

The EANL Law, Cognitive Neuroscience & New Technologies Summer School 2016
University of Pavia, Italy
Program

The School is organized by the European Association for Neuroscience and Law (EANL) and hosted at University of Pavia by the Neuroscience and Society Lab (Brain and Behavioral Sciences Department) and ECLT Interdepartmental Research Center, in cooperation with the Centre for health Technologies at the UNIPV, the European Law Students Association (ELSA); Fondazione Veronesi; Collegio Ghislieri

Directors: Prof Gabriella Bottini (CFNNS, UniPv), Prof. Amedeo Santosuosso (ECLT, UniPv)

Scientific committee: Prof Gabriella Bottini (CFNNS, UniPv), Prof. Amedeo Santosuosso (ECLT, UniPv), Dr. Barbara Bottalico (ECLT, UniPv), Dr. Daniela Ovadia (CFNNS, UniPv)

Monday 5 September 2016

9.30-10.00 am

Welcome session – Prof. Fabio Rugge, Rettore University of Pavia; Prof. Andrea Belvedere, Rettore Collegio Ghislieri, Pavia

10-11.00 am

Introduction to the school

Cognitive neuroscience, robotics, law and ethics Amedeo Santosuosso, Gabriella Bottini, Barbara Bottalico, Daniela Ovadia (University of Pavia)

coffee break

11.30 am -1 pm

Opening lecture

From computational neuroscience to AI: the model of the Human Brain Project
IDAN SEGEV

Head of Department of Neurobiology, Institute of Life Sciences
Member the Edmond and Lily Safra Center for Brain Sciences (ELSC)
Co-Director of the HU-Max Planck Center
The David & Inez Myers Chair in Computational Neuroscience
The Hebrew University of Jerusalem

Chairman: Egidio D'Angelo, Full Professor of Physiology at the Dept. of Brain and Behavioral Sciences, University of Pavia.

Lunch

3-5 pm

Shared Glossary on Law, Robotics & Neuroscience

Parallel sessions:

Law for non lawyers – Maria Laura Fiorina (University of Pavia) & Federica Coppola (EUI)
Neuroscience for non-neuroscientists – Gerardo Salvato (University of Pavia)

Robotics for non roboticist - Hermes Giberti (University of Pavia)

5-5.30 pm

Q&A – plenary session

Tuesday 6 September 2016

9.15 -11 am

Brain imaging in neuroscience and law

Eraldo Paulesu (Full Professor of Psychobiology and Physiological Psychology, Psychology Department, University of Milan-Bicocca).

Brain imaging, and in particular fMRI, has offered unprecedented opportunities of studying the mind/brain relationship. The advent of fMRI has made such studies affordable and highly accessible with some cases of clear misuse of the technology. In this talk I will briefly introduce the principles behind these techniques, their potentials and limitations with particular reference to the domain of neuroscience and law. I will touch the practical examples of imaging supported assessments of criminal responsibility and capacity to stand trial. I will also discuss the infamous attempts of using functional imaging as a modern lie-detector.

coffee break

11.30 am -1 pm

Cognitive neuroscience in criminal law

Gabriella Bottini (Full Professor of Neuropsychology, University of Pavia), Gerardo Salvato (PhD student from the Cognitive and Forensic Neuropsychology Lab at the University of Pavia).

This session will provide students with an introduction starting from the historical development of cognitive neuroscience to its actual definition. The tight link between this discipline and the Law will be highlighted, framing particularly how cognitive neuroscience can change the perspective of the law and also *viceversa*. A general understanding of this topic will be reached through examples of cognitive neuroscience instruments and procedures application to the study of memory, emotions and degenerative brain damages that affect these functions. In the second part of the session, the critical questions that emerged for cognitive neuroscience when applied to the domain of forensic evaluation will be presented, together with the actual challenges that this interdisciplinarity poses. The legal issues deriving from the implementation of cognitive neuroscience in criminal law and procedure will be analyzed and discussed. Special focus will be put on how cognitive neuroscience might potentially affect the existing legal doctrinal categories pertaining to culpability (e.g., the category of legal insanity), as well as how neuroscientific techniques might be used in criminal proceedings.

Lunch

2.30 – 4.00 pm

Criminal Responsibility in different jurisdictions : NL, US, Italy

Katy De Kogel (Senior Researcher, Research and Documentation Centre (WODC), Ministry of Security and Justice, The Netherlands), David Roef (Assistant Professor, Department of Criminal

Law and Criminology, Faculty of Law; Maastricht University), Federica Coppola (European University Institute)

4.15 – 5.00 pm

Emotions, criminal law and the shift of the rationalist approach to culpability

Federica Coppola (European University Institute)

The aim of this session is to analyze, and to challenge, this profound mismatch between criminal law and neuroscience. More specifically, this session will explore how the neuroscientific teachings about the role of emotion in moral decision-making processes might help revise the orthodox rationalist substance of culpability doctrines as they stand in current criminal laws. The session begins with a general comparative overview of culpability doctrines—notably, insanity and *mens rea*—with special focus on the cognitive core of their conceptual and legal-psychological substance. It then contrasts said doctrines with neuroscientific insights into moral decision-making processes. In view of this contrast, the session moves to consider the extent to which advances in brain science on emotion and moral judgments may cause us to re-evaluate culpability doctrines and, more in general, the meaning of criminal culpability. It concludes by canvassing and discussing possible corollaries – both theoretical and practical – that might arise.

5.00 – 5.30

Neuroscience, freedom of expression and speech acts: some remarks

Amedeo Santosuosso (Professor of Law, Science and New Technology, University of Pavia, I)

Wednesday 7 September 2016

9.30 – 10.30 pm

Neuroscience in the courtroom – preliminary results of the use of neuroscience by defendants in Dutch criminal trials

Katy De Kogel, David Roef

One of the classic areas where commentators have anticipated that neuroscience will be used in the courtroom is by those accused of criminal offences. Much has been written about how such evidence might be used and quite a bit has been written about a few high profile cases. Recently a systematic investigation has been started in the Netherlands into the use of such evidence in criminal case law. This session will present the main findings and subsequently discuss topics where behavioral experts and legal experts have divergent views, like addiction.

10.30 – 11.30 am

Italian Neuro-Case Law.

Maria Laura Fiorina & Federica Coppola

Coffee break

11.45 am – 1 pm

Brain reading, mental privacy and freedom of thought

Pim Haselager (Donders Institute for Brain, Cognition, and Behaviour, Radboud University Nijmegen, The Netherlands)

Recent developments in neurotechnology seem to create the possibility to objectively access mental states such as perceptions, memories, intentions, feelings, and dreams. A person's mental states have been traditionally considered to be private and subjective. However, sophisticated machine learning techniques have been developed which are claimed to enable 'brain reading' or even 'mind reading': decoding brain states so that mental states can be classified and interpreted. These recent developments might have important and long lasting consequences, positive as well as negative, for the individual and society. I will present several recent examples of attempts at brainreading, and discuss the extent to which these actually constitute access to the subjective mind. Moreover, I will examine the possibilities to verify introspective reports regarding the nature and content of those states, or even contest first person authority by overriding such introspective reports. I will outline some consequences of these emerging possibilities for an individual's freedom of thought.

lunch

Wednesday afternoon

- Time for working on their papers (students)
- EANL Steering Committee meeting @ Collegio Ghislieri

Thursday 8 September 2016

9.30 – 10.30 am

Key-note Lecture

AI, computation and law

Oliver Goodenough

Director, Center for Legal Innovation and Professor of Law, Vermont Law School, USA

10.45 – 11.30

Artificial Intelligence and Law

Alessandra Malerba (Ph.D. Erasmus Mundus in Law, Science and Technology, University of Bologna, I)

coffee break

12 am – 1 pm

Generativity and Innovation in Law

Oliver Goodenough

Director, Center for Legal Innovation and Professor of Law, Vermont Law School, USA

Lunch break

2.30 – 3.30 pm

Ethics assessment and ethics impact assessment of neurotechnologies

Daniela Ovadia (University of Pavia, Neuroscience and Society Lab)

Ethics assessment and ethics impact assessment of new technologies are emerging fields that will influence more and more the development of research and innovation but also the norms and laws that will regulate, at national and international level, the introduction of new devices. Ethics assessment of new neurotechnologies is particularly challenging, as it involves both the evaluation of the technology itself - in terms of safety and costs - and of the respect of basic human rights, as the protection of the personal identity and privacy.

3.45 – 5.00 pm

Brain Computer Interfaces

Stefano Ramat (Associate Professor, Faculty of Engineering, University of Pavia)

Friday 9 September 2016

9.30 – 10.30 am

Key-note Lecture

Robotics today

GIORGIO METTA

Senior Researcher - Research Director

PhD, Vice Scientific Director, robotics guru

IIT Genova (I)

10.45-11.30 am

Robotics & law in UK and common law systems

Chris Holder (Bristol LLP)

12.00-1 pm

Robotics & Law in civil law systems

Barbara Bottalico (Post-Doc researcher, University of Pavia)

Lunch

2.30 – 3.30 pm

Intelligent artifacts and human rights

Amedeo Santosuosso (Professor of Law, University of Pavia)

The Universal Declaration of Human Rights (1948) set the idea that human beings are the only beings endowed with reason and conscience, thus exclusively entitled to have fundamental rights and liberties (art.1). This view has been questioned by recent studies on nonhuman animals and by the most recent advances in neuroscience, artificial intelligence and evolutionary and learning robotics. New legal questions are raising, and the theoretical possibility to have consciousness (or, at least, some conscious states) in machines and other cognitive systems is gaining consideration. The possibility of rights and liberties of (totally or partially) artificial intelligent entities (such as robots and intelligent machines) is explored.

3.45 – 5 pm

Robotics and ethical issues

Filippo Santoni De Sio (T.U. Delft, NL)

SATURDAY 10 September 2016

9.15 – 10.15

Presentations of students' works

10.30 – 11.30

Closing keynote lecture

11.30 – 12

Certificate delivery

Closing remarks