Special Session on legal and ethical aspects of AI systems in the biomedical field

[IEEE CIBCB 2022 - 19th IEEE International Conference on Computational Intelligence in Bioinformatics and Computational Biology](#)

15-17 August, 2022 – Ottawa, ON, Canada

CALL FOR PAPERS

Aim

In recent years, the development of AI systems aimed at supporting clinical decisions has greatly expanded, employing a wide range of techniques, such as machine learning and deep learning. AI systems are used for a variety of applications, such as diagnosis, personalized medicine, triage assessment, disease prevention and monitoring, and drug development. In some areas, such as radiology, the performance of AI systems has even surpassed that of humans. However, the biomedical field is also a sector in which complaints, litigation, criminal charges for medical malpractice, and administrative fines are increasing worldwide, therefore special attention should be paid to legal issues that may arise from the use of AI systems. AI systems may, in fact, have a significant legal impact on multiple stakeholders: researchers, producers, health care professionals, patients, and society as a whole.

From a legal point of view, the whole AI life cycle generates the need for regulatory and ethical compliance. Because of the fact that health data, which are considered special categories of data according to art. 9 of GDPR, are involved, privacy compliance, including correct anonymization pursuant to the Working Party 29's guidelines of 2014, is a key issue. In addition, due to the known issues regarding discrimination in health care, the ethical assessment is also extremely important.

At a global level, there is a call for the development of Trustworthy AI systems, which is particularly important in the biomedical field. As highlighted by the High-Level Expert Group on AI set up by the European Commission, "*Trustworthy AI has three components, which should be met throughout the system's entire life cycle:*

1. it should be lawful, complying with all applicable laws and regulations;

2. it should be ethical, ensuring adherence to ethical principles and values; and

3. it should be robust, both from a technical and social perspective, since, even with good intentions, AI systems can cause unintentional harm".

Some scholars have even pushed the debate further, advocating for explainability and interpretability for all systems employed in the healthcare sector, thus considering black-box approaches not compliant with ethical and legal standards.

This Special Session aims at gathering scholars who are investigating new directions and ideas in the field of **AI and Law,** in particular **in the biomedical field.**

Scope

This Special Session welcomes papers regarding any legal issue (including privacy) and ethical aspects of AI systems; in particular, we are interested in Automated Decision-Making systems (ADM), applied in the context of the biological or medical domain.

Examples include but are not limited to:
- Explainable/Interpretable AI systems for medical decision support
- Right of explanation and Trustworthy AI in the biomedical field
- Biases in AI systems and debiasing techniques
- Fair methods for data preprocessing
- Unbiased data augmentation and privacy-preserving generative models
- Anonymization and pseudonymization of biobanks
- How personalized medicine through AI systems can contribute to mitigating discrimination and inequalities in health care
- Privacy aspects of telemedicine
- The use of synthetic data to protect personal data
- Legal and ethical issues of data collection, data cleaning, feature/variable selection, and other phases of the development
- Ethical framework for medical AI systems
- Ownership of patients' data and conditions for reuse
- Legal consequences of a biased AI model
- Medical device regulation and AI
- AI regulation proposal and AI models in biomedical research
- Legal and ethical issues concerning the use of smart robots for surgery
- Civil liability derived from Automated Decision Making systems in medical practice
- Legal aspects of machine learning applied to medical imaging
- Legal issues of open-source AI systems
- Comparative perspectives on the above issues in different legal systems (papers exploring the legal system of under-represented countries are very welcome)

PC members

- Daniela Besozzi (University of Milano-Bicocca, Italy)
- Tomasz v. Braun (Lazarski University, Warsaw, Poland)

- Karni Chagal-Feferkorn (University of Ottawa)
- Gregor Christandl (Universität Graz, Austria)
- Stefania Costantini (L'Aquila University, Italy)
- Abeer Dyoub (L'Aquila University, Italy)
- Caro Fuchs (Eindhoven University of Technology, The Netherlands)
- Dominika Harasimiuk (University of Warsaw, Poland)
- Susan Homerson (Eindhoven University of Technology, The Netherlands)
- Elvira Inglese (ASST Grande Ospedale Metropolitano Niguarda, Italy)
- Amalia Lupi (University of Padua, Italy)
- Joana Maria Madeira Aguiar Silva (Universidade do Minho, Portugal)
- Teresa Magno (European Union Agency for Criminal Justice Cooperation)
- Viviana Mascardi (University of Genova, Italy)
- Mathias Möschel (Central European University, Austria)
- Juan Carlos Nieves (Umea University, Sweden)
- Marco S. Nobile (Ca' Foscari University of Venice, Italy)
- Guido Noto La Diega (University of Stirling, UK)
- Andrea Pin (University of Padua, Italy)
- Carlo Rossi Chauvenet (Bocconi University, Italy)
- Teresa Scantamburlo (European Centre for Living Technology, Italy)
- Katherine Sheriff (Davis Wright Tremaine LLP)

Important Dates

- Submission deadline: 15th of April 2022
- Notification of acceptance 15th of June 2022
- Final paper submission: 15th of July 2022

Format

Prospective authors are invited to submit papers of no more than eight (8) pages in IEEE conference format, including results, figures, and references. Papers must be in PDF and written in English. Detailed instructions and templates for preparing your manuscripts can be found on the [IEEE website](). Papers will be published in the proceedings of the conference.

Submission guidelines

Special session papers should be uploaded online through the paper submission website of IEEE CIBCB 2022. Please select the corresponding special session name ("Special Session on legal and ethical aspects of AI systems in the biomedical field") as the "main research topic" in submission. All papers will be peer-reviewed by experts in the fields of the call and ranked based on the criteria of originality, significance, quality, and clarity, and special attention will be paid to case studies. Please note that submission implies the willingness of at least one of the authors to register and present the paper at the conference. The conference fees are listed on the [conference website]().

Organizers

- **Chiara Gallese** (Eindhoven University of Technology, The Netherlands)
  Chiara Gallese is a researcher at the Department of Electrical Engineering at Eindhoven University of Technology (the Netherlands) and at the School of Engineering at Carlo Cattaneo University - LIUC (Italy). Her research focuses on Privacy, AI & Law, AI & Ethics.

- **Elena Falletti** (Carlo Cattaneo University LIUC, Italy)
  Elena Falletti is a researcher at the School of Engineering at Carlo Cattaneo University - LIUC (Italy). Her research focuses on antidiscrimination law, and AI and privacy.

- **Simone Spolaor** (University of Milano-Bicocca, Italy)
  Simone Spolaor is a research fellow at the Department of Informatics, Systems and Communications at University of Milano-Bicocca (Italy). His research focuses on the analysis and simulation of complex biochemical systems.