

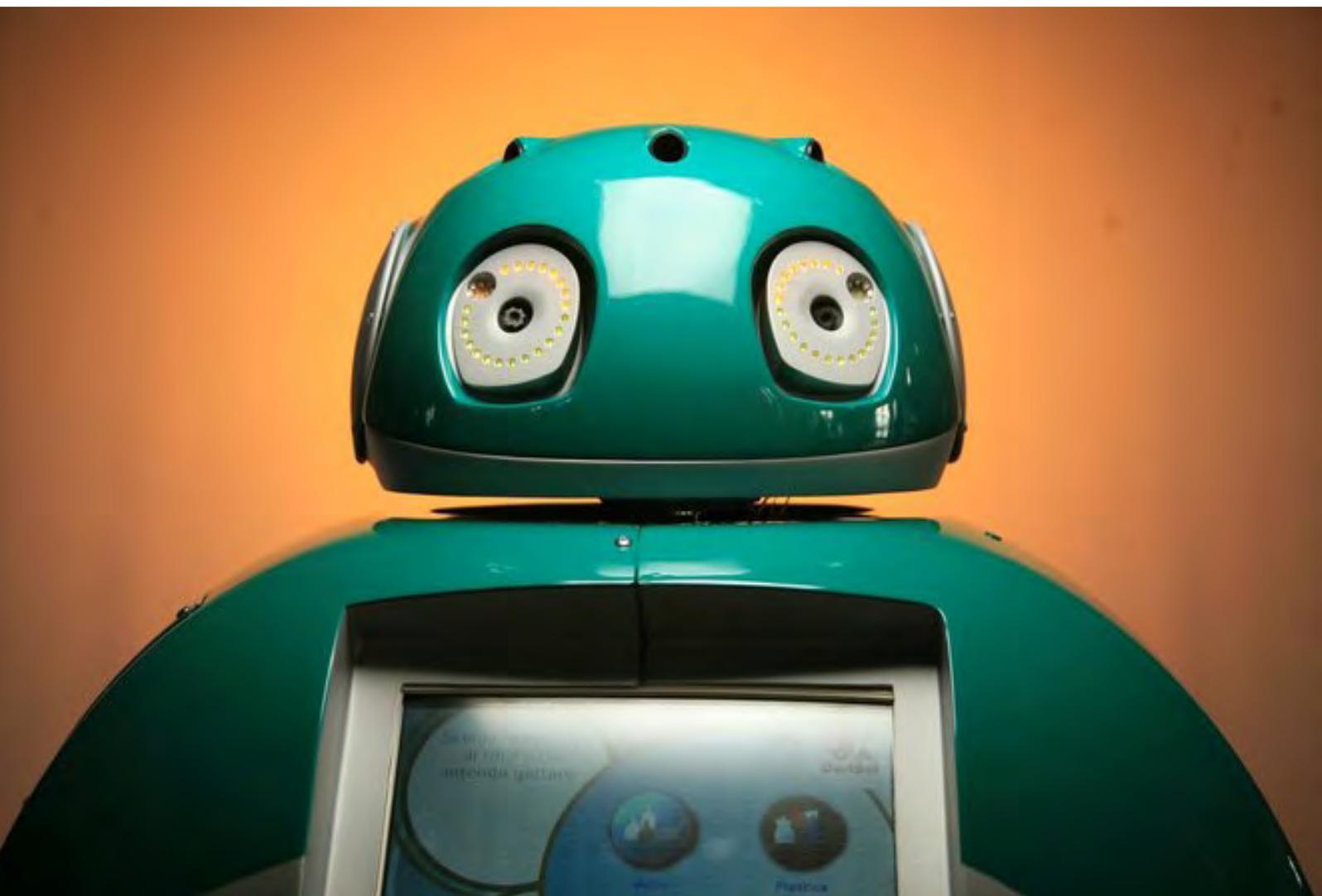


RoboLaw
Regulating Emerging Robotic
Technologies in Europe
Robotics Facing Law and Ethics



Newsletter

No 1 | April 2013



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Editorial

RoboLaw is the first research project entirely dedicated to the study of law and robotic technologies to receive funding from the European Commission. Up until now, within Sixth and Seventh Framework Programmes, the investigation of legal as well as ethical and social issues was restricted within the activities of a few workpackages or tasks and mainly focused on specific regulatory aspects such as safety certification.

The *raison d'être* of the RoboLaw project is given by the present historical moment, which on the one hand is characterised by great advancements in science and technologies, and on the other by the need to ensure safety and security to all citizens, including present and future generations, and the environment. Robotic technology is no exception. In the latest years, new applications have become possible, such as driverless cars, drones, robot companions, nanorobots, just to name a few. However, besides the great benefits that may derive from the applications of these new technologies, there are boundaries, legal, as well as ethical and social, that need to be established in both research and deployment. Indeed, a milestone event in robotics and the law, which had also a direct influence in the birth of the RoboLaw project, was the FP6 project DustBot (www.dustbot.org). In the summer of 2010, the DustCart robot (shown in the front cover) was deployed for more than two months on the public roads of an Italian village (Peccioli) with real users (i.e. families and shop owners) to provide a door-to-door garbage collection service to citizens. From the

legal standpoint, the test-field of DustCart was significant in that it highlighted the “legal gap” surrounding autonomous robots operating in urban areas. The gap still exists and is mainly concerned with issues such as: liability, insurance, privacy, and the legal classification of robots according to Traffic regulation. Such a gap is one of the major obstacles in the full development of a robotic market.

The 2-year-long RoboLaw project, officially started in March 2012, was written with the purpose of providing new knowledge on the regulation of emerging robotic technologies at large. However, the project should not be considered just as a means to open the gates to the market for robotics. As a matter of fact, RoboLaw is also devoted to improve the acceptance of robots in society by carefully investigating the ethical and societal impact raised by such technologies, their research and applications, in particular with respect to the enhancement of human capabilities and the fundamental rights of people.

Indeed, the RoboLaw consortium consists of an interdisciplinary group of experts in the fields of law, philosophy, ethics and robotics.

The most important outcome of the RoboLaw project will be the “Guidelines on Regulating Robotics”, containing regulatory proposals for the European Commission, aiming at establishing a solid framework for the development of a European “robotlaw”.

Erica Palmerini, RoboLaw project coordinator
Pericle Salvini, RoboLaw project manager

The project: list and description of work packages

WP1 deals with the management of the project in order to ensure the implementation of the consortium, the creation of the stakeholders network, the establishment of the External Advisory Board and the overall project governance.

WP2 investigates the different sources of law, which could be called to regulate the issues arising from the development of robotic technologies. To this purpose the alternative between hard and soft law is taken into consideration by discussing the defining characteristics of ethical, legal and technical norms.

The main objective of the analysis is to assess the capacity of said norms to produce a legislative outcome and to promote the harmonization between freedom of (technological) research and the safeguard of human values.

WP3 analyzes existing regulation, which could be applied to robotics, both in the US and in Europe, with specific reference to the consortium member states (Italy, the UK, the Netherlands and Germany). The next level is the EU level, as this provides the foundation for national legislation in some domains (consumer protection, for instance).

Firstly the methodology is defined, stressing the importance of the comparative approach, and the relevance of an analysis, which considers the social dimension of the contemplated norms as well as their legislative history.

By applying such criteria some fundamental fields of law are identified and described (namely products regulation, liability rules, intellectual property, privacy and data protection, legal transactions), in light of their potential interaction with robotic technologies. In order to undergo a more significant and

less biased analysis a case method is applied together with the more traditional description of the different legal systems.

Cases studies are drafted in order to point out relevant legal issues, which are then solved pursuant to the legal systems both of the consortium MS and of some other non EU state chosen for its advancements in robotic research.

WP4 elaborates a taxonomy of robotic technologies and clarifies the common and legal use of expressions such as “humanoids”, “artificial mind”, “intelligent robots”, “cybernetics”, “robotics”, etc.

Then, an analysis of the state of the art in robotics – from an engineering perspective – is conducted by the laboratories of SSSA and UoR, resorting to some case studies as well.

The human capabilities, which could be affected by robotic applications are investigated, and the corresponding constitutional interests and rights are identified and discussed.

WP5 sets out to chart some of the central philosophical (ethical, ontological, anthropological) problems arising from the use of emerging robotic technologies for human enhancement, and aims to uncover their legal and social/societal consequences.

The WP investigates the ways in which robotic technology in the field of human enhancement may be designed and applied in such a way as to safeguard core social values and norms relating to human capacities, normalcy, and disability. It provides an analysis of the main concepts involved in the debate on emerging technologies in order to avoid obscurity and vagueness, which could undermine a reasonable approach to the role and function of science and technology in society.

WP6 aims at providing the European Commission with guidelines and suggestions for the regulation of robotic technologies.

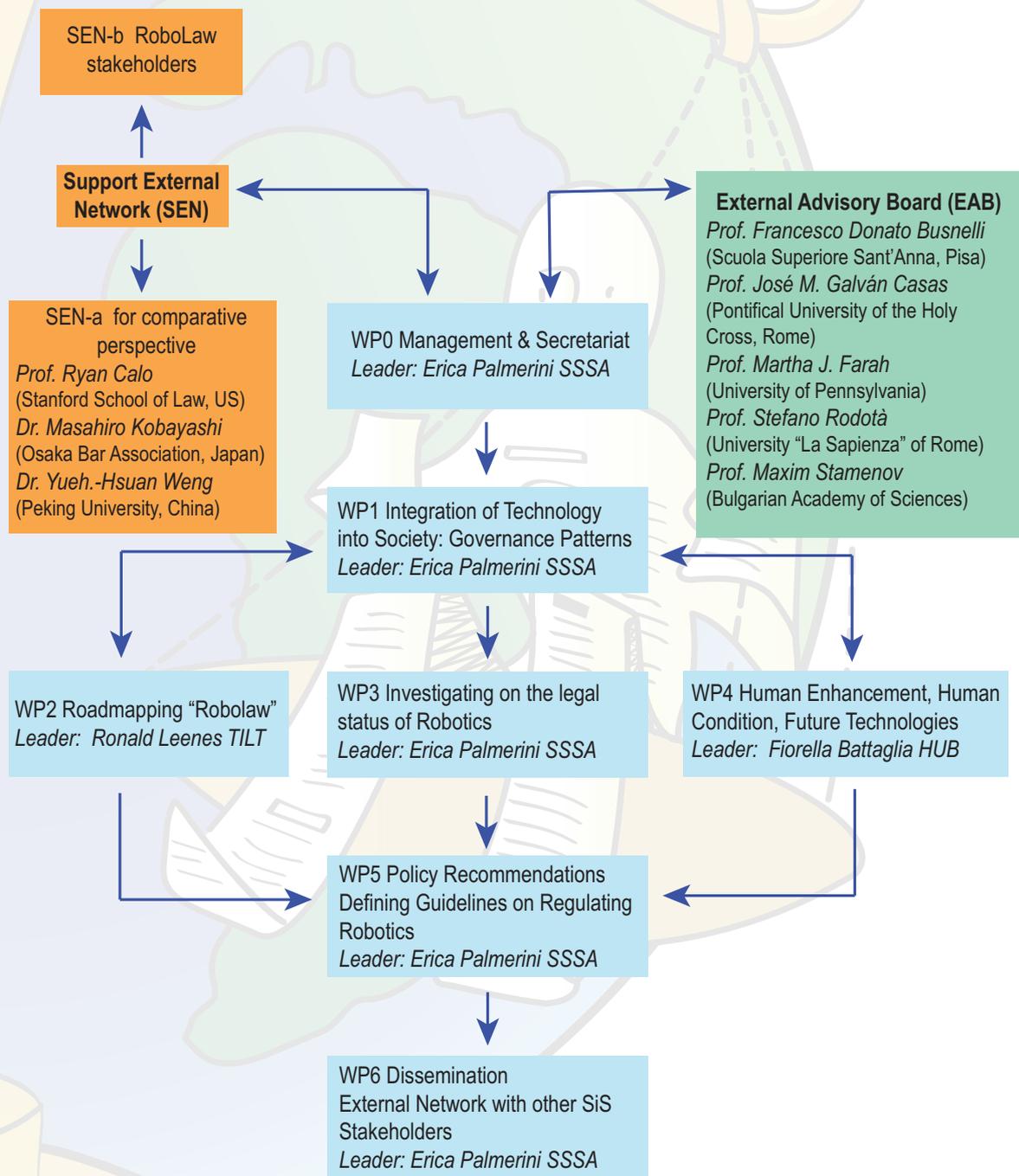
It discusses whether and how issues arising from robotic applications should be addressed and, if possible, which rules are desirable in the given case.

To this purpose a cross-country debate is promoted, the results of the above described WPs are compared, and the input of different stakeholders is taken into account.

WP7 sets the baseline for an effective dissemination plan and provides standards for these initiatives.

The project results are disseminated by activities such as scientific publications, brochures, press releases, newsletters, a website, workshops and further events. The exchange with other associations, networks and stakeholders is promoted.

The main targets of the dissemination events are the components of the consortium, communities interested in techno-ethical issues, in the legal studies of technologies, and society at large.



Achievements

RoboLaw Kick-off Meeting at the European Robotic Forum Odense, 5 March 2012

The RoboLaw Kick Off Meeting was held in Odense (Denmark) on 5 March 2012 in the framework of the European Robotics Forum (ERF). The meeting was open to the public and it consisted of a series of targeted presentations on the theme of robotics and law, which were given by the project partners. The presence of the RoboLaw project at ERF illustrates the relevance of the topic for the robotics community and the effort that the European Commission is making in addressing and trying to fill the legal gap that currently hinders the development of a sustainable robotic market.



In particular, RoboLaw contribution consisted in some presentations made by D. Lagiou (RoboLaw Project Officer), E. Palmerini (the Project Coordinator, SSSA), A. Pini (SSSA), on "From Ethical Issues to Robotics Answers and vice versa: A Philosophical Approach", R. Leenes (TILT), on "Cheating with implants. Implications of the hidden information advantage of bionic ears and eyes", K. Warwick (UoR), on "BioTech Robots and Cyborgs – Ethical Aspects", F. Battaglia (UBER), on "Ethical and anthropological issues concerning robotics". B. Juretzki

(EU Commission) was entrusted the task to conclude the Kick-off meeting.

Workshop on Regulating Technological Development at the Intersection of Science and Law Pisa, Scuola Superiore Sant'Anna, 21-22 June 2012

The workshop aimed to analyze the sources of law at stake in the perspective of regulating technological development, with a special focus on soft-law, transnational private regulation and technical norms and standards. Moving from a general overview of the theoretical questions raised by the use and spread of these legal devices, they have been discussed from different points of view – the philosophical and the legal, and in a comparative perspective as well – and according to their current use in some "sensitive" fields of application (biotechnologies, food technologies, ICT, risk assessment). Specific attention has been put on transnational private regulation (TPR), and its relations with, on the one hand, merchant law and, on the other, international public regimes.

Technological innovation develops in a transnational context, being the purport of



the cooperation of articulated research teams spread over the globe, but it is also, by its very nature, a cross-boundary phenomenon, which runs across jurisdictions most often extremely distant from one another, even with respect to axiological choices. The analysis of a wide array of “soft-law” tools and procedures has grounded an examination on the ways new regulatory forms (of independent agencies, international organizations such as ISO, non-state actors and organizations) challenge the traditional state-centered and hierarchical forms of regulation, most often unsuitable in approaching emerging robotic technologies. The workshop, divided into two panels, dedicated the first one to “Regulating Technology: Theoretical Perspectives” and the second one to “Regulating Technology: A Case-Scenario Approach”.

Within the First Panel, there were the interventions of: Stefano Rodotà (University of Rome “La Sapienza”), on “Technology and Regulation: A Two-way Discourse”, Bert-Jaap Koops (TILT, Tilburg University), on “Multiple Dimensions of Technology Regulation: An Overview”, Fabrizio Cafaggi (European University Institute), on “Technical Standardization and Transnational Private Regulation”, Astrid Zei (University of Rome “La Sapienza”), on “Rule of Law at Stake: The Increasing Role of Private Norms and Standards in the European Legal System”, Amedeo Santosuosso (University of Pavia, ECLT), on “Is there a Need for a General Theory of Law and Technology?”.

Within the Second Panel, there were the interventions of: Eleonora Sirsi (University of Pisa), on “Agri-food Technologies and the Law”, Alessandra Arcuri (European University Institute), on “Risk Regulation: Comparing Alternative Regulatory Paradigms”, Anton Vedder (TILT, Tilburg University), on “Regulating Robotic Technologies: The Problems of Legitimacy and Acceptance of Robots”, Marco D’Ostuni (Cleary Gottlieb Steen & Hamilton, LLP), on “Communication Technologies and the Law”, Michele Passaro (Independent Regulatory Authority for Electricity and Gas), on “Technical Regulation and the Role of Independent Regulatory

Authorities: The Case of the Regulatory Authority for Electricity and Gas”, Gurvinder S. Virk (University of Gävle, ISO), on “The Role of Standardization in the Regulation of Robotic Technologies”.

RoboLaw Plenary Meeting Pisa, 27-28 September 2012

On 27-28 September 2012 the first RoboLaw Plenary Meeting was held at the Scuola Superiore Sant’Anna (Pisa).

During the two days meeting issues concerning scientific and organizational work were dealt with and an agenda of the upcoming tasks of the research units was discussed and set up.

Sciences, éthique et droit: dynamique et concurrence des normes Université européenne d’été 2012 de l’Institut des Hautes Études pour la Science et la Technologie (IHEST) Château Laval - Gréoux-les-Bains, 27-31 August 2012

In the framework of a Summer School dedicated to issues concerning the relationships between scientific and technological developments and law, on the one hand, and law and ethics, on the other hand, Erica Palmerini, RoboLaw Project Coordinator, presented the contents and objectives of the Project, on Thursday, 30 August 2012, together with Dionysia Lagiou, RoboLaw Project Officer, during a session dedicated to *Les dynamiques des normes dans le temps et l’espace*.

20th European Conference on Artificial Intelligence Montpellier, 27-31 August 2012

Within the 20th European Conference on Artificial Intelligence – ECAI 2012 – took place the 1st Workshop on “Rights and Duties of Autonomous Agents”. In this workshop Alberto Pirni, member of the Robolaw team and of the DIRPOLIS Institute – SSSA presented the paper on “Subjectivity of Autonomous Agents. Some Philosophical And Legal Remarks”, written by E. Stradella, P. Salvini, A. Pirni, A. Di Carlo, C. Oddo, P. Dario, E. Palmerini.

Talk on *Legal Issues on Cyborgs: Interface between Policies and Society* Conference on Cyborgs at the International Humanoid and Service Robots Expo at Milan Milan, 7 November 2012

The conference *Technoethics and the Cyborg issue* took place in Milan on 7 November 2012. Among the participants were S. Micera (the Biorobotics Institute) and E. Stradella (University of Pisa and member of the RoboLaw staff), who gave a talk on *Legal Issues on Cyborgs: Interface between Policies and Society*.

At the venue, a poster presenting the project was illustrated by Angela Di Carlo (SSSA).

Workshop on *Human Enhancement* Tilburg (The Netherlands), Tilburg University, 15-16 November 2012

Within WP5 a workshop on the main issues of *Human Enhancement* was organized in Tilburg. The workshop primarily focused on some often returning distinctions and arguments in the debate on human enhancement as a whole. Many members of the RoboLaw Staff participated to the workshop with own papers and scientific contributions to the discussion. Among these: Anton Vedder (Chair), Ronald Leenes, Kevin Warwick and Huma Shah "Selective Deep Brain Stimulation Through the use of AI", Antonio Carnevale and Fiorella Battaglia "A 'Reflexive' Approach to Therapy-Enhancement Distinction. Some Philosophical Considerations", Pericle Salvini "Human presence and robotic enhancement". Dionysia Lagiou, Project Officer, EC DG Research and Innovation B 6, participated to the workshop too.

Workshop on *Ethical, Legal and Societal issues in Robotics as one of the PPP Robotics Topic groups* Lyon, 20 March 2013

After one year of activities, the RoboLaw project comes back to ERF.

The preliminary results of the RoboLaw project were presented at the Workshop *Ethical, Legal and Societal issues in Robotics as one of the PPP Robotics Topic groups* organised by Christophe Leroux, CEA LIST.



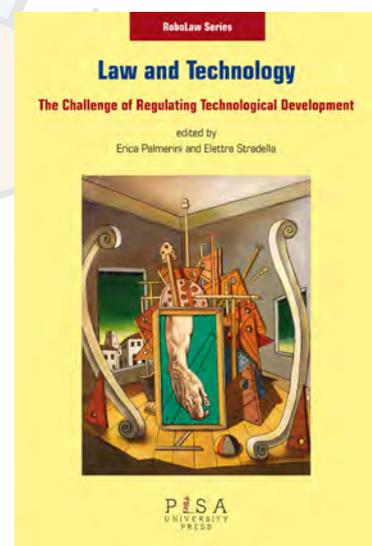
Conference on *Opportunities and risks of robotics in relation to human values* Tilburg (The Netherlands), Tilburg University, 23-24 April 2013

Robotic technologies, taken to encompass anything from 'traditional' robots to emerging technologies in the field of biomedical research, such as nanotechnologies, bionics, and neural interfaces, as well as innovative biomedical applications, such as biomechatronic prostheses, hybrid bionic systems and bio-mechatronic components for sensory and motor augmentation, will have a profound impact on our lives. They may also affect human values, such as privacy, autonomy, health and bodily integrity. The workshop focuses on the impact of new technologies, and particularly robotics, on fundamental rights and human values.

Book on *Law and Technology. The Challenge of Regulating Technological Development*, edited by Erica Palmerini and Elettra Stradella

Pisa, Pisa University Press, 2013

This book originates from the valuable discussion carried out during the workshop *Regulating Technological Development at the Intersection of Science and Law* that was held on 21-22 June 2012 in Pisa. It represents the very first step towards the elaboration of *Guidelines for the regulation of robotic technologies in Europe*, which will be presented by the RoboLaw Consortium to the European Commission in 2014.



Upcoming events

ICRA 2013 Workshop on *Legal, Economic and Socio-Ethical Implications for the Next Generation of Robots*

Karlsruhe, 6 May 2013

A RoboLaw workshop is organised in the framework of the International Conference on Robotics and Automation, one of the most important conferences on robotics.

The workshop is organised by Scuola Superiore Sant'Anna, Pisa (Italy) in collaboration with the Research Centre Robot-Law, University of Wuerzburg (Germany), the European Centre for Law, Science and New Technologies of the University of Pavia (Italy), and the research group on Technology Assessment of Service Robotics of Karlsruhe Institute of Technology (Germany).

The workshop will bring together an interdisciplinary group of outstanding researchers and experts in law, ethics, safety standards, economics, politics, and, of course, robotics, with the aim of providing an updated overview on the major challenges facing next generations robots.



RoboLaw Plenary Meeting Reading, 24-25 June 2013

The second RoboLaw Plenary Meeting is going to be held at the University of Reading (UK). During the two days meeting a preliminary outline of the guidelines for the EU Commission is going to be discussed and the results of the research on the stake-holders' network are going to be presented.

International Conference *Investigating the Relationship between Future Technologies, Self and Society* scheduled for November 2013 in Pisa

This two-days Conference will examine research and development both locally and internationally about the interaction between humans and technologies. We are focused on better clarify which kind of relationship humans are developing with new technologies applied in healthiness, as well as in improving general quality of life, and which risks are connected in new technologies introduction in everyday life. The main objective of the international conference *Investigating the Relationship between Future Technologies, Self and Society* is let different ethical, philosophical, engineering and medical points of view talk together, to better clarify the social impact of new and future technologies.

Dissemination activities

RoboLaw Website

The RoboLaw website (www.robolaw.eu) was released at Project Month 1 and its development and maintenance will continue until and beyond the end of the project. During the course of the past months, the website has been updated with news, public deliverables, references to scientific papers and articles, material deriving from the organisation or participation in RoboLaw events and press release.

Furthermore, the project website will be used to collect up-to-date information on the technologies involved and technological case-studies selected in the course of the project, databases of national and international regulations on emerging robotic technologies, knowledge base on RoboLaw issues identified during the project, and on the results of the joint analytic activities.

Press reviews

- ***The Economist*, 1 September 2012**

An article by Emmet Cole about the RoboLaw project appeared on the online and print edition of *The Economist* on 1 September 2012. The article is entitled *You, robot? Technology and regulation: A research project considers how the law should deal with technologies that blur man and machine* and contains an interview to Prof. Erica Palmerini – RoboLaw project coordinator – and Dr. Pericle Salvini.

<http://www.economist.com/node/21560986>

**The
Economist**

- ***WIRED.CO.UK*, 18 February 2013**

An article on RoboLaw by Mark Piesing appeared on WIRED.CO.UK. The article is entitled *Beyond Asimov: the struggle to develop a legal framework for robots* and contains an interview to lawyer Andrea Bertolini and roboticist Pericle Salvini, both part of the RoboLaw team of Scuola Superiore Sant'Anna.

WIRED.CO.UK

Project also mentioned in:

- ***La Repubblica*** – Cronaca di Firenze, 16 March 2012
- ***Nova*** – insert of *Il Sole 24 ore*, 18 March 2012
- ***Robotics Business Review*** – *Robot Law: A Global Perspective* by Emmet Cole, 24 September 2012

RoboLaw Stakeholders Mailing List

A mailing List (news@robolaw.eu) has been activated through the RoboLaw website. All interested people will be able to subscribe to the RoboLaw mailing list via the project website. The mailing list will be used to send the project newsletters and inform all members about the project upcoming events and news.

RoboLaw Wikipedia page

Among the dissemination means, worth noting is the RoboLaw Wikipedia page (<http://en.wikipedia.org/wiki/RoboLaw>), including the main pieces of information about RoboLaw Project and its achievements.

Consortium



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