | Juan Carlos De Martin, Antonio Santangelo, Mattia Plazio, Giuseppe Futia + Synapta team |

#### Abstract

According to many observers the lack of solid scientific knowledge is one important dimension of the malfunction of nowadays public sphere and democratic debate, taking to the raise of populisms, polariza-

tion, distrust in science. To address this problem, AI Solutions for Education intends to raise the average level of the culture of citizens using scientific articles published by universities affiliated to the Global Network of Internet and Society Centers (NoC) to automatically create - with the help of TellMeFirst, an

open source Artificial Intelligence tool developed by Nexa Center - public and free learning paths that exploit Wikipedia to gradually understand them. Facilitating access to scientific knowledge, AI Solutions for Education aims to contribute to the birth of a more conscious public opinion.

### 7.3.2.3 AI 360°

*Seeing things from every point of view*

|                             |   |
|-----------------------------|---|
| <b>Project Website</b>      | N/A   |
| <b>Status</b>               | Rejected  |
| <b>Period</b>               | N/A (duration: 36 months)   |
| <b>Funding</b>              | 191.500 \$  |
| <b>Funding organization</b> | Knight Foundation (Ethics and Governance of Artificial Intelligence Fund) |
| <b>Persons in charge</b>    | Juan Carlos De Martin, Antonio Santangelo, Mattia Plazio, Giuseppe Futia  |

#### Abstract

In the age of filter bubbles and polarization, it is in the public interest supporting citizens to give birth to a well-balanced and complex public opinion.

To do so, we need tools to show the information universe as it is: a system organized around recurrent and competing perspectives, that are reflected in the contents that circulate within it. This purpose can be pursued promoting the cooperation between artificial

and human intelligence, to design an algorithm that is able to:

(i) unravel implicit contents in every news or speech that shape the public opinion, completing them with relevant missing information;

(ii) analyse information fragments to highlight their underlying logical consistency;

(iii) compare how different sources of news produce their information flow. In parallel, it is important to enrich this algorithm with the contribution of its users, following the principle

according to which, in a democracy, citizens actively participate in the construction of socio-cultural spaces.

Therefore, users will be able to contribute to the functioning of the algorithm, both in its technical implementation - according to open-source principles - and in the evaluation of its results, in order to improve it. AI 360° aims to develop a tool to simplify the access of citizens to an impartial, transparent, inclusive and relational meta-informational level.

### 7.3.2.4 ACEWORK (EU Project)

*Accountability, Capability, and Empowerment in Algorithmically Mediated Work*

|                             |   |
|-----------------------------|---|
| <b>Project Website</b>      | N/A   |
| <b>Status</b>               | Rejected  |
| <b>Period</b>               | N/A (duration: 36 months)   |
| <b>Funding</b>              | 2.996.223,75 € (205.000 € for Nexa)   |
| <b>Funding organization</b> | European Commission (H2020-SC6-Transformations / Socioeconomic and cultural transformations in the context of the fourth industrial revolution) |
| <b>Persons in charge</b>    | Eleonora Bassi, Antonio Santangelo, Mattia Plazio, Selina Fenoglio  |

#### Abstract

The central mission of this project is to determine how European organisations can leverage the opportunities of new algorithmic labour management technologies to achieve inclusive and sustainable growth, while remaining fully cognizant

of their potential challenges to the workforce.

To this end, we research actionable measure to achieve accountability, capability, and empowerment in algorithmically mediated work from a multidisciplinary social-science perspective, including a variety of

methodologies and research contexts.

Building on a core legal and technical investigation of accountability and explanation measures, we will research the socioeconomic impact of the adoption of algorithmic man-

agement practices by established organisations, as well as the socioeconomic impact of new forms of digitally mediated platform work. In addition, this project will explore in detail the

impact of automated processes on how people experience work, careers, and their own skill development within the barriers of a constrained and digitally me-

diated system, as well as measuring how new forms of work can align with the goals of inclusion, diversity, and social cohesion.

### 7.3.2.5 EARNEST (Prin 2017)

*Ethics AwaReNESs Toolkit - A unifying framework for ethics-aware data governance*

|                             |   |
|-----------------------------|---|
| <b>Project Website</b>      | N/A   |
| <b>Status</b>               | Selected and subsequently Rejected due to form defect                 |
| <b>Period</b>               | N/A (duration: 24 months)   |
| <b>Funding</b>              | 1.198.621,30 € (183.872 € for Nexa)                                   |
| <b>Funding organization</b> | Ministero dell'Istruzione dell'Università e della Ricerca (PRIN 2017) |
| <b>Persons in charge</b>    | Juan Carlos De Martin   |

#### Abstract

The number of datasets available to legal practitioners, policy makers, scientists, and many other categories of citizens is growing at an unprecedented rate. Ethics-aware data processing has become a pressing need, considering that data are often used within critical decision processes (e.g., staff evaluation, college admission, criminal sentencing). The goal of the EARNEST (Ethics

AwaReNESs Toolbox) project is to inject ethical principles (fairness, non-discrimination, transparency, data protection, diversity, and human interpretability of results) into the data analysis lifecycle (source selection, data integration, and knowledge extraction) so as to make them first-class requirements. We will develop a comprehensive checklist of ethical desiderata for data protection and processing, and EARNEST will deliver methods and techniques to

ensure and verify that these ethically motivated requirements and related legal norms are fulfilled throughout the data selection and exploration processes. EARNEST will also deliver a unified data modelling and analysis methodology which, relying on the combination of appropriate conceptual and technical tools, will enforce the ethical specifications at all the steps of the information lifecycle oriented to knowledge extraction.

## 7.4 Organizational aspects

During the reporting period, there have been no new entries in the Nexa Staff, but only a farewell: Pasquale Pellegrino, who collaborated with the Center since 2016 working on Virt-eu project, has completed his job. In addition, a special mention is due to Antonio Vetrò who in February 2019 became an Assistant Professor with time contract at the Department of Control and Computer Engineering (Politecnico di Torino).

As every year, a significant number of interns and trainees have worked to support the staff. In the academic year 2018/2019 their number is growing, also thanks to a more structured collaboration with the Faculty of Law (University of Torino) and the degree course in Communication Sciences (University of Torino) and Cinema Engineering (Politecnico di Torino). The new interns are (or are been): Giacomo Conti, who worked supporting the researches on liability and privacy aspects in the sector of AI and drones (TIM projects); Francesco Mecca, who worked to

the development and implementation of a knowledge sharing platform connected to the Edu-Hack project; Claudia Gucione, Enrico Gobbo and Federica Giordano, who worked as technical support in the creation and development of Nexa City website; Nicolas Damanzio and Viola Inui Biffi, who are working on the creation of new media contents for the DigitCult project; Beatrice Bolzonella, who worked supporting the communication activities and the organization of the Nexa public events.

In addition, in the reporting period, also thanks to the collaboration with the European Training Foundation ([www.etf.europa.eu/en](http://www.etf.europa.eu/en)), the Nexa Center hosted two young Dutch high schools students, Felix Heemstra and Lennard Ruwiel, who supported Marc Perrin's research on filter bubbles in the information ecosystem.

### 1° Nexa Fellow Weekend

In the academic year 2018/2019, the Nexa staff also

organised the first Nexa Fellow Weekend. On 22-23 September 2018, at the Hotel Marina of the Viverone Lake, the whole community of Nexa Fellows met to talk informally about the present and future of the Center and to discuss topics of pressing relevance linked to the relationship between technology and society (labour market, the power of platforms, blockchain, countervailing powers of tecno-capitalism), always with a strong interdisciplinary perspective. The event was an opportunity for the Nexa Fellows to meet and exchange information on each other's research and activities, but also to reflect on possible new lines of research and potential joint projects to be developed in the near future.

Given the great success of the initiative, which has helped to further strengthen the community, the staff of the Center is already working to organise a second edition of the Nexa Fellow Weekend, which will be held next 21-22 September 2019 at the Certosa 1515 in Avigliana (TO).

## 7.5 Nexa Community

### Nexa Trustees

*The current list of the Nexa Trustees is available on page 68 of this report*

The Trustees of the Nexa Center for Internet & Society is a group of prominent personalities from the international academic and cultural world that evaluates the activities and monitors the independence and reputation of the Center.

The Board of Trustees meets at least yearly in Turin. During the meeting, which is open to all Nexa Staff and Fellows, the Board discusses with the participants the general "Internet & Society" scenario and provides advice and recommendations about future activities.

For the academic year 2019/2020, the Nexa Center is very glad to welcome three new prestigious members of its Board of Trustees: Francesca



Bria, Sandra Cortesi, Ugo Pagallo.

Francesca Bria

Francesca Bria, Senior Re-

searcher and Advisor on information and technology policies, is currently Chief Technology and Digital Innovation Officer for the City of Barcelona. As Senior Programme Lead at Nesta, the Innovation Agency of the United Kingdom, she has led the EU D-CENT project, the biggest European Project on direct democracy and digital currencies. She has taught in several universities in the UK and in Italy and she has been counselor for governments, public and private organization on topics such as technology and innovation policies.

In 2018 Francesca Bria has been included in the Top 50 Women in Tech from the magazine "Forbes". According to "Apolitical" she is among the 20

most influent people on the dig-



ital government worldwide.

Sandra Cortesi

Within the Youth and Media project she is leading at Harvard (Berkman Klein Center), Sandra Cortesi works closely with talented young people and lead researchers, looking into innovative ways to approach youth challenges in the digital world.

Together with Berkman Klein Center's Executive Director Urs Gasser and the Youth and Media team, she focuses on topics



such as inequitable access, information quality, risks to safety and privacy, skills and digital literacy, spaces for participation, civic engagement, and innovation.

Ugo Pagallo

Ugo Pagallo is a former lawyer and current professor of Jurisprudence at the Department of Law, University of Turin (Italy), member of the Expert Group set up by the EU Commission on liability and new technologies formation, he is also working with the European Institute for Science, Media, and Democracy (Atomium), in order to set up AI4People, the first global forum in Europe on the Social Impacts of Artificial Intelligence.

He recently published *Leibniz: Una breve biografia intellettuale* (Kluwer 2016); the Japanese edition of his book, *The Laws of Robots*, is available since Spring 2018.

### *Nexa Fellows and Faculty Associates*

*The current list of Fellows and Faculty Associates is available on page 76 of this report.*

Since its creation, the Nexa Center took advantage of the cooperation of a group of more or less strictly connected fellows, who provided countless insights and enriched the knowledge-sharing activity of the Nexa Center. The explicit model for this kind of interaction was the network of fellows of the Berkman Center for Internet & Society at Harvard University, obviously with several adaptations and on a smaller scale.

While Nexa Center Fellows typically contribute pro bono to the activities of the center, some of them, the "Research Fellows", perform a research specifically for the Nexa Center

as a Ph.D. Student or with some kind of research grant (e.g., as "assegnisti di ricerca"). "Faculty Fellows" are tenured professors of the Politecnico di Torino or of the University of Torino, which are the two universities forming the academic constituency of the Nexa Center.

Since 2013, the Nexa Center created the position of "Faculty Associate", i.e., scholars and lecturers whose field of research covers topics of interest for the Nexa Center. Formally becoming a Fellow of the Nexa Center implies the membership in a closed mailing-list devoted to the Fellows, the possibility of taking part to internal "closed-doors" meetings at the Center (for instance, brainstorming sessions, but also the meeting of the Board of Trustees) and, of course, the possibility of publicly using the title of Nexa Center for Internet & Society Fellow, and of appearing as such on the Nexa Center website.

On top of that, depending on their research proposals, fellows may receive a limited amount of financial support (defined on a case by case basis) and reimbursement for travel and similar expenses linked to their approved projects related to the Center. During the month of June, the Nexa Center usually announces its Fellows and Faculty Associates for the next academic year.

For the academic year 2019/2020, there are no new entries in the Nexa Fellows and Faculty Associates community.

## *7.6 Visitors at the Nexa Center and Nexa Researchers Abroad*

During the reporting period:

12-13 September 2018: Andrea Glorioso (Digital Officer - European Commission) has been a special guest of the Nexa Center. Thanks also to the collaboration with the Department of Control and Computer Engineering (Politecnico di Torino), he gave two lectures on the impact of the digital technologies on the politics and on the labour market;

1-3 October 2018: Richard Stallman (founder of the Free Software Movement) has been a special guest of the Nexa Cen-

ter. He participated in an internal meeting of Decode project, as a member of the Ethics Committee, and he gave a lecture on Computing, Freedom and Privacy in the digital age at the Department of Computer Science (University of Turin);

2-7 October 2018: Juan Carlos De Martin spent one week at the Berkman Klein Center for Internet & Society (Harvard University). He participated in some internal meetings focused to the future collaboration between the Berkman Klein Center and the Nexa Center, with particular regard to some common research lines on AI and to

the organisation of the upcoming Festival della Tecnologia (Turin, 7-10 November 2019).

8 October 2018-7 April 2019: Marc Perrin (director of the French high school Jean Giono in Turin) spent six months at the Nexa Center under the mobility programme Erasmus+. During his internship, as part of the post-graduate course "Sciences and techniques in society: mediation, innovation and heritage" organised by Centre National des Arts et Métiers, he worked on a research about filter bubbles in social media and he focused on the issue of TAV (high speed train) in Piedmont.

***8. Outreach***

## 8.1 Introduction

During the reporting period our communication strategy has been fine-tuned, devoting efforts to highlight the results of research projects, creating new opportunities for debate, discussion, and collaborations.

To reach this purpose, the Nexa Center has strengthened collaboration with the Master of Journalism "Giorgio Bocca" at the University of Turin, directed by the trustee Anna Masera.

Nexa Center, in order to increase the communication, published a transmedia storytelling project, Nexa City. Nexa City is a platform which communicates its narrative through a multitude of integrated media channels. Nexa City will create contents using various techniques to permeate everyday life.



Transmedia storytelling could also be an educational tool, wherein the audience interact with platforms, such as Twitter, Facebook, You Tube to share an engaging, and immersive environment. Nexa City is a virtual city where topics such as Big Data, Internet of Things, Factory 4.0, Online privacy, and Computer Ethics are presented with an interdisciplinary approach. In Nexa City places like the courthouse, the museum,

the cemetery, etc., show to which extent digital technologies influence the society.

The first building that has been populated with new content is the cemetery, dedicated to the topic of Digital Death (<https://www.nexacity.org>).

Nexa recorded and published several videos: brief interviews with the research fellows and the hosts of our seminars. Some of those videos have been used as supplementary material along with the papers submitted by our research fellows. All the videos are published on the youtube channel: <https://www.youtube.com/user/NexaCenter>. We are adopting a strategy to automatize the building of pages that summarize the same types of contents (for instance the page indexing all videos published on the homepage).

Since January 2018 we have started to send bimonthly reports to our trustees and fellows with a new graphic layout in order to update our community about the Nexa activities in a more effective and structured form. We also have devoted more attention to social networks (Twitter and Facebook) with the aim to providing visibility to discussions on the topics of internet and society animated by the Nexa community.

Since April 2019 Nexa Center has published a newsletter for all the Nexa list subscribers. The newsletter will regularly inform

the community of all the activities of the Nexa Center. The activities will concern researches, projects, education and events, such as seminars and conferences. The newsletter will include readings suggested by our researchers and a video interview, in which an expert of the community will discuss the



topics highlighted in the mailing list.

In order to focus and promote quantitative and interdisciplinary analysis of the force of the Internet and of its impact on society, the Nexa Center continues its collaboration with Digit-Cult, an academic journal of international scope, double-blind peer-reviewed and open access, aiming to value international research and to present current debate on digital culture, technological innovation and social change. The Nexa Center writes a newspaper column called "Provocations and dialogs" and cures a transmedia storytelling, which is a multimedia product that communicates its narrative through a multitude of integrated media channels for several Educational uses.

## 8.2 10th Annual Conference: Ethics and Governance of Artificial Intelligence

On December 18th, 2018 the 10th yearly Nexa Conference on Internet & Society took place at Polytechnic University of Turin.

This year the Conference focused on the role of urban digi-

tal commons in shaping the future governance of our cities, in the context of two ongoing projects: The Digital Open Urban Twin at the Future Urban Legacy Lab, and the H2020

project DECODE. Several sector experts who come from the scientific and humanistic academic fields have been involved, but also businessmen, Public Administration and media profes-

sionals. The Conference, gathered more than 100 people, including researchers, professionals and lawyers. The keynote speeches foresaw an array of different perspectives: economic, legal, societal and engineering. The Conference has been extensively communicated through the website, the mailing-lists and the social media channels of the Nexa Center and in close collaboration with the Communications Departments of the Polytechnic University of Turin and the University of Turin.

Some Nexa Fellows, such as Mauro Alovisio, supported the

dissemination of the conference through communication channels followed by Turin lawyers. Moreover, the conference was broadcasted live on our Youtube channel and supported by a live tweeting (using the hashtag #nexa2018).

One of the most important sessions of the Conference involved keynotes held by Francesca Bria (City of Barcelona), Antonio Casilli (Paris Institute of Technology) Stefano Lucarelli (University of Bergamo) and Irene Meta (Barcelona Supercomputing Center). The web page of the conference pub-

lished on the Nexa Center web-



site was one of its top 3 most visited pages during the last reporting period.

For additional information, see <https://nexa.polito.it/conf2018>

### 8.3 Nexa Wednesdays

The monthly meetings open to the public called "Nexa Wednesdays" became a usual appointment for the Nexa Center fellows and friends since September 2008. At the time of finalizing this report, 108 Nexa Wednesdays have taken place.

On September we celebrated the 100<sup>th</sup> Nexa Wednesday with a seminar held by Carola Frediani. The meetings are held on the second Wednesday of each month, from 18:00 to 20:00, and they are available in streaming at [nexa.polito.it/upcoming-events](https://nexa.polito.it/upcoming-events). Videos are available at: [www.youtube.com/user/NexaCenter](https://www.youtube.com/user/NexaCenter).

During the meetings, the audience following the live streaming can join the discussion via Twitter. The tweets are shown on a side screen. Attendance at Nexa Wednesdays as a rule exceeds 20 and sometimes 30 participants (thus, attendance frequently almost saturates the physical capacity of the Center's meeting room). In order to promote an interdisciplinary exchange on the Internet & Society field, also introducing new people to the discussion, guests of the meeting are encouraged to use a simple

language, avoiding unnecessary technicalities. You can find a list of all the Nexa Wednesdays at [nexa.polito.it/mercoledi](https://nexa.polito.it/mercoledi).

This is a short summary of Nexa Wednesdays that have taken place during the last reporting period:

109th Nexa Wednesday Social and promoting reading: TwLetteratura and Betwyll: June 13, 2018; guest: Edoardo Montenegro (Betwyll).

110th Nexa Wednesday the platform party. The transformation of the political organization: July 11, 2018; guest: Paolo Gerbaudo (King's College London)

111st Nexa Wednesday the future of work: Challenges and opportunities of digitisation; September 12, 2018; guest: Andrea Gloriosio (Digital Officer).

112nd Nexa Wednesday Opportunities and Challenges in the Legal Tech Services in the Italian and European Framework; October 10, 2018; guest: Giuseppe Vaciago (Lawyer-Fellow Nexa Center).

113rd Nexa Wednesday Turning point. Ecology and private law. From capital to common goods: November 14, 2018; guest: Ugo Mattei and Alessandra Quarta (Università degli

Studi di Torino).

114th Nexa Wednesday Revolution and Alienation (digital); December 12 2018; guest: Enrico Donaggio (Università degli Studi di Torino).

103rd Nexa Wednesday the freedom of expression at the age of social networks; December 13, 2017; guest: Monica Senor (Lawyer Fellow Nexa).

115th Nexa Wednesday Transparency online and the tool of the FOIA. Dialogue with citizens: scenarios and impact; January 9, 2019; guest: Mauro Alovisio (Università degli Studi di Milano).

105th Nexa Wednesday the first law in Europe about cyber-bullying; February 8, 2019; guest: Mauro Alovisio (Lawyer Fellow Nexa).

116th Nexa Wednesday Digital Photography: a journey between images and technique; February 13, 2019; guest: Enzo Obiso (Phos Center).

117th Nexa Wednesday Finance and Blockchain; March 13, 2019; guest: Marcio Casiraghi (DandYlion).

118th Nexa Wednesday Understanding cybergeography: visualizing how cyberspace and geopolitics interact April 10, 2019; guest: Kavé Salamatian

(University of Savoie). Learning Political DNA in the guest: Chiara Ravazzi (CNR\_IE-  
119th Nexa Wednesda Italian Senate: May 8, 2019; IIT).

## 8.4 Nexa Lunch Seminars

Since May 2012, the Nexa Center launched a series of meetings entitled "Nexa Lunch Seminars" held on the fourth Wednesday of the month, from 13.00 to 14.00. As in the case of Nexa Wednesdays, it is possible to follow all the meetings live over the Internet by streaming at: <http://nexa.polito.it/upcoming-events>. Audience interactions and dissemination are dealt in the same way as for the Nexa Wednesdays. A list of the Nexa Lunch Seminars is available at <http://nexa.polito.it/lunch-seminars>.

This is a short summary of Nexa Lunch Seminars that have taken place during the last reporting period:

60th Nexa Lunch Seminar Game jam and game storm: May 23, 2018; guest: Matteo Uggeri

(Fondazione Politecnico di Milano).

61st Nexa Lunch Seminar ICT4D to the test of socio-cultural values; June 27, 2018; guests: Diego Mariani and Antonio Vetrò (Nexa Center).

62nd Nexa Lunch Seminar A constitution for social media? July 25, 2018; guest: Edoardo Celeste (University College Dublin).

63th Nexa Lunch Seminar Power Aware. Lights off, brains on; September 26, 2018; guest: Emanuele Mottola (Politecnico di Torino).

64th Nexa Lunch Seminar Digital technologies and networks between complexity and inclusion; October 24, 2018; guest: Lorenzo Benussi (San Paolo Foundation).

65th Nexa Lunch Seminar

Blockchain and high frequency trading; November 28, 2018; guest: Davide Brunello (Università degli Studi di Torino).

66th Nexa Lunch Seminar AI Oracle 2081; January 23, 2019; guest: Piera Riccio (Politecnico di Torino).

67th Nexa Lunch Seminar Follow the Thing; li-ion battery; February 27, 2019; guest: Alberto Valz Gris (Politecnico di Torino).

68th Nexa Lunch Seminar Filter Bubble: myth or reality. March 27, 2019; guest: Marc Perrin (Cnam-Nexa Center).

69th Nexa Lunch Seminar Digital Incarnation. Saving humanity on the infosphere. May 22, 2019; guest: Don Luca Peyron (Università Sacro Cuore di Milano).

## 8.5 Nexa Research Seminars

Since 2018 the Nexa center has launched a new series of meetings entitled "Nexa Research Lunch", which has involved Nexa staff and Nexa fellows.

The Nexa Research Lunch promotes in-depth discussion on topics related to Internet and Society. The talks are meant to facilitate digital education by generating discussion on recently published books and on-going research projects.

This is a short summary of Nexa Lunch Seminars that have taken place during the last reporting period:

6th Nexa Research Lunch Aleksandr Blok: The nemesis of the bit: November 6, 2018; held by Francesco Ruggiero (Nexa Center).

7th Nexa Research Lunch Do Artifacts Have Politics? Analyzing Langdon Winner works November 6, 2018; held by Francesco Ruggiero (Nexa Center).

8th Nexa Research Lunch Countervailing powers of techno-capitalism: national sovereignty and supranational institutions; February 6, 2019; held by Marco Ricolfi (Nexa Center).

9th Nexa Research Lunch the EU's new copyright directive; February 29, 2019; held by

Marco Ricolfi (Nexa Center).

10th Nexa Research Lunch Technique and technology; April 3, 2019; held by Juan Carlos De Martin (Nexa Center).

11st Nexa Research Lunch A note in the margin of encyclopedia entry "Philosophy of Technology" May 29, 2019; held by Antonio Santangelo (Nexa Center).

Extra Nexa Research Lunch Storytelling the digital revolution. A seminar about "The Game", by Alessandro Baricco; February 1, 2019; held by Enrico Donaggio (Fellow Nexa Center).

## 8.6 Other Meetings

Other meetings organized by the Center during the reporting period have been:

Re-engineering Humanity, a seminar held by Brett Frischmann (Villanova University) with Philippe Agrain as discussant, in this wide-reaching, interdisciplinary book, Brett Frischmann and Evan Selinger examine what's happening to our lives as society embraces big data, predictive analytics, and smart environments, June 29, 2018.

Recasting the learned periodical in open access: from kingmaker to community content as king, a seminar held by Jean-Claude Guédon, who analyzed the way learned periodicals has changed in the last sixty years, giving rise to the Open Access Movement, June 29, 2018.

Copyright Law's Impact on Scientific Research, a seminar held by Prof. Lucie Guibault (Dalhousie University) and Massimo Durante (Università degli Studi di Torino) as discussant. The lecture examines how the European rules on copyright affect scientific research, in particular through text and data mining (TDM), June 29, 2018.

## 8.7 External Events

External events, which the Center has contributed to during the reporting period, have been:

Digital Open Urban Twin: at the Future Urban Legacy Lab, Antonio Vetrò has given the kick-off seminar of the DOUT project (Digital Open Urban Twin), an ambitious project that aims to incorporate and make accessible spatialized data - from multiple domains and sources- in a simplified but three-dimensional model of metropolitan space. Antonio Vetrò is the DOUT scientific coordinator and will lead a team of doctoral and post-doctoral researchers from seven different engineering disciplines, June 29,

Digital is political: communication and information technologies, a seminar held by Andrea Glorioso ((Digital Officer-Commissione Europea). <About the relationship between the European Union and the United States of America, from many points of view: trade, security, research and innovation, September 13, 2018.

High-resolution human mobility: from face-to-face interactions, a seminar held by Ciro Cattuto (Scientific Director ISI Foundation), about the network structures observed in empirical data, reflect on generalization and data incompleteness, and review modeling approaches based on ideas from network science and machine learning, January 15, 2019.

How the adequacy mechanism works: Progress in the EU's governance of cross-border data flows? A panel organized by University of Turin and Nexa Center for Internet & Society in CPDP Conferences, a non-profit platform originally founded in 2007 by research groups from the Vrije Universiteit Brussel, the Univer-

2018.

DAUIN Poster Day: Marco Conoscenti presented his Ph.D. research project "Scaling Solutions for the Blockchain" at the Ph.D. Poster Day of the Department of Control and Computer Engineering (DAUIN, Politecnico di Torino), October 11, 2018.

My Research in three minutes: Marco Conoscenti participated to the contest "My research in three minutes". The objective of the contest is to present the Ph.D. research project in just three minutes to a non-specialist audience, October 16, 2018.

Scienza Nuova; Marco Conoscenti, Antonio Vetrò and Juan

sité de Namur and Tilburg University. Chaired by Ugo Pagallo (Università degli Studi di Torino), January 30, 2019.

Algorithms, politics and democracy on social networks, a seminar held by Marc Perrin (Cnam-Nexa Center) on the topic of "algorithms", analyzing the way in which they began to govern our lives, reaching the field of politics, democracy and information, February 28, 2019.

Biennale Democrazia 2019. The 2019 Biennale Democrazia edition took place from 27th to 31st March in Turin. Juan Carlos De Martin and Gustavo Zagrebelsky talked about the ethical and democratic issues behind every technological evolution; Jean-Claude Guédon, in a lecture chaired by Juan Carlos De Martin, illustrated the role of "open science" as a barrier to the forms of power inherent in the process of production of scientific knowledge

Salone del Libro 2019, in partnership with Nexa Center, organized some events regarding publishing and digital culture, May 10-14, 2019.

Carlos De Martin were invited to talk about the digital revolution in the perspective of technology and humanism, in a series of public lectures titled "Scienza Nuova", at Circolo dei Lettori, Turin, November 19, 26 and December 3, 2018.

Master's in journalism "Giorgio Bocca"; Marco Conoscenti and Giuseppe Futia held a course on security information and tools for journalists, hosted by the University of Turin. The slides of the lectures entitled "Anonimato online e kit pratico di sicurezza per giornalisti" and "Crittografia e cancellazione" are available online, January 2019.

Blockchain for Social Good

Learning Academy, Marco Conoscenti participated to the Blockchain for Social Good Learning Academy. The topic of the academy was possible applications of distributed ledgers in the social field, January 30, 2019.

Focus on Open Science - Chapter XIII Turin; Antonio Vetrò

participated to the "Focus on Open Science - Chapter XIII Turin" conference, and he presented "Broad Research Data Commons: the example of the Digital Open Urban Twin at the Future Urban Legacy Lab", May 7, 2019.

Technological transformations, surveillance, law and

rights; Marco Conoscenti participated to the conference held at the Collegio Carlo Alberto in Turin. In his talk he illustrated the technical characteristics of Bitcoin and the blockchain, debunking some of the myths that have been created around this technology, May 30, 2019.

## 8.8 Website

During the ongoing year the site has been featured with in-depth analysis aiming to drive changes to contents placement in order to ensure more visibility into research, publishing and social networks.

During the reporting period the website collected a discrete amount of traffic: about 29.616 sessions from 18.710 different visitors, with an increase of 38% and 13% respectively, compared to the last year.

In addition, we worked on

pushing more contents through Nexa social media channel. This choice has been pursued by the production of more video contents and interviews which funneled more interaction on the social media. It is worth noting that in 2018 - 2019 our website had two exceptional peaks in popularity in December 2018 with the organization of the Nexa Annual Conference, and in March, in occasion of the 119<sup>th</sup> Nexa Wednesday, focused on Finance and Blockchain.

During the reporting period the website obtained a good international exposure: if 72,67% of traffic came from Italy, about 5% came from the US, about 3% from France, about 2% from Sweden and the UK, and about 1% each from India, Spain and Canada. The graph, relevant to the reporting period, (Figure 1), which includes daily page-views of the Nexa website, shows peaks in December 2018 and March 2019 as previously described.



## 8.9 Media Exposure

Traditional newspapers and magazines, such as "La Stampa", "Il Corriere della Sera", "Il Sole 24 Ore", "Il Venerdì di Repubblica", spread the Nexa Center's press releases and gathered opinions of Nexa community members on the "Internet & Society" topic.

During the last reporting period, the co-director Juan Carlos De Martin has continued a collaboration as op-ed contributor at "La Repubblica". Some of the matters discussed in the editorials of prof. De Martin gave rise to many discussions on social media and mailing list <http://nexa.polito.it/newsroom>.

On the newspaper "La

Stampa" (May, 29 2018) Federica Callegaro introduced Digital technologies and society, a Polytechnic University of Turin master course, held by Prof. Juan Carlos De Martin. The course aims to introduce the student to the reflection on the social impact of information technology and, viceversa, on social conditioning on the development of information technology - leading him to understand his role in society both as a professional and as a citizen in possession of certain technical and scientific skills.

On the Journal "Notiziario tecnico" (July 16, 2018) Antonio Vetrò, Antonio Santangelo and

Juan published a reflection about Artificial Intelligence between functionality and ethics. (<https://www.telecomitalia.com/tit/it/notiziariotecnico/edizioni-2018/n-2-2018/capitolo-9.html>) It is not enough, in fact, for Artificial Intelligence to be able to perform its functions in the best possible way; it is important that it also contributes to building a fairer society.

On the newspaper "La Repubblica" (July 20, 2018) the reflections of Prof. Juan Carlos De Martin, about market on digital industry, starting with the fine of over 4 billion, imposed on Google by the European Union

for abusing the dominant position of its operating system Android.

([https://nexa.polito.it/nexacenterfiles/Repubblica\\_20072018.pdf](https://nexa.polito.it/nexacenterfiles/Repubblica_20072018.pdf))

Center gave various inter-

views on "Internet & Society" issues to newspapers and radios (e.g., Rai Radio 1 and Radio 24), both traditional and online.

Some of the Nexa fellows are contributors in blogs and online newspapers, addressing issues related to many research

topics of the center. The Nexa fellow Fabio Chiusi, for instance, is one of the most important Italian journalists that discuss issues related to control, censorship, and digital surveillance. The Nexa fellow Carlo Blengino continues his collaboration as hosted blogger with "Il Post".

## 8.10 Mailing list and social media

The Center has three main mailing-lists:

The Nexa-Fellows mailing-list is a private list connecting the core Nexa Center collaborators; it is used for various purposes, including confidential communications and to coordinate the activities of the fellows on specific projects; the list has about 53 members (Nexa Center fellows, Faculty Associates, and staff) and relatively low traffic (about 175 messages since May 2017);

The Nexa mailing-list is used to inform all the fellows and friends of the Nexa Center about the events and publications of the Center, and to circulate information regarding

books, reports and other materials about "Internet & Society" in general; the list is open to anybody, upon subscription, and all the members can both read and post new messages; the list has about 787 members (770 one year ago) and collected 1,973 (1,500) posts since May 2017;

The Nexa-Announce mailing-list is a low traffic list used to spread information about Nexa Center public events and publications; it is open to anybody, upon subscription, in read only mode. The Center also uses various internal mailing-lists to connect the members of the staff and/or some sub-sets of them working on specific projects.

During the reporting period, the Center also increased the use of social networks Facebook (<https://www.facebook.com/nexa.center>) and Twitter (<https://twitter.com/nexacenter>). On Twitter, the center has 3,784 followers (an increase of 10% over the previous year). The total number of fans on Facebook is 2.200 1,984 (an increase of 10% over the previous year). YouTube Channel: we published 387 videos (an increase of 34% over the previous year); Lifetime views: 35,982 (25,002); reporting period: about 5,541 (4,682) views for a total of almost (31,000) minutes watched. The most watched video is the 114<sup>th</sup> Nexa Wednesday, held by Enrico Donaggio, Nexa Fellow

## 8.11 DigitCult Journal

For ten years, the second and fourth Wednesdays of the month, the Nexa Centre for Internet and Society has turned into a place where people discuss and analyse topics related to digital culture. Experts of various disciplines (scientists, jurists, sociologists, philosophers, journalists, artists and startupper) present their researches and the issues that their work has tackled to a wide and heterogeneous audience, to promote public debates and the circulation of ideas.

The new section Parole in codice (Words in code) intends to enhance the work of scientific divulgation of the Centro Nexa on the Internet and Society, selecting some of the most fascinating and debated topics during the meetings and proposing them, in the form of in-depth analysis and with new features, to the readers of the magazine DigitCult ([www.digitcult.it/index.php/dc](http://www.digitcult.it/index.php/dc)), with special attention to its online version. Words in code thus becomes an open window on the future, an original story about the relationship between man and the digital realm.

Center on the Internet and Society develops five different contents, which can also be used individually but which can be summarized and followed according to the four phases of the canonical narrative scheme of greimasian type (Manipulation, Competence, Performance, Sanction).

Using the canonical narrative scheme, we organize the elements into a structure consisting of five components: The action component can be broken down into two components: competence, which results from the factors that are required in order to accomplish the action (wanting-to-do, having-to-do, knowing-how-to-do, and being-able-to-do) and performance, the actual realization



Multimedia is the format proposed for the new section. Starting from the theme chosen from time to time, the Nexa

of the action, made possible by the acquisition of competence. Manipulation is the component that deals specifically with wanting-to-do and having-to-do. The last component, sanction, deals with evaluating whether the action was truly realized, and the corresponding retribution (reward or punishment) that the performing subject has incurred.

The contents produced are then collected and published in a web page / interactive map "linked" to the on-line version of the DigitCult magazine. Map

that ideally represents the city of the future and where the user, navigating from place to place, has the opportunity to explore topics and topics related to the digital culture. Among the contents realized, the scientific article - the heart and pivot of the storytelling path outlined above - is published as a paper in the paper version of the DigitCult Journal.

Sight sailing on the Lete Dialogue on the Digital Death, (<https://nexa.polito.it/nexacenterfiles>) by Mattia Plazio, Francesco Ruggiero, Juan Carlos De

Martin, Published 29 June 2018.

The paper introduces some of the most important issues raised by Digital Death studies. After briefly analyzing the concept of Digital Death, the authors report and comment on a conversation between two experts, namely the philosopher Davide Sisto and the writer Ade Zeno. Their dialogue highlights six keyreflections on Digital Death, which should serve as a basis for future research on the topic.

## *Annex I - Nexa People*

## ANNEX I — NEXA PEOPLE

Some pieces of biographical information about the co-directors, staff, trustees and fellows of the Center follow.

### 1.1 Directors

#### *Juan Carlos De Martin – Co-Founder and Co-Director*

See dedicated box at page 3 of the EXECUTIVE SUMMARY.

#### *Marco Ricolfi – Co-Founder and Co-Director*

See dedicated box at page 3 of the EXECUTIVE SUMMARY.

### 1.2 Trustees

#### *Philippe Aigrain*



Dr. Philippe Aigrain was trained as a mathematician and theoretical computer scientist and holds a Doctorate and a "Habilitation à Diriger les Recherches" qualification from University Paris 7. From 1972 to 1981, he worked in software engineering research labs of software companies. He was a research fellow at U.C. Berkeley in 1982. Since then, and before joining the European Commission in 1996, he headed research teams in the field of computer processing, indexing, retrieval and user interface for audiovisual media (video, music, still images). He is the author of more than 50 research and technology assessment papers. He is one of the founders of La Quadrature du Net, a non-profit association that defends fundamental rights in the digital sphere in France and in Europe. He is active as an analyst of the stakes of the information revolution and engaged in actions for the reform of intellectual rights regimes. He has authored books on this subject among which: "Cause commune: L'information entre bien commun et propriété", Fayard 2005 (translated in Italian and Arabic), and "Sharing: Culture and the Economy in the Internet Age", Amsterdam Univ. Press, 2012 (translated in Polish). His books and numerous papers on the information commons, access to knowledge and intellectual rights are accessible under CC licenses on his blog [paigrain.debatpublic.net](http://paigrain.debatpublic.net). Philippe Aigrain also writes poetry and short fiction pieces that are published on his literary blog [atelierdebricolage.net](http://atelierdebricolage.net). He is President of Créateurs et associés, the editorial firm of [publie.net](http://publie.net), a reference publisher for French-speaking literary works whose forms originate or thrive in literature written and shared on the Web.

#### *Yochai Benkler*



Yochai Benkler is the Berkman Professor of Entrepreneurial Legal Studies at Harvard, and faculty co-director of the Berkman Center for Internet and Society. Before joining the faculty at Harvard Law School, he was Joseph M. Field '55 Professor of Law at Yale. He writes about the Internet and the emergence of networked economy and society, as well as the organization of infrastructure, such as wireless communications. In the 1990s he played a role in characterizing the centrality of information commons to innovation, information production, and freedom in both its autonomy and democracy senses. In the 2000s, he worked more on the sources and economic and political significance of radically decentralized individual action and collaboration in the production of information, knowledge and culture. His work traverses a wide range of disciplines and sectors and is taught in a variety of professional schools and academic departments. In real world applications, his work has been widely discussed in both the business sector and civil society. His books include *The Wealth of Networks: How social production transforms markets and freedom* (2006), which received the Don K. Price award from the American Political Science Association for best book on science, technology, and politics, the American Sociological Association's CITASA Book Award an outstanding book related to the sociology of communications or information technology, the Donald McGannon award for best book on social and ethical relevance in communications policy research, was named best business

book about the future by Stategy & Business, and otherwise enjoyed the gentle breath of Fortuna. In civil society, Benkler's work was recognized by the Electronic Frontier Foundation's Pioneer Award in 2007, and the Public Knowledge IP3 Award in 2006. His articles include *Overcoming Agoraphobia* (1997/98, initiating the debate over spectrum commons); *Commons as Neglected Factor of Information Production* (1998) and *Free as the Air to Common Use* (1998, characterizing the role of the commons in information production and its relation to freedom); *From Consumers to Users* (2000, characterizing the need to preserve commons as a core policy goal, across all layers of the information environment); *Coase's Penguin, or Linux and the Nature of the Firm* (characterizing peer production as a basic phenomenon of the networked economy) and *Sharing Nicely* (2002, characterizing shareable goods and explaining sharing of material resources online). His work can be freely accessed at [benkler.org](http://benkler.org).

### Maurizio Borghi



Maurizio Borghi is Professor of Law at Bournemouth University, where he is the Director of the Centre for Intellectual Property Policy & Management (CIPPM). Prior to joining Bournemouth, he has been lecturer at Brunel University Law School, research fellow at Bocconi University of Milan and visiting scholar at the Center for the Study of Law and Society at the University of California, Berkeley. His research is primarily focused on developing a right-based understanding of law for the information society. In this vein, he has extensively published on the subjects of copyright, data protection, and the role of law in the digital age. His monograph *Copyright and Mass Digitization* (co-authored with Stavroula Karapapa) has been published in 2013 by Oxford University Press.

### Francesca Bria



Francesca Bria is a senior expert and advisor on technology and innovation policy. She is Visiting Professor at the Institute for Innovation and Public Purpose, UCL London and Associate Professor at ESADE Business School. She is currently the Commissioner of Digital Technology and Innovation for the City of Barcelona in Spain and she is leading the DECODE project on data sovereignty in Europe. Francesca is an advisor to the European Commission on next generation Internet and smart city policies. She has a PhD in Innovation and Entrepreneurship from Imperial College, London and MSc on Digital Economy from University of London, Birbeck. As Senior Programme Lead at Nesta, the UK Innovation Agency, she has led the EU D-CENT project, the biggest European Project on digital democracy and digital currencies. She also led the DSI project on Digital Social Innovation in Europe, advising the EU on digital social innovation policies. She has been teaching in several universities in the UK and Italy and she has advised governments, public and private organizations and movements on technology and innovation policy, and its socio-economic impact. Francesca has been listed in the Top 50 Women in Tech by the Forbes Magazine, and in the World's top 20 most influential people in digital government by Apolitical. She has been also featured in the Italian Magazine Repubblica "D", amongst the 100 Women Changing the World. Francesca Bria is an adviser for the European Commission on Future Internet and Innovation Policy. She is currently the new Commissioner of Digital Technology and Innovation for the city of Barcelona in Spain.

### Mario Calderini



Mario Calderini, a Ph.D. in Economics from the University of Manchester, is full Professor at Politecnico di Milano, School of Management, where he teaches Social Innovation. He is the Director of Alta Scuola Politecnica and Executive Vice President of Fondazione Politecnico. He is the Director of Tiresia, the Politecnico di Milano School of Management's Research Centre for Impact Finance and Innovation. He is a member of the Scientific Advisory Board of the Minister of University Research and Innovation and a Government's Sherpa for the G7 Italian Presidency 2017. His numerous publications in highly ranked international journals cover several topics in the field of innovation and social impact finance. He has been a

member of the G8 Task Force for Social Impact Investment, he chaired the Italian Advisory Board on Social Impact Finance, he is the President of the Scientific Committee of the Social Impact Agenda for Italy Association (Italy's NAB). He sits in the Italian Government's Advisory Group on Social Entrepreneurship and Impact Measurement and he contributed to promote the social innovation agenda in Italy, launching the sector's first public consultation. He has been part of the Government's Advisory Group that drafted the new law on social entrepreneurship. He is currently a member of the Government's Task Force on Social Impact Investment. He sits in the Director's Board of the newly established Nesta Italy Foundation.

### *Sandra Cortesi*



Sandra Cortesi is a Fellow at the Berkman Klein Center for Internet & Society at Harvard University and the Director of Youth and Media. She is responsible for coordinating the Youth and Media's policy, research, and educational initiatives, and is leading the collaboration between the Berkman Klein Center and UNICEF. At Youth and Media Sandra works closely with talented young people and lead researchers in the field as they look into innovative ways to approach social challenges in the digital world. Together with Berkman Klein Center's Executive Director Urs Gasser and the Youth and Media team, she focuses on topics such as inequitable access,

information quality, risks to safety and privacy, skills and digital literacy, and spaces for participation, civic engagement, and innovation. Sandra works in close collaboration with the Digital Asia Hub and FIR.

### *Luca De Biase*



Luca De Biase is a journalist and writer. He is the founder and chief editor of Nòva, the science and technology crossplatform section at Il Sole 24 Ore. He is the president of the scientific committee at MediaCivici Association, which is meant to research and help improve the information ecosystem emerging in the social media. He is author of Homo Pluralis, Economia della felicità, Il mago d'ebiz and In nome del popolo mondiale. He blogs at [blog.debiase.com](http://blog.debiase.com) and [lucadebiase.nova100.ilsole24ore.com](http://lucadebiase.nova100.ilsole24ore.com). He edited with Giorgio Meletti "Bidone.com". He contributed to the project and

implementation of various initiatives, such as Skillpass, ScienceXpress, I nonni raccontano, EquiLiber, Reporters Online. He teaches Knowledge Management and at Pisa university, journalism at Padova university and Sissa university. The Media Ecology Association awarded Luca with The James W. Carey Award for Outstanding Media Ecology Journalism 2016.

### *Josef Drexl*



Professor Dr. Josef Drexl, LL.M., graduated from the University of Munich and holds a Ph.D. degree (1990) and a habilitation degree of the same University, in addition to an LL.M. degree from the University of California at Berkeley. Josef Drexl worked as a law professor at the Universities of Würzburg and Munich from 1997 to 2006; he continues to be an honorary professor at the University of Munich. Since 2002 he has been a director of the Max Planck Institute for Innovation and Competition in Munich. In 2003, Professor Drexl was elected the first chair of the Academic Society for Competition Law (ASCOLA). As the Chair of the Managing Board of the Munich Intellectual Property Law Center (MIPLC) he is responsible for an internationally renowned LL.M. program in IP. He acted as a visiting professor at Oxford University, LUISS University (Rome) and New York University. He regularly teaches in the LL.M. program in EU law at the University of Paris 2 Panthéon-Assas. Professor Drexl is an expert in international and European competition law, intellectual property law, consumer law and WTO law.

### Brett Frischmann



Brett Frischmann joins Villanova as The Charles Widger Endowed University Professor in Law, Business and Economics, effective August 1, 2017. In this new role, Professor Frischmann will promote cross-campus research, programming and collaboration; foster high-visibility academic pursuits at the national and international levels; have the ability to teach across the University; and position Villanova as a thought leader and innovator at the intersection of law, business and economics. A renowned scholar in intellectual property and Internet law, Professor Frischmann comes to Villanova from Cardozo Law School at Yeshiva University, where he was director of the Cardozo Intellectual Property and Information Law Program (2011-2016) and a Professor of Law. He is an affiliated scholar of the Center for Internet and Society at Stanford Law School, and a trustee for the Nexa Center for Internet & Society, Polytechnic University of Turin. Professor Frischmann most recently served as the Microsoft Visiting Professor of Information and Technology Policy at Princeton University's Center for Information and Technology Policy. Professor Frischmann's work has appeared in leading scholarly publications, including *Columbia Law Review*, *Cornell Law Review*, *Journal of Institutional Economics*, *Journal of Economic Perspectives*, *University of Chicago Law Review*, and *Review of Law and Economics*, among others. His forthcoming book co-authored with philosopher Evan Selinger, *Being Human in the 21st Century: How Social and Technological Tools are Reshaping Humanity* (Cambridge University Press), will examine techno-social engineering of humans, various 'creep' phenomena and modern techno-driven Taylorism. Professor Frischmann's books on the relationships between infrastructural resources, governance, commons and spillovers include *Infrastructure: The Social Value of Shared Resources* (Oxford University Press, 2012); *Governing Knowledge Commons* (Oxford University Press, 2014, with Michael Madison and Katherine Strandburg); and *Governing Medical Knowledge Commons* (Cambridge University Press, forthcoming 2017, with Michael Madison and Katherine Strandburg). Prior to his appointment at Cardozo Law, Professor Frischmann was on the faculty of the Loyola University Chicago, School of Law from 2002 to 2010. He also has served as a visiting professor at numerous institutions, including Columbia Law School, Cornell Law School, Duke Law School, Fordham University School of Law and Syracuse University College of Law.

### Jean-Claude Guédon



Prof. Jean-Claude Guédon began his career at Glendon College (York University) in Toronto, Ontario in 1970 and has been a professor at the Université de Montréal since 1973, first in the Institut d'histoire et de sociopolitique des sciences, and, since 1987, in the Département de littérature comparée. He is a long-time member of the Internet Society serving as co-chair of the program committee in 1996, 1998 and 2000, and member of the same committee in 1997, 1999 and 2002. In 1991, with Bill Readings and Walter Moser, he launched the first electronic scholarly journal in Canada: *Surfaces*. Between 1998 and 2003, he was Chair of the Advisory Board for CNSLP (Canadian National Site Licence Project, now known as CRKN (Canadian Research Knowledge network). From 2002 until 2006, he was a member of OSI's Information Program sub-board. Between 2003 and 2007, he was a member of the Advisory Board of eIFL (Electronic Information for Libraries). In 2006 he was elected (until November 2008) Vice-President of the Canadian Society for the Humanities and Social Sciences. He has advised numerous governmental bodies, including the Ministère de la Recherche (France) for their e-publication project in the humanities and the social sciences; the Agence de la francophonie for matters pertaining to new technologies; the Quebec Minister of Communication in charge of the information highway; and the Quebec Ministry of education for the integration of the new technologies into the curriculum. He regularly acts as expert for the European Commission. He is also on the editorial board of several journals, and his three books are all available in Italian. He is on the advisory board of Redalyc, an open access publishing platform based in Mexico, and he was invited to write an analysis for the 15th anniversary of the Budapest Open Access Initiative: "Open Access: Toward the Internet of the Mind". During his visit at the Nexa Center, prof. Guédon interacted with the staff and the fellows of the Nexa Center and worked on a research whose findings were presented during the 31st NEXA Wednesday (May 11, 2011): Toward a distributed mass digitization.

### Lucie Guibault



After nearly twenty years at the Institute for Information Law of the University of Amsterdam, Dr. Lucie Guibault will join as of 1 July 2017 the Schulich School of Law of Dalhousie University in Halifax, Nova Scotia, Canada. She studied law at the Université de Montréal (Canada) and received in 2002 her doctorate from the University of Amsterdam, where she defended her thesis on Copyright Limitations and Contracts: An Analysis of the Contractual Overridability of Limitations on Copyright. She is specialized in international and comparative copyright and intellectual property law. Lucie Guibault has been carrying out research for the European Commission, Dutch ministries, UNESCO and the Council of Europe. Her main areas of interest include copyright and related rights in the information society, open content licensing, collective rights management, limitations and exceptions in copyright, and author's contract law. Lucie will pursue her work on the impact of digital technology on the development of intellectual property norms at the Law and Technology Institute of the Schulich School of Law.

### Anna Masera



Anna Masera is an Italian journalist and Public Editor at La Stampa. She is also Director of the Labs and the Newspaper "Futura" of the Giorgio Bocca Journalism Master at the University of Turin. From 2014 to 2015, Anna was Head of Press and Communication Manager of the Chamber of Deputies. Anna Masera graduated in History at Yale in 1983. In 1984 she was awarded a master's degree in journalism from the Columbia University. In 1986 she started to work as journalist for "Italia Oggi", an Italian daily newspaper. Then she worked for the press agency Reuters and later for Mondadori, writing for two monthly magazines: "Fortune Italia" and "Espansione". In the meantime, she was also a consultant for the talk show "Milano, Italia" of the Italian public broadcaster. She started to work for Panorama "life and style" section in 1994 when Internet started to gain widespread diffusion. Since then she is following the development of new media: first she founded "Panorama Web", then she was hired by "La Stampa" in 1999 to launch their website.

### Angelo Raffaele Meo



1961-1969 Assistant Professor of Electrical Engineering at Politecnico di Torino. 1970- Full Professor of Computer Science at Politecnico di Torino. 1970-1999 head of "Centro per l'Elaborazione Numerale dei Segnali" CNR. 1979-1985 director of the "Progetto Finalizzato Informatica", CNR. 1991-1996 scientific director of "Centro di Supercalcolo Piemonte". He has published more than one hundred papers dealing with computer science. In particular, he investigated switching theory, hardware design, signal processing, speech analysis and synthesis, and pattern recognition. He has coordinated many academic and industrial national research projects on computer science. He was president of the Academy of Sciences of Torino. In 2002 he was called by the Italian Minister of Technology to preside at a Commission entrusted with the task of promoting open source in the Italian Public Administration.

### Charles Nesson



Charles Rothwell Nesson is the William F. Weld Professor of Law at Harvard Law School and the founder of the Berkman Center for Internet & Society and of the Global Poker Strategic Thinking Society. He is author of Evidence, with Murray and Green, and has participated in several cases before the U.S. Supreme Court, including Daubert v. Merrell Dow Pharmaceuticals. In 1971, Nesson defended Daniel Ellsberg in the Pentagon Papers case. He was co-counsel for the plaintiffs in the case against W.R. Grace that was made into the film A Civil Action. Nesson attended Harvard College as an undergraduate, and then Harvard Law School where he joined the list of only a handful of people in history to have graduated summa cum laude. Nesson was a law clerk to Justice John Marshall Harlan II on the United States Supreme Court, 1965 term. He then worked as a special

assistant in the Department of Justice Civil Rights Division. His first case, *White v. Crook*, made race and gender-based jury selection in Alabama unconstitutional. Nesson joined the Harvard Law School faculty in 1966, and was tenured in 1969. He is "currently leading a project to reify university as a meta player in cyberspace, to legitimize and teach poker and the value of strategic poker thinking, and to advance restorative justice in Jamaica". In 2006 he taught *CyberOne: Law in the Court of Public Opinion* with Rebecca Nesson and Gene Koo. He teaches courses in the law and practice of Evidence (how to prove the "truth"), Trials in Second Life, and a reading group with Fern Nesson on Freedom.

### Ugo Pagallo



Ugo Pagallo is a former lawyer and current professor of Jurisprudence at the Department of Law, University of Turin (Italy), member of the Expert Group set up by the EU Commission on liability and new technology/new technologies formation, he is also working with the European Institute for Science, Media, and Democracy (Atomium), in order to set up AI4People, the first global forum in Europe on the Social Impacts of Artificial Intelligence. He is also collaborating with the IEEE Global Initiative for Ethical Considerations in AI and Autonomous Systems; the European Science Foundation of Strasbourg,

France; and the Joint International Doctoral (PhD) degree in Law, Science and Technology, part of the EU's Erasmus Mundus Joint Doctorates (EMJDs). Author of eleven monographs and numerous essays in scholarly journals and book chapters, his main interests are Artificial Intelligence & law, network and legal theory, and information technology law (specially data protection law and copyright). The Japanese edition of his book on *The Laws of Robots* is available since Spring 2018.

### Maria Chiara Pievatolo



Maria Chiara Pievatolo is professor of political philosophy in the Department of Political Sciences at the University of Pisa. She has been theorizing and practicing the open access publishing in the field of humanities since the 90s of the last century, first as political philosophy editor of the *Sito Web Italiano per la Filosofia (SWIF)* founded by Luciano Floridi, and then as curator and founder of the "Bollettino telematico di filosofia politica", of the "Giuliano Marini" Archive, and of the book series *Methexis*. She is also a member of the open access Crui committee and one of the founding members

of the Aisa (Associazione italiana per la promozione della scienza aperta). Since the end of 2014 she has been one of the associate editors of the *Directory of the Open Access Journals* (Lund University). Since 2015, she has been the vice-president of the Associazione Italiana per la promozione della scienza aperta. A detailed list of her works, many of which hypertextual, experimental, openly accessible, can be found here:

[https://unimap.unipi.it/cercapersone/dettaglio.php?ri=5829&template=dett\\_publicazioni.tpl](https://unimap.unipi.it/cercapersone/dettaglio.php?ri=5829&template=dett_publicazioni.tpl)

### Michelangelo Pistoletto



Michelangelo Pistoletto was born in Biella in 1933. He began to exhibit his work in 1955 and in 1960 he had his first solo show at Galleria Galatea in Turin. An inquiry into self-portraiture characterizes his early work. In the two-year period 1961-1962 made the first *Mirror Paintings*, which directly include the viewer and real time in the work, and open up perspective, reversing the Renaissance perspective that had been closed by the twentieth-century avant-gardes. These works quickly brought Pistoletto international acclaim, leading, in the sixties, to one-man shows in important galleries and museums in Europe and the United States. The *Mirror Paintings* are the foundation of his subsequent artistic output and theoretical thought. In 1965 and 1966 he produced a set of works entitled *Minus Objects*, considered fundamental to the birth of *Arte Povera*, an art movement of which Pistoletto was an animating force and a protagonist. In 1967 he began to work outside traditional exhibition spaces, with the first instances of that "creative collaboration" he developed over the following decades by bringing together artists from different disciplines and diverse sectors of society. In 1975-76 he presented a cycle of twelve consecutive exhibitions, *Le Stanze*, at Galleria Stein in Turin. This was the first of a series of complex, year-long works called "time continents". Others are *White Year* (1989) and *Happy Turtle* (1992). In 1978, in a show at Galleria Persano in Turin, Pistoletto defined two main

directions his future artwork would take: *Division and Multiplication of the Mirror* and *Art Takes on Religion*. In the early eighties he made a series of sculptures in rigid polyurethane, translated into marble for his solo show in 1984 at Forte di Belvedere in Florence. From 1985 to 1989 he created the series of "dark" volumes called *Art of Squalor*. During the nineties, with *Project Art* and with the creation in Biella of *Cittadellarte - Fondazione Pistoletto* and the University of Ideas, he brought art into active relation with diverse spheres of society with the aim of inspiring and producing responsible social change. In 2003 he won the Venice Biennale's Golden Lion for Lifelong Achievement. In 2004 the University of Turin awarded him a laurea honoris causa in Political Science. On that occasion the artist announced what has become the most recent phase of his work, *Third Paradise*. In 2007, in Jerusalem, he received the Wolf Foundation Prize in the Arts, "for his constantly inventive career as an artist, educator and activist whose restless intelligence has created prescient forms of art that contribute to fresh understanding of the world."

### David Post



Prof. David Post recently retired from his position as the I. Herman Stern Professor of Law at the Beasley School of Law at Temple University, where he taught intellectual property law and the law of cyberspace. He is currently a contributor to the influential *Volokh Conspiracy* blog at the Washington Post, a Fellow at the Center for Democracy and Technology, and an Adjunct Scholar at the Cato Institute, while maintaining an active legal practice focused on the First Amendment. Professor Post is the author of *In "Search of Jefferson's Moose: Notes on the State of Cyberspace"* (Oxford, 2009), a Jeffersonian perspective on Internet law and policy, *"Cyberlaw: Problems of Policy and Jurisprudence in the Information Age"* (West, 4th Ed 2011) (with Brett Frischmann, Paul Berman, and Tricia Bellia), and numerous scholarly articles on intellectual property, the law of cyberspace, and complexity theory. He holds a Ph.D. in physical anthropology and taught in the Anthropology Department at Columbia University before attending Georgetown Law Center, from which he graduated summa cum laude in 1986. After clerking with then Judge Ruth Bader Ginsburg on the DC Circuit Court of Appeals, he spent 6 years at the Washington D.C. law firm of Wilmer, Cutler & Pickering, after which he then clerked again for Justice Ginsburg during her first term at the Supreme Court (1993 - 1994), before joining the faculty of the Georgetown University Law Center (1994 - 1997) and then Temple University Law School (1997 - 2015). Professor Post's writings can be accessed online at [www.davidpost.com](http://www.davidpost.com)

### Stefano Quintarelli



Stefano Quintarelli is a serial entrepreneur (and prolific blogger), who pioneered the commercial development of the Internet in Italy. In 2013 he was elected to the Chamber of Deputies of the Italian Parliament as an independent candidate in the list "Scelta Civica". He graduated in IT science at the University of Milan. In 1989 he founded M.I.N.E.R.S. (Milano Network Researchers and Students), the student telecom association that developed the first e-mail independent system in Italy. In 1994, he was one of the founders of I.NET, the first commercial ISP in Italy. He was one of the founding members of: CLUSIT, Italian association for IT security; AIPSI, Italian association of professionals of IT security (Italian division of ISSA.org). He has been a supporter of civic IT backing the first civic networks in Italy (e.g. RCM the civic network of Milan and ONDE - Online Desenzano). He is a supporter of network neutrality and knowledge sharing and he sustained since the beginning the activities of "Condividi la Conoscenza", the conferences organized by sen. Fiorello Cortiana and in 2005 he introduced in Italy the network neutrality topic in a congress with Lawrence Lessig and in other occasions. He is author of many books and papers on the Internet, published on the most important Italian newspapers. He chaired the Italian ISP association (AIIP) till January 2007. He has been awarded by "Corriere della Sera-Economia" as one of the 30 most innovative Italian entrepreneurs.

### *Bruce Sterling*



Bruce Sterling, author, journalist, editor, and critic, was born in 1954. Best known for his ten science fiction novels, he also writes short stories, book reviews, design criticism, opinion columns, and introductions for books ranging from Ernst Juenger to Jules Verne. His nonfiction works include "The Hacker Crackdown: Law and Disorder on the Electronic Frontier" (1992), "Tomorrow Now: Envisioning the Next Fifty Years" (2003), and "Shaping Things" (2005). He is a contributing editor of WIRED magazine and writes a weblog. During 2005, he was the "Visionary in Residence" at Art Center College of Design in Pasadena. In 2008 he was the Guest Curator for the Share Festival of Digital Art and Culture in Torino, Italy, and the Visionary in Residence at the Sandberg Instituut in Amsterdam. In 2011 he returned to Art Center as "Visionary in Residence" to run a special project on Augmented Reality. He has appeared in ABC's Nightline, BBC's The Late Show, CBC's Morningside, on MTV and TechTV, and in Time, Newsweek, The Wall Street Journal, the New York Times, Fortune, Nature, I.D., Metropolis, Technology Review, Der Spiegel, La Stampa, La Repubblica, and many other venues

### *Sacha Wunsch-Vincent*



Dr. Sacha Wunsch-Vincent is the Senior Economist at the World Intellectual Property Organization (WIPO) and Co-Editor of the Global Innovation Index. He joined WIPO in 2010 to help set up WIPO's economics work under the Chief Economist. At WIPO, he is one of the main authors of the World Intellectual Property Report and the Global Innovation Index. His primary research foci and current area of work are concerned with the interaction of innovation, intellectual property, and economic development. Before joining WIPO, he was an Economist at the OECD Directorate for Science, Technology, and Industry for seven years. Earlier he was the Swiss National Science Fellow at the Berkeley Center for Law and Technology (University of California, Berkeley) and the Peterson Institute for International Economics (Washington, D.C.). He has served as advisor to organizations such as the World Bank and the World Economic Forum, and has testified before governments and parliaments. His recent WIPO-CUP book on "Innovation in the Informal Economy of Developing Countries – Hidden Engine of Innovation?" was published by Cambridge University Press in December 2016. Sacha holds a Master of International Economics from the University of Maastricht with a Masters Thesis at MERIT and a PhD in Economics from the University of St. Gallen, Switzerland. He teaches International Economics at Sciences Po Paris, and the World Trade Institute in Bern.

## 1.3 Fellows

### Antonio Casilli – Faculty Fellow



Antonio Casilli is associate professor at the Paris Institute of Technology (ParisTech) and research fellow at the School for Advanced Studies in Social Sciences (EHESS). His research foci are digital technologies and human rights: privacy, free speech, health, and workers' rights. He is the co-founder of the European Network on Digital Labour (ENDL). Among his most recent books: *The 'Pro-Ana' Phenomemon* [Le phénomène 'pro-ana'], Presses des Mines, 2016; *What is digital labor?* [Qu'est-ce que le digital labor?], INA Editions, 2015; *Against the Hypothesis of the End of Privacy*, Springer, 2014; *Digital Relationships* [Les liaisons numériques], Editions du Seuil, 2010. His work is regularly featured in international media (Le Monde, BBC, Repubblica, CNN, La Vanguardia, Hankyoreh Shinmun, Kathimerini).

### Alessandro Cogo – Faculty Fellow



Alessandro Enrico Cogo (Ph.D., Pavia-Munich) is associate professor at the University of Turin Law Department. He lectures on IP, media and ICT law. He is also scientific director of the LLM in IP jointly offered by the University of Turin, WIPO and ITC-ILO. Author of a book on copyright contracts and of essays mainly on copyright and trademarks law, lately he has been dealing mostly with secondary liability issues, focusing in his later works on contributory infringement in patent law

### Enrico Donaggio – Faculty Fellow



Enrico Donaggio teaches Philosophy of History at the Università di Torino; *Figures du pouvoir* and *Écrire et penser* at the Université Aix-Marseille. He is author of *Una sobria inquietudine. Karl Löwith e la filosofia* (Feltrinelli, 2004; translated in French and Spanish), *Che male c'è. Indifferenza e atrocità tra Auschwitz e i nostri giorni* (L'ancora del Mediterraneo, 2005), *A giusta distanza. Immaginare e ricordare la Shoah* (L'ancora del Mediterraneo, 2010), *Direi di no. Desideri di migliori libertà* (Feltrinelli, 2016). He has edited *La Scuola di Francoforte. La storia e i testi* (Einaudi, 2005), *Karl Marx. Capitalismo, istruzioni per l'uso* (Feltrinelli, 2007), *C'è ben altro. Criticare il capitalismo oggi* (Mimesis, 2014), *K. Marx, Manoscritti economico-filosofici del 1844*, Feltrinelli 2018, *K. Marx - F. Engels, Manifesto del partito comunista*, Feltrinelli, 2017.

### Massimo Durante – Faculty Fellow



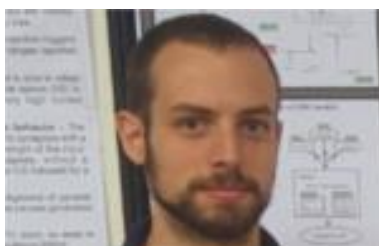
Massimo Durante is Researcher in Philosophy of Law at the Department of Law of the University of Turin. He holds a Ph.D. in Philosophy of Law, Department of Law, University of Turin, and a Ph.D. in History of Philosophy, Faculty of Philosophy, University of Paris IV Sorbonne. He teaches courses in Legal Informatics and Philosophy of Law at the Department of Law, University of Turin. He is member of the Board of the International Erasmus Mundus Ph.D. Program "Law, Science, and Technology". His main fields of research concern the relation between Law and Ethics, Legal Informatics, Computer and Information Ethics. Author of several books, he has widely published articles, essays and book chapters in Italian, English and French. He is also member of editorial boards and peer-reviewer for several international reviews. He has been involved in many research projects in the fields of Philosophy of Law, Legal Informatics, and ICTs policies. He is also currently interested in Governance Theory and Digital Democracy.

### Marco Torchiano – Faculty Fellow



Marco Torchiano is an associate professor at the Control and Computer Engineering Dept. of Polytechnic University of Turin, Italy; he has been post-doctoral research fellow at Norwegian University of Science and Technology (NTNU), Norway. He received an MSc and a Ph.D. in Computer Engineering from Polytechnic University of Turin. He is Senior Member of the IEEE and member of the software engineering committee of UNINFO (part of ISO/IEC JTC 1). He is author or co-author of over 130 research papers published in international journals and conferences, of the book 'Software Development—Case studies in Java' from Addison-Wesley, and co-editor of the book 'Developing Services for the Wireless Internet' from Springer. He recently was a visiting professor at Polytechnique Montréal on the software energy consumption topic. His current research interests are: green software, UI testing methodologies, open-data quality, and modeling notations. The methodological approach he adopts is that of empirical software engineering.

### Davide Allavena – Fellow



Davide Allavena is a master student of Physics at Università di Pavia. He is completing his thesis about biologically detailed computational models of the cerebellar cortex. In April 2015 he started his work as IT Manager at Nexa Center. His main research interests focus on network measurements, network neutrality, and open data technologies. Davide regularly contributes into the software development projects of the Nexa Center

### Mauro Alovisio – Fellow



Mauro Alovisio graduated in Law at the University of Turin, Italy. He has specialized in Data Protection and New Technologies Law. Currently he is working at the Legal Office of the University of Turin. During his professional activity he dealt with the privacy and the reorganization of the public administration through the use of the new technologies. Mauro is author of scientific articles published in Italian journals and co-author on law books. He is the President of "Centro Studi di Informatica Giuridica" and he is a member of the "Commissione Informatica del Consiglio dell'Ordine degli Avvocati di Torino". As part of his Nexa fellowship, Mauro will focus on research topics related to personal data in the EVPSI project and within the implementation of pilots in the Open-DAI project, also touching other issues related to public administrations in digital environment.

### Claudio Artusio – Fellow



Claudio Artusio graduated in Law at the University of Turin in 2009. He collaborates with the Nexa Center since the spring of 2010 focusing on Public Sector Information (PSI) and open licenses. As Staff Research Fellow, from 2013 to 2015, he performed support and research in the field of open contents and open licenses: he provided front office assistance for [Creative Commons Italia](#) and was the operation manager of [SeLiLi](#) – the Free Licenses Service clinic. In addition, he followed the advancement of the [LAPSI2.0](#) and [PASTEUR4OA](#) projects and managed the development of the research performed by the Nexa Center on the [Legal Aspects of Service Robotics](#) and on the exploitation of [Open Data within the Italian Parliament](#). Previously, he managed the contents of the [EVPSI](#) Research Project and the [LAPSI](#) Thematic Network websites, both dedicated to PSI, and studied the potential connections between Trademarks (and related IP rights) and PSI within the EVPSI Project.

### *Eleonora Bassi – Fellow*



Eleonora Bassi is a researcher and consultant with a legal and philosophical background. She graduated in Law and holds a Ph.D. in Philosophy of Law and Legal Theory (University of Torino). She worked at the Law School of the University of Torino (2008-2012) and at the Computer Science Department of the University of Trento (2012-2015). Her research fields are legal theory and political philosophy, privacy law, data governance, European IT policy, and legal theory.

### *Simone Basso – Fellow*



Simone (@[bassosimone](#) on [Twitter](#) and [GitHub](#), [sbs](#) on IRC) is a researcher at [Nexa Center](#) since 2010. He completed his Ph.D. in 2014 under supervision of prof. De Martin. His main research interest is measuring the internet from the edges with active means. During his Ph.D. he developed and now maintains [Neubot](#), a tool to measure internet performance. He contributes to [MeasurementKit](#) (a network measurement library for mobile and embedded devices) and [OONI](#) (a tool to measure internet censorship).

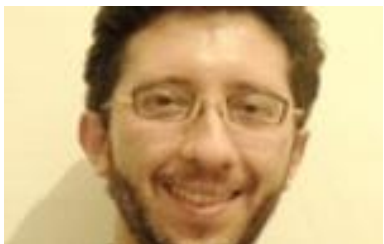
### *Lorenzo Benussi – Founding Fellow*



Lorenzo Benussi, master's degree in Communication Sciences and Ph.D. in Economics of Innovation, is advisor for digital policy at the TOP-IX Consortium where he develops projects and policies to support digital innovation. He was counsellor of the Italian Minister of Education and Research and member of task forces to promote online engagement and e-participation at the Ministry of Reforms and the Ministry of Foreign Affairs. Lorenzo is also member of the scientific board of Opencoesione, open data project of the Ministry of Treasury, and member of the board for innovation of the IREN

Group. Lorenzo is fellow of the Nexa Center for Internet & Society at the Polytechnic of Turin where he conducts researches on the economics of innovation, strategic management and economics of knowledge. Lorenzo main interest both as professional and researcher is the evolution of innovation models due to the pervasive diffusion of digital networks.

### *Enrico Bertacchini – Founding Fellow*



Dr. Enrico Bertacchini is assistant professor at the Department of Economics and Statistics "S. Cogneetti De Martiis", University of Turin, where he teaches Cultural Economics and Governance of Economic Processes. He graduated in Economics at the University of Turin and holds a Master in Economics from CORIPE-Collegio Carlo Alberto and a Ph.D. in Institutions, Economics and Law from the Universities of Turin and Gent. His main interests within the "Internet & Society" field concern Internet as an infrastructure for

the production of and access to information goods and the economic analysis of the information society. He has multidisciplinary competences concerning the economics of culture and the economic analysis of intellectual property, with a particular focus on commons-based models for the production of and access to information goods. His works has been published, among others, in the *Journal of Cultural Economics*, *International Journal of Cultural Policy*, *International Journal of Arts Management*, *Review of Law and Economics*, *Ecological Economics* and *Regional Studies*.

### Carlo Blengino – Fellow



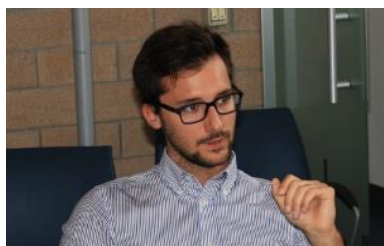
Carlo Blengino lives in Turin and is a lawyer and a partner of the legal firm "Studio Legale Catalano Penalisti Associati". Carlo deals exclusively with criminal law cases, with special reference to professional liabilities, economics criminal laws, intellectual property rights, ICT law, privacy and data protection. Since the early '90s he faced before the Courts main legal issues related to copyright, cybercrime, and ISP liability: among his many defenses, the one in the well-known sentence on downloading (Cass.149/07), the defense of many users in the Peppermint case, and on behalf of Google Inc., he was the defense lawyer of the Google Global Privacy Counsel in the Google vs. Vividown leading case. He is fellow of NEXA Center for Internet & Society at the Polytechnic University of Turin. He writes for some on-line journals and for scientific magazines and He has published contributions for several publishers: Giappichelli, UTET Giuridica, Egea ed Aracne. He has a personal blog on [ilPost.it](http://ilPost.it).

### Nicola Bottero – Founding Fellow



Nicola Bottero is a practicing lawyer with a degree in Law from the University of Turin with a thesis on comparative law. He also graduated in the Intellectual property Specialization Course jointly organized by the University of Turin and the WIPO Academy. On top of practicing private law, industrial law and commercial law, works with the Chairs of Commercial and Industrial Law at the Law Faculty of the Universities of Turin. He also teaches industrial law within some master degrees. He has been a member of the working group of Creative Commons Italy since its beginnings in 2003.

### Lorenzo Canova – Fellow



Lorenzo is Junior Product Manager at Prima Industrie S.p.a. for digital innovative products (Augmented reality, digital Twin and IIOT) while attending a 2 year Specialising Master in Manufacturing 4.0 at Politecnico di Torino. He is adjunct professor of the "Digital Revolution" course (Rivoluzione Digitale) held by prof. De Martin at Politecnico di Torino since 2015 ([rivoluzionedigitale.polito.it/](http://rivoluzionedigitale.polito.it/)). Between 2014 and January 2017, he has been research fellow and subsequently managing director of the Nexa Center for Internet & Society. For one year he has been managing coordinator of the Global Network of Internet & Society Research Centers.

### Fabio Chiusi – Fellow



Fabio Chiusi is a freelance journalist (Wired, L'Espresso, Repubblica) and blogger (ilNichilista, Chiusi nella rete) who regularly writes about Internet censorship, surveillance and the complex relationship between digital technologies, politics and society. He holds a MSc in Philosophy of Science from the London School of Economics. He is the author of *Critica della democrazia digitale. La politica 2.0 alla prova dei fatti* (Codice Edizioni).

### Marco Ciurcina – Founding Fellow



Marco Ciurcina is an Italian lawyer, working in the field of commercial and contractual law, Information Technology law, Copyright, Patent, Trademark, and Privacy law, particularly, with special focus on free software licenses, open content and open data. He teaches "Law and ethics of communication" at the Polytechnic University of Turin, Faculty of Information Science. Free software and digital freedoms activist.

### *Deborah De Angelis – Founding Fellow*



Deborah De Angelis has a degree in Law from Luiss University in Rome; in January 2000 she became a lawyer specialized in digital music law. In 2001 she founded the legal office DDA. She also authored various publications in matters relating to authors' digital rights. In May 2004 became a member of the Creative Commons Italy working group. Since January 2008 she is the President of A-DJ, an international associations who cares legally protecting and promoting professional DJs. She has a deep knowledge of all legal issues related to the working of collecting societies (with particular reference to the Italian Society of Authors and Editors, SIAE): this expertise is especially valuable within the Creative Commons and related projects. Since December 2008 she is the Coordinator of Creative Commons Italy / SIAE Working Group.

### *Giulio De Petra – Fellow*



Giulio De Petra received his degree in Economics from University of Siena, Italy. He worked in the service organization in BNL (Banca Nazionale del Lavoro), one of the top Italian banks, as expert in software design methodologies and in database administration. Later, he moved to the consulting division of IPACRI (Istituto per l'Automazione della Casse di Risparmio Italiane), where he was in charge of the research activities and projects. It has been senior consultant for the RSO Institute and it was for several years ICT advisor for the major of the city of Rome. Later, he became executive manager in AIPA (Autorità per l'Informatica nella Pubblica Amministrazione) - public local administration division. After he became director general for eGovernment at the Prime Minister's department of Public Administration where he promoted the first national plan for eGovernment. Afterwards he became general manager in CNIPA (Centro Nazionale per l'Innovazione della Pubblica Amministrazione) leading as a director the public local administration department. Giulio De Petra then became general executive manager for Innovation before for the Autonomous Region of Sardinia and later for the Calabria Region. It has been member of the Prime Minister's Committee for the Statistical Information Assurance and he was vice president of ASSINTER (National association of the regional public administration companies working in the ICT field). Since 2010 he has been working at Informatica Trentina, as executive manager. Giulio De Petra founded and supported many national associations working on political and social issues of technological innovation, including "ICT for Democracy", "Network", "The NetCentury – for a Free Knowledge Society".

### *Arturo Filastò – Fellow*



Arturo Filastò (@hellais) is Vice President of Hermes - Center for Transparency and Digital Human Rights and he is a free software developer at GlobaLeaks and The Tor Project. He studied Mathematics and is currently student of Computer Science at Università di Roma "La Sapienza". He collaborates with the Nexa Center in software development for network measurements, in particular those aimed at identifying cases of censorship.

### *Giovanni B. Gallus – Fellow*



Giovanni Battista Gallus is a lawyer, admitted before the Supreme Court, ISO 27001:2005 Certified Lead Auditor, founding member of the law firm "GM-LEX Studio Legale", and member of Array.eu, a network of IT Lawyers. He holds an LL.M. granted by the University of London - UCL, and a PhD by the University of Molise. He practices mainly in the field of Criminal Law, ICT Law, Copyright and Data Protection Law, Drone Law. He is teaching assistant in Information Technology Law and Advanced Information Technology Law at the School of Law of the University of Milan. Former President of the Italian Association of Cyberlawyers ("Circolo dei Giuristi Telematici"), and fellow of the Hermes Center for Transparency and Digital Human Rights, and a passionate user and supporter of Free Software.

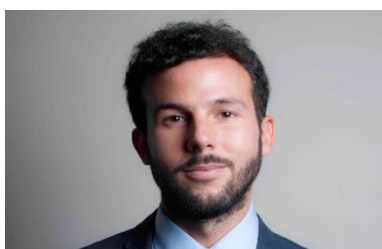
Author and co-author of several books and articles, among which "Contenuti aperti, beni comuni" (McGraw-Hill, 2009) and "The new Information Technology Crimes" (Giappichelli, 2009).

### *Raimondo lemma – Fellow*



Raimondo lemma is application manager in the ICT dept. of FCA Italy. Between 2007 and 2011, he worked for research and no profit institutions. He joined the Nexa Center in 2012 as Staff Research Fellow, serving as Managing Director for three years between 2013 and 2015, and managing coordinator of the Global Network of Internet & Society Research Centers for one year. His interests encompass open data, linked data, and open government (a list of his publications is available at [iris.polito.it/cris/rp/rp14877](https://iris.polito.it/cris/rp/rp14877)). He holds a MSc in Engineering management from Politecnico di Torino.

### *Guido Noto La Diega – Fellow*



Guido Noto La Diega is a Sicilian academic and practitioner who has been working on law & innovation over the last 9 years in Italy, the UK, Switzerland, Germany, Brazil, and Russia. Guido Noto La Diega is a Senior Lecturer in Cyber Law and Intellectual Property Law at Northumbria University, School of Law, where they are International Research Partnerships Coordinator and Co-Convenor of NINSO Northumbria Internet & Society Research Group. Holder of a PhD (Unipa), a postdoc (QMUL), and an HEA Fellowship, Guido has a strong publication and bidding record and their works on Cyber Law

and Intellectual Property have been cited by the EU Court of Justice's Advocate General and by the House of Lords. Outside of Northumbria and Nexa, Guido is Director of 'Ital-IoT' Centre of Multidisciplinary Research on the Internet of Things and Executive Committee Member of the Society of Legal Scholars, the oldest and largest society of law academics. Alongside research and teaching, Guido is a qualified lawyer called to the Bar of Italy in 2013 and Co-founder of consultancy firm DPA2018. Guido was part of the team who carried out "The law of Service Robots" collaboration between TIM's JOL CRAB and the Nexa Center for Internet and Society. They are currently working on a monograph on "Internet of Things and the Law" for Routledge and on research projects about AI and the blockchain.

### *Antonio Langiu – Fellow*



Antonio Langiu is a student of computer engineering at the Politecnico di Torino. He got in touch with the Nexa Center attending the Rivoluzione Digitale course. In November 2014 he started an internship at the Nexa Center to study the permission models used by applications available via app stores. He also studied how the advertising network libraries, included in mobile applications, use (or abuse) permissions to collect user's data. Actually he is participating in the Neubot project and in the development of the MeasurementKit library..

### *Stefano Leucci – Fellow*



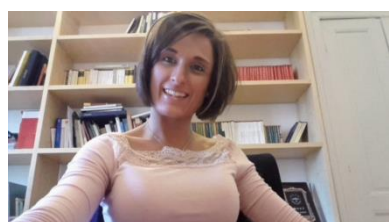
Stefano Leucci works in the field of data protection. He combines a legal background with IT skills for assessing and solving data protection issues, bridging the gap between legal teams and ICT departments. He has a wide range of experience in strategic advising for improving organizational efficiency and reducing risks of data breaches through gap analysis and digital forensics techniques. His main research interests are privacy-by-design methodologies and privacy enhancing technologies. @stefanoleucci

### *Alessio Melandri – Fellow*



Alessio Melandri is full stack developer at Synapta in Turin (<https://synapta.it/>), company specialized in the semantic Web and data driven applications. Having graduated in software engineering at Politecnico di Torino he has experience as programmer, in particular he works with data, refining, quering, providing visualizations and evaluating its quality. He joined the Nexa Center in 2014 after the course Rivoluzione Digitale (<http://rivoluzionedigitale.polito.it/>) held by Professor Juan Carlos De Martin. During 2014-2015 he collaborated with Nexa as intern, developing software, contributing to TellMeFirst (<http://tellmefirst.polito.it/>) and linked data projects. He has also experience in the open data field collaborating to Wikipedia, Wikidata and OpenStreetMap.

### *Lara Merla – Fellow*



Lara Merla is currently a Ph.D. candidate in Law and Institutions at the University of Turin. Lara earned her Degree in Law from the University of Turin in 2015 and her LLM in Comparative Law, Economics and Finance from the International University College in 2017. Since law school, she has been interested in issues of technological transformations and the law. Accordingly, both her basic degree and her master thesis were on big data and privacy. She has lectured on law and technology in a variety of continuing education programs. She is also engaged in part-time legal practice in the area of digital crimes. Her publication record includes the article "Droni, privacy e tutela dei dati personali" published by Informatica e Diritto, Redazione Ittig in 2016. She is also a peer reviewer for the international review Global Jurist. Since 2014 she regularly attended seminars and lectures at the Nexa Center for Internet & Society

### *Federico Morando – Fellow*



Federico is an economist, with interdisciplinary research interests focused on the intersection between law, economics and technology. His research activity mainly concerns models of production and sharing of digital contents, with a focus on linked (open) data. He also taught intellectual property and competition law at Bocconi University in Milan, and he lectures at the Politecnico di Torino and at the [WIPO LL.M. in Intellectual Property](#). He has an undergraduate degree in Economics from Bocconi Univ. and a master's degree in Economic theory and econometrics from the Univ. of Toulouse. He holds a [Ph.D. in Institutions, Economics and Law](#) from the [Univ. of Turin and Ghent](#) with a dissertation about software interoperability. Federico joined the working group of the Nexa Center in 2006 at the beginning of its first year of formal activity. From Dec. 2012, he leads the Creative Commons Italy project and he is a member of the Open Team of Regione Piemonte that launched and steers the development of the first Italian open government data portal. From 2008 to 2012, in his position as the first Managing Director of the Center, he worked closely with the Directors to define staff and project goals and to coordinate the Center's fellows. From 2013 to 2015 he served as Director of Research and Policy of the Nexa Center, focusing on the coordination of the cross-disciplinary research activities of the Center and on the related policy support actions. At the end of 2015 Federico left the staff of the Center to become a co-founder and the CEO of [Synapta](#), an innovative start-up specializing in linked data and the first spin-off of the Nexa Center. He continues to serve as a fellow of the Center and as the public lead of CC Italia.

### *Fabio Nascimbeni – Fellow*



Fabio Nascimbeni, an economist with a PhD on Information and Knowledge Society, works as Assistant Professor in the Universidad Internacional de La Rioja (UNIR) in Spain, is a fellow at the Centro de Estudios sobre Tecnologia e Sociedade of the University of Sao Paulo (USP) in Brazil and a Senior Fellow of the European Distance and eLearning Network (EDEN). He has been active in the field of learning innovation and ICT for learning since 1998, working across Europe as well as in Latin America, the Caribbean, the South Mediterranean and South-East Asia. His main research interests are open education, learning innovation, digital literacy, social networking.

#### *Monica A. Senor – Fellow*



Former criminal lawyer specializing in privacy, data protection, ICT law and digital forensics, Monica A. Senor has been a member of the staff of the Italian Supervisory Authority (Garante per la protezione dei dati personali) since December 2018. She is fellow of the Nexa Center for Internet & Society at the Politecnico di Torino (DAUIN), an independent research center focusing on interdisciplinary analysis of the force of the Internet and of its impact on society. She is the author or co-author of many publications, including online reviews (Medialaws.eu, ictsecuritymagazine.com, AgendaDigitale.eu), scientific journals and law textbooks (edited by Egea, Giappichelli, Springer, UTET Giuridica and Aracne publishing houses).

#### *Massimo Travostino – Founding Fellow*



Massimo Travostino graduated in law from University of Turin (1993) and has a post-graduate degree in international and comparative law (1996). He is a practicing lawyer at Studio Legale Pecoraro-Travostino and assists public entities and private companies in commercial and contract law, with a focus on intellectual property/information technology and telecommunication sectors. He carries out regular teaching activity and is author of articles and essays.

#### *Giuseppe Vaciago – Fellow*



Giuseppe Vaciago has been a lawyer of the Milan Bar since 2002 and he is actually a partner of R&P Legal Firm. For the last 10 years his primary focus has been IT Law with a focus on cyber crime. He has assisted many national and international IT companies. Academically, he received his Ph.D. on Digital Forensics from Università di Milano and he is a Professor at Insubria University (Varese and Como) where he holds a course on IT law. He recently attended Fordham Law School and Stanford Law School as a Visiting Scholar to expand his studies in his own particular research area. Giuseppe Vaciago is the author of many publications on cybercrime, including both scientific journals and textbooks, which have been adopted by the University where he teaches. He has also delivered many lectures and presentations in both Italy and abroad. He is fellow at the Cybercrime Institute of Koln and member of the Editorial Board of Journal of Digital Investigation. As part of his Nexa fellowship, Giuseppe will propose research topics related to digital forensics and fundamental rights from an "Internet & Society" perspective and big data and social control.

## *1.4 Faculty Associates*

### *Simone Arcagni – Faculty Associate*



Simone Arcagni is Associate professor at University of Palermo. His main research interests encompass cinema, new media and new technologies. Moreover, he teaches at Scuola Holden in Turin and IULM University in Milan. He is curator of "Digita!", head of "EmergingSeries" research group and director of "EmergingSeries Journal". He regularly collaborates with: "Nòva-Il Sole 24Ore", "Film TV", "Oxygen", "Segnocinema", "Agorà" and other scientific reviews. He runs a personal blog (Postcinema) on "Nòva100" site. He is consultant and collaborator of different festivals, conferences, editorial series, reviews, and he further take part to many national and international scientific boards. *Visioni digitali.*

*Video, web e nuove tecnologie* (Einaudi 2016) is his last work.

### *Giancarlo Frosio – Faculty Associate*



Giancarlo is a Senior Researcher and Lecturer at the Centre for International Intellectual Property Studies (CEIPI), University of Strasbourg. Giancarlo dedicated most of his academic career to studying the interface between technology, innovation, creativity, and intellectual property through the lens of international, European and American law. Giancarlo is a qualified attorney with a doctoral degree in IP law from Duke Law School. Additionally, he holds an LL.M. from Duke Law School, an LL.M. in IT and Telecoms law from Strathclyde University, and a law degree from Università Cattolica of Milan. Giancarlo is also a Non-Residential

Fellow at the Center for Internet and Society at Stanford Law School. Previously—from 2013 to 2016—he was the Intermediary Liability Fellow with Stanford CIS. At Stanford CIS, Giancarlo launched the intermediary liability research focus area of the Center, the World Intermediary Liability Map (WILMap), and the Stanford Intermediary Liability Lab (SILLab). Since 2013, Giancarlo also serves as affiliate faculty at the Harvard CopyrightX program, where he lectures and coordinates the Turin University Affiliated Course, whose first edition he personally launched. He is a Lecturer of the LL.M. in Intellectual Property law jointly organized by WIPO and the University of Turin, where he also served as the Deputy Director and Lecturer from 2010 to 2013. He is a Faculty Associate of the NEXA Research Center for Internet and Society in Turin. Previously, Giancarlo served as a post-doctoral researcher at KU Leuven Center for IT & IP (CiTiP), COMMUNIA Fellow at the NEXA Center and CREATE Fellow at the University of Nottingham. As a COMMUNIA and CREATE fellow, Giancarlo drafted extensive reports on the digital public domain and open access publishing respectively. As an attorney, Giancarlo worked with the Intellectual Property & Technology Group of a prominent international law firm. Giancarlo is the author of numerous legal articles and publications.

### *Daniele Trincherò – Faculty Associate*



Daniele Trincherò is professor at Politecnico di Torino (Dept. of Electronics and Telecommunications), where he manages the iXem Labs (which he co-founded with Riccardo Stefanelli in 2004). His research interests encompass Wireless Networks, Sensor Networks, Internet of Things, and solutions to reduce digital divide in developing countries, and in marginal areas of developed ones. He is member of the Institute of Electrical and Electronics Engineers (IEEE).

### *Giorgio Ventre – Faculty Associate*



Giorgio Ventre is Professor of Computer Networks in the Department of Electrical and Information Engineering of the University of Napoli Federico II where he is leader of the COMICS research group on computer networking and multimedia communications. He owns a laurea degree in Electronic Engineering and a Ph.D. in Computer Engineering, both from the Federico II. From 1991 to 1993 he was with the Tenet Group at the International Computer Science Institute and the University of California at Berkeley. In 1993 he joined the University of Napoli Federico II first as an assistant professor. In

1999 Giorgio Ventre was co-founder of ITEM, the first national research laboratory of the Italian University Consortium for Informatics (CINI), and from 2004 to 2011 was President of CRIAI, an industrial research center on ICT in Napoli. He is now Director of ITEM and member of the board of CINI. He has been principal investigator for a number of national and international research projects and in four EU-funded research projects on the Future Internet. Giorgio Ventre has co-authored more than 200 publications and he is senior member of the IEEE and of the ACM, and he is member of AICA and of IET. He is area editor for the Computer Networks journal, Elsevier. His researches are sponsored by the European Commission, the Italian Government and by several national and international companies. He has also launched four start-up companies from the research activities developed in his lab.

## *1.5 Alumni*

Urs Gasser – Trustee 2012-2019  
Emanuele Mottola - Intern 2018  
Giovanni Arata - Fellow 2018  
Elena Pavan - Fellow 2018  
Andrea Cairola - Faculty Associate 2014-2018  
Thomas Margoni - Faculty Associate 2008-2018  
Carlo Barone - Intern 2018  
Leonardo Vezzani - Intern 2018  
Luciano Floridi - Trustee 2013-2018  
Simone Montrucchio - Intern 2018  
Davide Brunello - Intern 2017  
Elisa Botto - Intern 2017-2018  
Marco Abrate - Intern 2017  
Diego Mariani - Staff Research Fellow 2017-18  
Alessandro Mantelero – Faculty Fellow 2011 - 2017  
Marco Berlot – Intern 2017  
Carolina Nicosia – Intern 2017  
Carmine D’Amico – Intern 2016  
Cristina Sappa - Fellow 2011-2016  
Federico Cairo – Fellow 2012-2016  
Myriam Bianco – Staff Research Fellow 2015-2016  
Nicola Rustignoli – Intern 2015  
Dario Chaifouroosh – Intern 2015  
Alessandro Quaranta – Intern 2015  
Luca Leschiutta – Staff 2007-2015  
Roberta Bruno – Intern 2015  
Fiorenza Oppici – Intern 2013  
Alberto Segà – Staff 2013  
Nadia Tecco – Staff 2012-2013  
Silvia Bisi – Fellow 2010-2012  
Elias Carotti – Research Fellow 2009 – 2012  
Irene Cassarino – Fellow 2009-2012  
Davide Bardone – Research Fellow 2009-2011  
Carolina di Vonzo – Fellow 2009-2011  
Corrado Druetta – Research Fellow 2009-2011  
Valentin Vitkov – Fellow 2009-2011  
Maria Crea – Staff 2011  
Federica Cedriano – Staff 2009-2011  
Antonella Giulia Pizzaleo – Research Fellow 2009-2010  
Ilaria Buri – Staff 2009-2010  
Anna Piccitto – Staff 2009-2010  
Maria Teresa Medina Quintana – Staff 2006-2008  
Andrea Glorioso – Staff 2006-2007

## 1.6 Staff

### *Antonio Santangelo – Executive Director*

See dedicated box at page 3 of the EXECUTIVE SUMMARY.

### *Mattia Plazio – Managing Director*

See dedicated box at page 3 of the EXECUTIVE SUMMARY.

### *Selina Fenoglio – Administrative Manager*

See dedicated box at page 3 of the EXECUTIVE SUMMARY.

### *Francesco Ruggiero – Communication Manager*

See dedicated box at page 3 of the EXECUTIVE SUMMARY.

### *Giovanni Garifo – IT Manager*

See dedicated box at page 3 of the EXECUTIVE SUMMARY.

### *Antonio Vetrò – Senior Research Fellow (now Assistant Professor with time contract)*

See dedicated box at page 3 of the EXECUTIVE SUMMARY.

### *Eleonora Bassi – Senior Research Fellow*

See dedicated box at page 3 of the EXECUTIVE SUMMARY.

### *Pasquale Pellegrino – Research Fellow (until January 2019)*

See dedicated box at page 3 of the EXECUTIVE SUMMARY.

### *Marco Conoscenti – Ph.D. Student*

See dedicated box at page 3 of the EXECUTIVE SUMMARY.

### *Giuseppe Futia – Ph.D. Student*

See dedicated box at page 3 of the EXECUTIVE SUMMARY.

### *Elena Beretta – Ph.D. Student*

See dedicated box at page 3 of the EXECUTIVE SUMMARY.

## 1.7 Interns

### *Francesco Mecca – Intern*



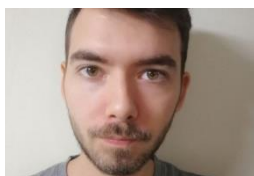
Francesco Mecca is a computer engineering student at the Politecnico di Torino. While attending the first year's selective course Rivoluzione Digitale he got in touch with the staff of the Nexa Center. He spent summer 2016 as a intern at the Berkman Klein Center working on the NoC education project. His main interests are programming and free (as in freedom) software. You can find him here: <http://francescomecca.eu>, <https://github.com/framecca>

### *Marc Perrin – Intern*



Marc Perrin is doing an internship at Nexa center, carrying out research to get a master's degree in the cultural mediation of science and techniques run by the Conservatoire National des Arts et Métiers (CNAM) in Paris. He has a degree in Education Science, a master's degree in teaching French to foreigners, a diploma in managing training centres for adults, and has been teacher and headteacher in primary schools; he has been in charge of language training courses in GRETA, a French public organization, and worked as headteacher at the French school Jean Giono in Turin until last June.

### *Giacomo Conti – Intern*



Giacomo Conti recently graduated in law with a thesis on contractual liability for defective software and works at the NEXA Center thanks to a scholarship. He conducts research about the laws concerning contemporary technologies. An avid writer, he is a member of the Order of Journalists of Turin since 2016.

### *Claudia Guccione – Intern*



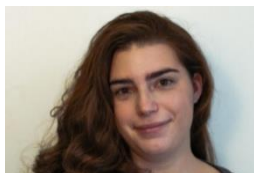
Cinema Engineering student at the Polytechnic of Turin. During her studies, she worked as a trainee at the Nexa Center, collaborating in the realization of a transmedia project, called Nexa City, that shows like a futuristic virtual world. In this project she worked on a part of concept art, 3D modeling, website development and multimedia content production.

### *Federica Giordano – Intern*



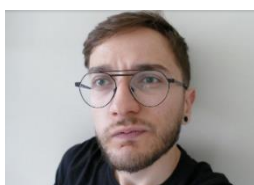
Federica Giordano is a Cinema and Media Engineering student at Politecnico di Torino. She started an internship at the Nexa Center in March 2019, contributing to the realization of Nexa City's website.

### *Beatrice Bolzonella – Intern*



Beatrice Bolzonella received the degree in Sociological Sciences from University of Padua in October 2017. She is now enrolled in the second year of Communication and Media Culture from University of Turin. She joined the Nexa Center in December 2018 as a trainee

### *Nicolas D'Amanzio – Intern*



I was born in Varese, but I've spent my childhood in the mountains, in Valle D'Aosta. After my diploma i moved to Turin to pursue my studies at the University of Music and Performing Arts (DAMS), with the ultimate goal to work in the film industry. During my studies, to improve my abilities, I've started making some interviews and shorts films for severals local Film Festivals. In my last year here, I got my internship here in Nexa as a Video Maker for videos interviews.

### *Enrico Gobbo – Intern*



Enrico Gobbo, attending the 3rd year of the BSc cinema and media engineering, he did an internship at Nexa Center in from December 2018 to May 2019 made the 3d modeling for the background of the site [nexacity.org](http://nexacity.org).

### *Viola Inui Biffi – Intern*



Viola Biffi is a student from Unito, she attends the DAMS course (Art Music and Entertainment Disciplines). Trainee at the Nexa Center for Internet and Society. Passionate about photography, cinema, music, videomaking, video clips, electronic music, visual arts.

## *Annex II – Nexa Publications*

## Annex II – Nexa Publications

This section includes published articles, but also other products of the research by the Nexa Staff and Nexa Fellows, encompassing reports and some selected blogposts and presentations. Please, notice that the list of the Nexa Fellows publications just includes the set of contributions signaled by the Nexa Fellows themselves. All Nexa Staff members and Fellows are listed in bold type.

### Publications by Nexa Staff

#### Books

**Bassi E.**, *Effemeridi: vita, politica, storia nel pensiero di Alessandro Passerin d'Entrèves*, Torino, Giappichelli, 2018

#### Books Chapters

**Bassi E., Vetrò A.**, *Open Licensing and Copyright in Education*, in Affouneh, S., Aldaoud, M., Almakari, A., Berrada, K., Burgos, D., Eldeib, A., Maya-Jariego I., Mimi, O., Nascimbeni, F., Qasim, R., Stefanelli, C., Tabacco, A. Tag Eldin, E., Tawfik, S., Twessi, A., Villar-Onrubia, D., Wahbeh, M., & Wimpenny, K. (cur.). "Open Education: fundamentals and approaches. A learning journey opening up teaching in higher education", 2018, pp. 25-38.

**Ricolfi M.**, *Geographical Indications* in Marciano, A. and Ramello G.B. (eds), "Encyclopedia of Law and Economics", Springer, New York, NY, 2018, (ISBN) 978-1-4614-7883-6

**Ricolfi M.**, *Security rights over intellectual property*, in "IX Annuario di diritto comparato e di studi legislative", Esi, Napoli, 2018, pp. 241-273

**Ricolfi M.** (with A. Cogo), *Administrative Enforcement of Copyright Infringement in Europe*, in Oxford University Press (volume edited by G. Frosio) - forthcoming

#### Peer Reviewed Articles in Journal and Magazines

Spinola R. O., Zazworka N., **Vetro A.**, Shull F., Seaman C., *Understanding automated and human-based technical debt identification approaches-a two-phase study*, J. Braz. Comput. Soc., vol. 25, no. 1, p. 5, Jun. 2019

**Conoscenti M., Vetrò A., De Martin J.C.**, Spini F. *The CLoTH Simulator for HTLC Payment Networks with Introductory Lightning Network Performance Results*. In: INFORMATION. - ISSN 2078-2489 - ELETTRONICO - 9:223(2018), pp. 1-26. (OPEN ACCESS, link)

**Vetrò A., Santangelo A., Beretta E., De Martin J.C.** *AI: from rational agents to socially responsible agents*. Accepted for publication in: "Digital Policy, Regulation and Governance"

Wagner S., Méndez Fernández D., Felderer M., **Vetrò A.**, et al. *Status Quo in Requirements Engineering: A Theory and a Global Family of Surveys*. Accepted for publication in: "Transactions on Software Engineering and Methodology"

**Vetrò A., Dürre, R., Conoscenti M., Méndez Fernández D., Jørgensen, M.** *Combining Data Analytics with Team Feedback to Improve the Estimation Process in Agile Software Development*. In: "Foundations of Computing and Decision Sciences", 43(4), 305-334 (OPEN ACCESS, link)

#### Peer Reviewed Articles in Conference proceedings

**E. Bassi**, *European Drones Regulation: Today's Legal Challenges*. In Proceedings of the 2019 International Conference on Unmanned Aircraft Systems (ICUAS), <https://ieeexplore.ieee.org>

**Beretta E., Vetrò A., Lepri B., De Martin J.C.** *Ethical and Socially Aware Data Labels*. In: 5th International Conference on Information Management and Big Data, Lima (Perù), 2-5 Sept. 2018, pp.1-8

**Futia G., Vetrò A., Melandri A., De Martin J.C.** *Training Neural Language Models with SPARQL queries for Semi-Automatic Semantic Mapping*. In: SEMANTiCS 2018 – 14th International Conference on Semantic Systems

U. Pagallo, **E. Bassi**, M. Crepaldi, M. Durante, *Chronicle of a Clash Foretold: Blockchains and the GDPR's Right to Erasure*. In: M. Palmirani (Ed.), *Legal Knowledge and Information Systems. JURIX 2018: The Thirty-first Annual Conference*, IOS Press, 2018, pp. 81-90

**Santangelo A.**, *Against Post-Mediality. Semiotic and aesthetic reflections for a more complex vision of the media system*. DOI:10.5755/e01.9786090215548. 2019. pp.351-360. In: Proceedings of the 13th World Congress of the International Association for Semiotic Studies (IASS/AIS) - ISBN:978-609-02-1554-8

**Santangelo A.**, *On the meaning of narrative texts. Reconsidering Greimas' model in the light of a new socio-semiotic narrative theory*. DOI:10.5755/e01.9786090215548. 2019. pp.105-116. In: Proceedings of the 13th World Congress of the International Association for Semiotic Studies (IASS/AIS) - ISBN:978-609-02-1554-8

M. Trevisan, S. Traverso, **E. Bassi**, M. Mellia, *4 Years of EU Cookie Law: Results and Lessons Learned*. In Proceedings on Privacy Enhancing Technologies (2) 2019, pp. 126-145.

### Other Publications

S. Bano, A. Sonnino, **E. Bassi**, M. Ciurcina, **J. C. De Martin**, **S. Fenoglietto**, **A. Santangelo**, F. Sacramento Gutierrez, D. Laniado, P. Aragón, J.-H. Hoepman, *Privacy Design Strategies for DECODE Architecture*, 2018, pp. 43, <https://www.decodeproject.eu/publications> (report)

**E. Bassi**, M. Ciurcina, **J. C. De Martin**, **S. Fenoglietto**, *Licensing of Digital Commons including Personal Data*, 2018, pp. 47, <https://www.decodeproject.eu/publications> (report)

**Santangelo A., Vetrò A., De Martin J.C.** *Intelligenza artificiale per un mondo migliore: come realizzare l'utopia*, 7 agosto 2018, [Agendadigitale.eu](http://Agendadigitale.eu)

**Vetrò A.**, *Towards the Digital Open Urban Twin*, 5 dicembre 2018, [urbanlegacylab.net](http://urbanlegacylab.net)

### Publications by Nexa Fellows

#### Books

**Alovisio M.** (curator), *Il sistema di gestione privacy, percorso di adeguamento al GDPR di pa ed imprese*, Iter Edizioni - forthcoming

**Alovisio M.** (co-author), *Bussola Digitale per naviganti consapevoli*, EPC Editore, 2019

**Alovisio M.** (co-author), *Società delle tecnologie esponenziali e General Data Protection Regulation: profili critici nella protezione dei dati*, LediPublishing Edizioni, 2018

**Alovisio M.** (co-author), *Formulario in materia di GDPR nelle imprese e nelle pa*, Ipsosa, 2018

**Arcagni S.**, *L'occhio della macchina*, Torino, Einaudi, 2018

**Casilli A.**, *En attendant les robots. Enquête sur le travail du clic*, Paris, Editions du Seuil, 2019

**Casilli A.**, *Trabajo, conocimiento y vigilancia: 5 ensayos sobre tecnología*, La Paz, Editorial del Estado, 2018

Cassano G., Colarocco G., **Gallus G. B.**, Micozzi F. P., *Il processo di adeguamento al GDPR*, Giuffrè Editore, 2018

**Chiusi F.**, *Io non sono qui. Visioni e inquietudini da un futuro presente*, De Agostini Edizioni, 2018

**Frosio G.**, *Reconciling Copyright with Cumulative Creativity: The Third Paradigm* (Edward Elgar 2018), <https://www.e-elgar.com/shop/reconciling-copyright-with-cumulative-creativity>

**Frosio G.**, *The Oxford Handbook of Intermediary Liability Online*, Giancarlo Frosio ed., Oxford University Press - forthcoming (2019)

**Gallus G. B.**, *AA.VV Proibisco Ergo Sum. Dall'embrione al digitale, divieti e proibizioni made in Italy*, Fandango Libri, 2018

### *Book Chapters*

**Arcagni S.**, *Italia digitale*, in Angela D'Arrigo, Mariagrazia Fanchi, Alessandro Rosina, Bruno Zambardino (a cura di), "Rapporto Cinema 2018. Spettatori, strumenti, scenari, Fondazione ente dello spettacolo", Roma, 2018

**Arcagni S.**, *La transitorietà del fallimento nel digital video*, in Paolo Magaudda, Gabriele Balbi (a cura di), "Fallimenti digitali. Un'archeologia dei 'nuovi' media", Unicopli, Milano, 2018

**Casilli A.**, *The Platformization Of Labor and Society, Society and the Internet*, Oxford University Press, <https://halshs.archives-ouvertes.fr/halshs-01895137/document>

**Casilli A.**, *La plateformisation comme mise au travail des usagers. Digital labor et nouvelles inégalités planétaires. In Vers une République des Biens Communs?* Parigi, Les liens qui libèrent, 2018. <https://halshs.archives-ouvertes.fr/halshs-01895138/document>

Giordano M., **Vaciago G.** *Italian Framework on Cybersecurity*, in "International Comparative Legal Guide", 2018

**Durante M.**, *Technology and the Ontology of the Virtual*, in S. Vallor (ed.), "Oxford Handbook of Philosophy of Technology", OUP, 2019, Part IV, Chap. 17, forthcoming.

Mantelero A., **Vaciago G.**, *Internet of Things (IOT)*, in AA.VV a cura di Rocco Panetta, "Commentario al GDPR", Giuffrè, p. 564, 2019

Mantelero A., **Vaciago G.**, *Legal aspects of information science, data science, and Big Data*, in M. Dehmer and F. Emmert-Streib, "Frontiers of Data Science", in CRC Press - Taylor Francis Group, 2018

**Noto La Diega G.**, *Grinding privacy in the Internet of Bodies. An empirical qualitative research on dating mobile applications for men who have sex with men*, in Ronald Leenes, Rosamunde van Brakel, Serge Gutwirth and Paul De Hert (eds), "Data Protection and Privacy: The Internet of Bodies", Hart 2018, 21-69

**Senor M., Durante M.**, *Report on the harmonization of Italian Law with the enforcement of the GDPR*, in Mc Cullagh K., Tambou O., Bourton S. (eds.), "National Adaptations of the GDPR, Collection Open Access Book", Blogdroiteuropeen, Luxembourg 2019. Available at: <https://wp.me/p6OBGR-3dP>, 89-97

Smorto G., **Ciurcina M.**, *A legal analysis of the platform economy*, in Fuster Morell M. (ed.), Sharing Cities. "A worldwide cities overview on platform economy policies with a focus on Barcelona", Editorial UOC, 2018

**Vaciago G.**, *L'attuazione della direttiva 2016/1148/UE sulla sicurezza delle reti e dei sistemi informativi: i punti di contatto con il Regolamento UE 2016/679*, in V. Cuffaro, R. D'Orazio, V. Ricciuto, "I dati personali nel diritto Europeo", Giappichelli, p. 234, 2018

## Peer Reviewed Articles in Journal and Magazines

**Alovisio M.** *I social media e le nuove opportunità per una pubblica amministrazione al servizio del cittadino: lo strumento della social media policy.* In: "Rivista Informatica e diritto – Social media e diritti. Diritto e social media", Fascicolo n. 1/2-2017, 565, 2018

Bulayenko O., **Frosio G.**, Geiger C., *Text and Data Mining in the Proposed Copyright Reform: Making the EU Ready for an Age of Big Data?* 49(7) IIC 814-844

Bulayenko O., **Frosio G.**, Geiger C., *Facilitating Access to Out-of-Commerce Works in the Digital Single Market: How to Make Pico della Mirandola's Dream a Reality in the European Union*, 9(3) J. Intell. Prop. Inf. Tech. & Electr. Comm. L. 240-250 (2018)

Bulayenko O., **Frosio G.**, Geiger C., *Crafting a Text and Data Mining Exception for Machine Learning and Big Data in the Digital Single Market, in Intellectual Property and Digital Trade in the Age of Artificial Intelligence and Big Data*, 97-111 (Xavier Seuba, Christophe Geiger, and Julien Pénin eds., CEIPI/ICTSD publication series on "Global Perspectives and Challenges for the Intellectual Property System", Issue No. 5, Geneva/ Strasbourg) (2018)

Bulayenko O., **Frosio G.**, Geiger C., *The EU Commission's Proposal to Reform Copyright Limitations: A Good but Far Too Timid Step in the Right Direction*, 40 Europ. Intel. Prop. Rev. 4-15 (2018)

**Durante M.**, M. D'agostino (eds.), *Introduction: The Governance of Algorithms, in Special Issue on The Governance of Algorithms, Philosophy and Technology*, volume 31, issue 4, December 2018, 499-505.

**Durante M.**, *Safety and Security in the Digital Age. Trust, Algorithms, Standards, and Risks.* In: D. Berkich and M.-V. D'Alfonso (eds.), "On the Cognitive, Ethical, and Scientific Dimensions of Artificial Intelligence", Philosophical Studies Series 134, Springer, 2019, 371-384

**Frosio G.**, *Intellectual Property and Extra-Contractual Liability (Common Law and Civil Law).* In: "The Oxford Handbook on Intellectual Property Research" (Irene Calboli and Maria Lillà Montagnani eds., Oxford University Press, forthcoming 2019)

**Frosio G.**, *Re-imagining Digital Copyright Through the Power of Imitation: Lessons from Confucius and Plato*, "Peking Transnational Law Review", 1-51 (2018)

**Frosio G.**, Senftleben M., Angelopoulos C., Moscon V., Peguera M., Rognstad O., *The Recommendation on Measures to Safeguard Fundamental Rights and the Open Internet in the Framework of the EU Copyright Reform*, 40(3) Europ. Intel. Prop. Rev. 149-163 (2018)

**Frosio G.**, *To Filter or Not to Filter? That is the Question in EU Copyright Reform*, 36(2) Cardozo Arts & Entertainment L. J. 101-138 (2018), available at [ssrn.com/abstract=3058680](https://ssrn.com/abstract=3058680)

**Leucci S.**, *Data Protection by Design and by Default: Framing Guiding Principles into Legal Obligations in the GDPR.* <https://edpl.lexxion.eu/article/EDPL/2018/2/7>

**Nascimbeni F.**, Burgos D., Campbell L. & Tabacco A. (2018). *Mapping Open Educational Practices within universities: a case study.* Distance Education, 39:4, 511-527

**Nascimbeni F.** (2018). *Rethinking Digital Literacy for Teachers in Open and Participatory Societies.* International Journal of Digital Literacy and Digital Competence (IJDLDC), 9(3), 1-11

**Noto La Diega G.**, *Can the law fix the problems of fashion? An empirical study on social norms and power imbalance in the fashion industry* (2019) 14(1) Journal of Intellectual Property Law & Practice 18-24

**Noto La Diega G.**, *Data as Digital Assets. The Case of Targeted Advertising.* In: Mor Bakhoun, Beatriz Conde Gallego, Mark-Oliver Mackenrodt, and Gintarė Surblytė-Namavičienė, Personal data in competition, consumer protection and intellectual property law. Towards a holistic approach? (Springer 2018) 445

**Senor M.**, *Il riconoscimento della tutela costituzionale del diritto alla privacy in India (nota a sentenza).* Medialaws / Rivista del diritto dei media n.1/2018, pagg.447-460

**Torchiano M.**, *A Quality Assessment Approach for Evolving Knowledge Bases*, <http://dx.doi.org/10.3233/SW-180324>

**Torchiano M.**, *Completeness and consistency analysis for evolving knowledge bases* <http://dx.doi.org/10.1016/j.websem.2018.11.004>

**Torchiano M.**, *Understanding the behaviour of hackers while performing attack tasks in a professional setting and in a public challenge* <http://dx.doi.org/10.1007/s10664-018-9625-6>

### *Peer Reviewed Article in Conference proceedings*

**Gallus G.**, Micozzi, *Il ne bis in idem tra sanzioni amministrative del GDPR e sanzioni penali introdotte dal D.Lgs. 101/2018*, Digital Transformation Law Conference 2018

**Pagallo U., Bassi E.**, Crepaldi M., **Durante M.**, *Chronicle of a Clash Foretold: Blockchains and the GDPR's Right to Erasure*. In: M. Palimirani (ed.) *Legal Knowledge and Information Systems: JURIX 2018: The Thirty-first Annual Conference*, IOS press, 2018, 81-90

**Senor M.**, *AI and Bad Robots*, Atti del convegno Cyber Crime Conference 2018, [ICTSecuritymagazine.com](http://ictsecuritymagazine.com)

### *Other Publications*

Agosti C., **Chiusi F.**, *uno studio sull'uso dei dati personali in politica per il collettivo Tactical Tech* (<https://ourdataourselves.tacticaltech.org/posts/overview-italy/>)

**Arcagni S.**, Donato Maniello, *Spatial Augmented Reality: Progettare l'edutainment negli ambienti digitali aumentati*, Le Penseur, Brienza (PZ), 2018

**Arcagni S.**, 7 voci tecnologiche della nuova Treccani sull'arte e la voce sulle nuove tecnologie dell'Enciclopedia curata da Achille Bonito Oliva sull'arte contemporanea

**Arcagni S.**, *Ouchhh: tra nuovi media, scienza e arte*, in "Segnocinema", n. 214, November-December 2018

**Arcagni S.**, *Introduzione, Professione: Transmedia*, in "ES Journal", n. 6, November 2018

**Arcagni S.**, *Machinima tra cinema e arte*, in "Segnocinema", n. 212, July-August 2018

**Arcagni S.**, *1968: cinema e tecnologie*, in "Segnocinema", n. 211, May-June 2018

**Casilli A.**, C. Le Ludec, P. Tubaro, *How many people microwork in France? Estimating the size of a new labor force*. ArXiv: <https://arxiv.org/abs/1901.03889>.

**Chiusi F.**, *Automating Society*, "AlgorithmWatch" (<https://algorithmwatch.org/en/automating-society/>), January 2019

**Ciurcina M.**, *Riflessioni sul diritto d'accesso ai beni culturali*. In: "Archeologia e Calcolatori", 29, 2018

De Benedetti L., **Leucci S.**, *Organizzazione aziendale e data protection post GDPR: un possibile approccio*, "CyberSecurity360", <https://www.cybersecurity360.it/legal/privacy-dati-personali/organizzazione-aziendale-e-data-protection-post-gdpr-un-possibile-approccio/>

Del Gamba G., **Leucci S.**, *Machine learning e dati personali, un rapporto complesso ma non impossibile* "CyberSecurity360", <https://www.cybersecurity360.it/legal/privacy-dati-personali/machine-learning-e-dati-personali-un-rapporto-complesso-ma-non-impossibile/>

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