

# LAW, SCIENCE AND TECHNOLOGY

<b>Coordinator</b>	Prof. Monica Palmirani Department of Legal Studies Via Zamboni 22 - Bologna <a href="mailto:monica.palmirani@unibo.it">monica.palmirani@unibo.it</a>
<b>Starting date of the PhD Programme</b>	01/11/2019
<b>Duration</b>	3 calendar years
<b>Language of the PhD Programme</b>	English
<b>Mandatory stay abroad</b>	YES- the secondments are defined at the bottom of this document
<b>Associated partners</b> pursuant to art. 2, para 2, lett. c) of the M.D. n. 45/2013	University of Turin

## Research topics of the PhD Programme

- Human Rights and Ethical Principles in new and emerging technologies Doctor-patient relationships: confidentiality, informed consent, research and experimentation Human Assisted Reproductive Technologies
- End-of-life Decision Making: legal and ethical issues
- Ethics and law in Genetics: genetic testing, screening, gene therapy and personalized medicine
- Biotechnology and patent law: stem cells and gene patents
- Biobanks, DNA and research
- E-health and Privacy by Design Private-public interactions in health care provision
- Ethical, Legal and Social Issues in genetic counselling
- Semantic Web and Legal ontologies modelling
- Information Retrieval and Database techniques in the Legal Domain Legal document modelling
- Representation of legal knowledge in Open Data, XML, and standardization
- Computer Forensics Information Systems for eJustice, eGovernment, and eLegislation Computational models of legal and ethical reasoning including educational applications Intelligent Information extraction and NLP of legal resources
- e-Discovery and data mining in Legal domain
- Formal Models of Norms and Legal Reasoning Logic-based models of norms and legal knowledge Legal reasoning, including argumentation and reasoning
- Argumentation systems Game theory as applied to the law
- Normative Multi-Agent Systems and e-Institutions Regulatory Compliance
- Robot and Intelligent System ethics
- Privacy and Security with New Technology Cybercrime and Computer Forensics
- e-Business and Consumer Law
- e-Governance and e-Democracy social modelling
- IPR and New Technology
- On-line Dispute Resolution
- Cloud computing modelling and regulation
- A Comparative Perspective on ICT Law Constitutional crowd sourcing
- Management of Geopolitical Social Crises
- Regulation of Robotics and Related Ethical Issues
- Protection of children online Technology regulation: fundamental issues
- Computer forensics and security
- Privacy and eHealth information systems
- Legal XML for legal document and knowledge modelling
- Blockchain for legal domain
- eDemocracy: theoretical and technical models
- Food traceability: legal and technical analysis
- Explainable AI
- Machine learning for legal sources

**Deadline for the applications: 15<sup>th</sup> May 2019**

## PhD positions

Position n.	Financial support	Description	Positions linked to specific research topics
1	PhD scholarship	financed by the University of Turin	position dedicated to one of the research topics of the PhD Programme listed above and chosen by the applicant. The chosen research topic must be indicated on the title page of the research project
2	PhD scholarship	financed by the University of Turin	position dedicated to one of the research topics of the PhD Programme listed above and chosen by the applicant. The chosen research topic must be indicated on the title page of the research project
3	PhD scholarship	financed by the University of Turin	position dedicated to one of the research topics of the PhD Programme listed above and chosen by the

			applicant. The chosen research topic must be indicated on the title page of the research project
4	PhD scholarship	financed by the University of Bologna within the “Piano triennale Alte Competenze per la ricerca, il trasferimento tecnologico e l'imprenditorialità” (POR FSE funds – Resolution n. 462 of 25/03/2019). The assignment of this scholarship is subject to the beneficiary's declaration of residence or domicile in the Emilia-Romagna region.	Ethical, Legal and Social issues of eHealth regarding sharing personal sensitive data on an IoE platform
5	MSCA research grant	issued by the University of Bologna (UNIBO)	Governing algorithms in the Big Data era for balancing new digital rights
6	MSCA research grant	issued by the University of Bologna (UNIBO)	Big data analysis systems in IoE environments for managing privacy and digital identity: pseudonymity, deanonymization and the right to be forgotten
7	MSCA research grant	issued by the University of Bologna (UNIBO)	Influenceable Autonomy and Predictable Freedom in the IoE
8	MSCA research grant	issued by the University of Turin (UNITO)	Neo-commodification of persons: the exploitation of personal data and impact on the sharing economy
9	MSCA research grant	issued by the University of Turin (UNITO)	Big Data for Health in IoE in emergency situations
10	MSCA research grant	issued by the Autònoma Universitat de Barcelona (UAB)	Surveillance risks in IoT applied to Smart Cities
11	MSCA research grant	issued by the Autònoma Universitat de Barcelona (UAB)	Distributed ledger technologies between anonymity and publicity
12	MSCA research grant	issued by the University of Luxembourg (UL)	Security and privacy of resource constrained devices
13	MSCA research grant	issued by the University of Luxembourg (UL)	Risk analysis and regulatory compliance of distributed ledger technologies for transaction and management of securities
14	MSCA research grant	issued by Mykolas Romeris University (MRU)	Internet of Things (Law): Legal liability of IoE devices in the home
15	MSCA research grant	issued by the Katholieke Universiteit Leuven (KUL)	Ethical, Legal and Social issues of eHealth regarding sharing personal sensitive data on an IoE platform (the eligibility for this position requires TOEFL or IELTS)
16	MSCA research grant	issued by the Leibniz Universität Hannover (LUH)	Internet of Data: Fundamental Rights in the context of the IoE and Big Data
17	MSCA research grant	issued by the University of Vienna (UNIVIE)	Internet of Healthcare (Law): Privacy and Data Protection Aspects in IoE
18	MSCA research grant	issued by the University of Vienna (UNIVIE)	Distributed ledger technologies beyond financial applications: eDemocracy and new forms of Governance
19	MSCA research grant	issued by the Universidad Politécnica de Madrid (UPM)	Location privacy and inference in online social networks

#### Positions with scholarship

The yearly gross percipient amount of the scholarships financed by the University of Turin is 17.500€. **(Positions n. 1, 2, 3)**

The yearly gross percipient amount of the scholarship financed by the University of Bologna is 15.343,28€. **(Position n. 4)**

#### Positions with MSCA research grant

The yearly gross amount of the MSCA research grants depends on the beneficiary university and it is indicated below:

- UNIBO, UNITO: 48.166,56€ **(Positions n. 5, 6, 7, 8, 9)**
- UAB, UPM: 44.634,96€ **(Positions n. 10, 11, 19)**
- UL, KUL: 46.440€ **(Positions n. 12, 13, 15)**
- MRU: 35.649€ **(Position n. 14)**
- LUH: 45.262,8€ **(Position n. 16)**
- UNIVIE: 49.069,08€ **(Positions n. 17, 18)**

The amount of the research grant is defined according to the rules of the LAST-JD-RIoE (Law, Science and Technology, Rights of Internet of Everythings) MSCA ITN (Marie Skłodowska-Curie actions European Joint Doctorates) Horizon 2020 EU project 814177.

Successful applicants will be directly transferred the research grant by the beneficiary university.

A full description of each research topic is available at the bottom of this document.

**Positions linked to specific research topics** (art. 9 of the Call for applications)

Applicants must indicate the chosen research topic on the cover page of the research projects.

Taking into account the preferences expressed by the applicants and with due consideration of the applicants' skills and expertise, the Admission Board will establish if the applicants can be considered eligible for the allocation of the positions linked to specific topics. Should the chosen candidate not accept, the offer will be made to the second on the list and so on until the position is filled.

Should available positions remain vacant, eligible applicants from the general ranking list may be contacted. The remaining available positions shall be awarded from the top of the ranking list downward, in compliance with the eligibility requirements for MSCA research grants.

**Admission requirements**

Please, see art. 2 of the Call for applications.

In order to apply for the MSCA research grants, applicants must attach to the application, in the section "Altro"/"Any other additional information", a dated and signed self-certification stating that they meet the following eligibility requirements at the deadline of this call for applications:

- be in the first four years (full-time equivalent research experience) of their research careers;
- have not been awarded a doctoral degree;
- have resided or carried out their main activity outside the country of the beneficiary university in the 3 years immediately prior to the deadline of this call for applications. In the case of researchers with refugee status, refugee procedure is not considered as a period of residence/activity in the country of the beneficiary university.

**Mandatory documents to be attached to the application**

Please, see art. 3 of the Call for applications.

**Further qualifications that may be attached to the application, if in possession of the applicant** (only qualifications attested by documents drawn up in Italian, English, French, German and Spanish shall be considered as valid and assessed by the Admission Board)

- Abstract of the second cycle master's degree thesis. Undergraduate applicants may submit the draft of the thesis approved by their supervisor (please, note that abstracts cannot exceed 5.000 characters, including spaces and formula possibly used. The above figure does not include: the title of thesis, the outline, and images such as graphs, diagrams, tables etc. - where present);
- No more than 2 reference letters signed by Italian and international academics and professionals in the research field, which do not form part of the Admission Board, attesting the suitability of the applicant and his/her interest for the scientific research.  
Please, note that the above letters cannot be uploaded by applicants. When filling the online application form on <http://studenti.unibo.it>, applicants will be only allowed to provide the email accounts of the requested academic/professional. The latter shall receive an email from the University of Bologna providing for the instructions for uploading. Only letters in pdf format submitted before the expiry date and time of the Call shall be accepted.
- Minimum 1, maximum 3 multi-annual research projects, with special emphasis on the activities to be completed during the first-year course. The research project must meet the following requirements:
  - It must indicate in the cover page the research topic covered by the research project proposal and for which the applicant is applying (each research project must focus on a single research topic. Projects without the indication of the research topic in the cover page will be assigned zero points);
  - It cannot exceed 3.600 characters, including spaces and formula possibly used. This figure does not include: the title of project, the outline, references and images (such as graphs, diagrams, tables etc - where present);
  - It must include: the state of the art; description of the project; expected results; lead-time for implementation; (proposed) criteria to be used to assess the findings obtained; references.The research projects that successful applicants shall carry out during their doctoral career may possibly differ from the project proposed at the application stage. This shall be defined together with the supervisor and approved by the Academic Board.
- Motivational letter. This must include the reasons prompting the applicant to attend the PhD Programme and those relevant experiences and research interests, that make the applicant suitable for the specific PhD Programme (3000 characters maximum, including spaces)
- List of the publications (monographs, articles published on scientific journals)
- List of the minor publications (conference papers, volume's chapters, etc.)
- Professional Master courses completed in Italy (1st or 2nd level), relevant to the PhD Programme
- Postgraduate vocational training programmes/specialisation programmes relevant to the PhD Programme
- Summary of the thesis defended within the framework of Specialization Schools Programme (5000 characters maximum, including spaces)
- Teaching activity carried out at university level.
- Research activity of any kind - whether basic, applied, translational, etc. - carried out in any capacity, including when covered by research grants, and as a staff member of research projects
- Work activity
- Vocational internships
- Curricular and non-curricular training and guidance internships
- Title attesting the knowledge of the English language: TOEFL, IELTS, Cambridge, ESOL or B1
- Study periods completed by students outside their countries of origin (e.g. Erasmus programme or other similar mobility programmes)
- Other qualifications attesting the suitability of the applicants (scholarships, prizes, etc)

Admission exams (art. 4 of the call for applications)		
<b>Examination type</b>	<b>Schedule</b> (please, note that applicants shall not receive any communication concerning the exams schedule)	<b>Examination results publication</b> (please, note that applicants shall not receive any communication concerning the publication of results)
<b>Qualifications and research project evaluation</b>	Non-presential.	The results of the qualifications and research project evaluation shall be available online starting from the <b>14/06/2019</b> at the page <a href="http://studenti.unibo.it">http://studenti.unibo.it</a> (please, select “summary of the requests in progress” - “see detail” and open the pdf file “risultati valutazione titoli e progetto”)
<b>Oral examination</b>	<b>Date</b>	The results of the oral examination shall be available at the webpage <a href="http://studenti.unibo.it">http://studenti.unibo.it</a> starting from <b>27/06/2019</b> (please, select “summary of the requests in progress” - “see detail” and open the pdf file “risultati prova orale”)
	<b>Place</b>	
	<b>Time</b>	
Applicants can ask to take the exam remotely using Skype. For further details please refer to the relevant provision laid down in art. 4 of the Call for applications.		

Evaluation criteria
<p>Points will be allocated to applications out of a total of 100 on the basis of the following weighting:</p> <p><b>1. Qualifications and research project</b></p> <p>In order to be admitted to the oral exam, applicants who are not applying for the PhD scholarships financed by the University of Turin, who are not English native speakers or who have not obtained a Master's degree in English must have:</p> <ul style="list-style-type: none"> <li>- attached to the application a title attesting the knowledge of the English language (TOEFL, IELTS, Cambridge or ESOL or B1);</li> <li>- obtained a minimum score of 30 points in the evaluation of qualifications and research project.</li> </ul> <p>Only qualifications relating to the last 5 years shall be taken into consideration, with the exception of the University Degree (Diploma di laurea). Please, note that qualifications must be consistent with the PhD Programme.</p> <p>Points relating to qualifications shall be allocated on the basis of the following criteria:</p> <ul style="list-style-type: none"> <li>- Graduation final mark (7 points corresponding to 110 with honors, 5 points from 110 to 105; 3 points from 104 to 100; 0 points if the final mark is less than 100). Undergraduates shall be evaluated on the basis of the Weighted Average Mark (WAM): 30 = 7 points; 29 = 5 points; 28 = 3 points; WAM less than 28 = 0 points.</li> <li>- Motivational letter: max 5 points;</li> <li>- Publications: max 5 points;</li> <li>- Reference letters: max 5 points;</li> <li>- Other qualifications: max 2 points.</li> </ul> <p>Points relating to the research projects shall be allocated on the basis of the following criteria:</p> <ul style="list-style-type: none"> <li>- scientific value and ground-breaking nature of the proposal: max 11 points;</li> <li>- description and structure of the proposal: max 5 points;</li> <li>- proposal feasibility: max 10 points.</li> </ul> <p>For applicants who have attached to the application more than one research project, the score assigned will be the average of the scores assigned to each project.</p> <p><b>2. Oral examination</b></p> <ul style="list-style-type: none"> <li>- - Minimum for inclusion in the final ranking list :30 points</li> <li>- - Maximum: 50 points</li> </ul> <p>Oral examination includes the presentation of the research project and is intended to assess the suitability of the applicant to pursue scientific research as well as the general knowledge of the issues connected to the PhD programme. The oral examination is carried out in English.</p> <p>Points relating to the oral examination shall be allocated on the basis of the following criteria:</p> <ul style="list-style-type: none"> <li>- knowledge of English language: max 5 points</li> </ul>

- research project presentation: max 20 points
  - general knowledge of issues connected to the PhD programme: max 25 points
- Possible evaluation sub-criteria will be available on the [Unibo website](#), selecting the relevant PhD Programme → “PhD programme information” at the bottom of the page in the section “Notices”.

**Final ranking list and enrolment** (arts.6 and 7 of the call for applications)

After the publication of the results of the oral exam, the final ranking list will be available on the [Unibo website](#), selecting the relevant PhD Programme → “PhD programme information” at the bottom of the page in the section “Notices”.  
 Following the publication of the final ranking list, successful applicants must enrol on <http://studenti.unibo.it> by the deadline indicated on the [Unibo website](#), selecting the relevant PhD Programme → “PhD programme information”.

**Description of MSCA research grant’s topics\*\*:**

Position n.	Title of the research topic	Beneficiary university/ Host institution	Objectives	Planned secondments
5	Governing algorithms in the Big Data era for balancing new digital rights	UNIBO (first semester)	Algorithms govern a large part of our human activities and there is a risk of losing control of individual decisions. Algorithms and information systems increasingly constitute new de facto norms, regulations, duties and The research aims to investigate how the IoE is governed by algorithms, how predictable are those algorithms, and to what extent can the algorithmic paradigm limit the capacity of people to determine their existence.	UNITO (second semester) UPM (third semester) BitNomos* (sixth semester)
6	Big data analysis systems in IoE environments for managing privacy and digital identity: pseudonymity, deanonymization, and the right to be forgotten	UNIBO (first semester)	The IoE works on the basis of Big Data. This project aims to investigate big data analysis systems in conjunction with the issues of privacy, de-anonymization and the right to be forgotten	UAB (second semester) UNIVIE (third semester) BitNomos* (sixth semester)
7	Influenceable Autonomy and Predictable Freedom in the IoE	UNIBO (first semester)	The IoE is based on predictive algorithms to predict behaviours. For instance, in the future we will be able to get our preferred book from Amazon without even having to order it. This approach could produce standardization of behaviour, impair autonomous decision-making, and lead to lack of real freedom. The project aims to investigate the level of freedom the end user can maintain in situations where multi-agent systems decide on behalf of the individual and what kind of autonomy the individual can develop if all the options are previously detected and addressed.	UAB (second semester) MRU (third semester) IOOOTA* (sixth semester)
8	Neo-commodification of persons: the exploitation of personal data and impact on the sharing economy	UNITO (second semester)	Two trends are converging raising the risk of a neo-commodification of persons: 1) a huge amount of data is collected about internet users and fed to opaque algorithms deciding an increasing number of aspects of our life; 2) labour is changed its meaning with the transformation of consumers in prosumers with the sharing economy and work is parcellized. The use of personal data in this context of fragmentation risks to be disruptive.	UNIBO (first semester) UNIVIE (third semester) Nomotika* (sixth semester)
9	Big Data for Health in IoE in emergency situations	UNITO (third semester)	The IoE is applicable to health not only in the sports domain, but also for monitoring undesirable events (e.g., domestic accidents involving elderly people, detecting crash of vital signs with wearable wireless sensors, distribution of ambulances and availability of hospitals). To help people in these emergency situations, a large amount of data is needed, sometimes without the consent of the patient. This project is intended to investigate IT approaches respecting both the right to health and the right to privacy in emergency situations.	UNIBO (first semester) UL (second semester - 9 months in total) Caretek* (sixth semester)
10	Surveillance risks in IoT applied to Smart	UAB (second semester)	With the advent of the IoT, proximity sensor devices are installed in many places in smart cities.	UNIBO (first semester)

	Cities		Without any regulation or social policy, they could lead to e a super-surveillance network managed by multi-agent systems in the future. Such networks may be able to reduce accidents, risks, damage and errors. However, they also pose high risk of surveillance and data breaches, including hacking attacks or malware intrusion. The project is intended to investigate the ethical impacts of such model of surveillance.	KUL (third semester) S21SEC* (sixth semester)
11	Distributed ledger technologies between anonymity and publicity	UAB (second semester)	DLTs challenge several tenets of the law. One key problem is the current state of anonymity in several applications, in particular with regards of KYC and AML regulations. This research track aims to explore the challenges of DLTs applications in the tension between the value of publicity in the law and several anonymous and pseudonymous implementations in the IoM landscape.	UNIBO (first semester) UPM (third semester) Agile lab* (sixth semester)
12	Security and privacy of resource constrained devices	UL (third semester)	Recent hackers' attacks have shown the vulnerability of IoT devices due to their limited computing power. Given also their ubiquitous presence, lower costs and limitations in keeping security measures up to date they represent a growing risk for the security of IT infrastructures.	UNIBO (first semester) UNITO (second semester) S21SEC* (sixth semester)
13	Risk analysis and regulatory compliance of distributed ledger technologies for transaction and management of securities	UL (third semester)	Distributed Ledger Technologies (DLTs) are fairly new. An in-depth risk analysis is therefore needed. The aim of this research track is to provide a comprehensive account of the risks associated with the use of DLTs in transacting and managing securities. The research will assess the risks, advantages and drawbacks of DLTs in this specific domain in comparison with other existing technologies for managing and transacting with securities.	UNIBO (first semester) UNITO (second semester) Nomotika* (sixth semester)
14	Internet of Things (Law): Legal liability of IoE devices in the home	MRU (third semester)	The number of safety concerns and safety standards grows exponentially with the number of IoE devices. The IoE will transform the way we interact, conduct business and live our lives. Many legal aspects, especially as regards the home, will need extensive analysis to be fully understood.	UNIBO (first semester) UNITO (second semester) LIC* (sixth semester)
15	Ethical, Legal and Social issues of eHealth regarding sharing personal sensitive data on an IoE platform	KUL (third semester)	To elaborate an ethical model for balancing the rights of citizens with market growth in the IoE, with particular regard to the eHealth domain. There are different rights in the eHealth sector which interconnect and conflict with the IoE platform and devices. The quality of the life and health of the citizen can be improved by IoE.	UNIBO (first semester) UAB-OBDB* (second semester) UAB Bioseka* (sixth semester)
16	Internet of Data: Fundamental Rights in the context of the IoE and Big Data	LUH (third semester)	The objective of this research project is to study different models of genomic data sharing and to analyze associated ethical concerns in the light of overarching principles of human subject research and personal data protection. By studying the ethical and legal challenges of genomic data sharing and analyzing the sufficiency of current policies and regulatory responses to these concerns, the project aims to promote responsible and progressive data sharing practices.	UNIBO (first semester) UAB (second semester) Consoft* (sixth semester)
17	Internet of Healthcare (Law): Privacy and Data Protection Aspects in IoE	UNIVIE (third semester)	The quality of the life and health of the citizen can be improved by the IoE, in particular clinical data can be shared with different health institutions and the entire clinical history of each individual can be maintained and offer potentiality for diagnosis, interpretation and statistics. Despite the obvious clinical advantages, on the other hand this trend causes clear security, legal, ethical and trust issues.	UNIBO (first semester) UAB (second semester) TuOTempo* (sixth semester)
18	Distributed ledger technologies beyond financial applications: eDemocracy and	UNIVIE (third semester)	DLTs constitute a platform suited for the implementation of new forms of governance and eDemocracy by enabling trusted transactions (and computation) across the internet. Whether DLTs will fundamentally change the very concepts of	UNIBO (first semester) UAB (second semester) Agile lab* (sixth semester)

	new forms of Governance		eDemocracy and governance, or improve existing models is the main aim of this research track.	semester)
19	Location privacy and inference in online social networks	UPM (third semester)	Ubiquitous connectivity with mobile phones and information posted by users provides social networks with information about the users' location and activities. This information is used by them to recommend opportunities to users but also to establish prices in e-commerce and to sell users' data to data collectors. The interference on our lives are clear, both in a positive and negative sense.	UNIBO (first semester) UNITO (second semester) S21SEC* (sixth semester)

\* these names correspond to companies, spin-off, start-up where the doctoral candidate will attend a stage semester. They could be changed during the first year of PhD period.

\*\* the PhD programme guarantees at least ONE cotutelle for each doctoral candidate.