

Special Session on Applied Medical AI Ethics

IEEE IJCNN WCCI 2024 The IEEE World Congress on Computational Intelligence

June 30 - July 5 2024 – Yokohama, Japan

CALL FOR PAPERS

Aim

In the biomedical field, a large number of sensitive personal data is constantly being processed and the decisions made by AI systems have a substantial impact on patients' lives. It is important to explore the implications of research in the field of Computational Intelligence in Bioinformatics and Computational Biology and their use in real-life cases. AI systems may, in fact, have a significant impact on multiple stakeholders: researchers, producers, healthcare professionals, patients, and society as a whole, from an ethical, legal, and sociological point of view.

Recent research suggests that multiple individuals, especially marginalized groups, are negatively affected by biases and incorrect use of those systems. Furthermore, in the context of the legislative novelties aiming at regulating AI systems worldwide, the whole AI life cycle generates the need for regulatory and ethical compliance to remove biases and address potential risks. AI Auditing, Value Sensitive Design, and Applied Ethics are becoming a necessity rather than a choice.

However, the research in these fields has not reached an agreement on how to perform a comprehensive ethical assessment of the whole AI life-cycle, from the data collection to the post-marketing phases. Different fairness metrics, debiasing techniques, and auditing frameworks have been presented over the years.

This Special Session aims to gather scholars investigating new directions and ideas in the field of Applied AI Ethics, particularly in the biomedical field.

Scope

This Special Session welcomes papers regarding any ethical issue (including interpretability, fairness, and accountability) arising from AI systems; in particular, we are interested in techniques applied in the context of the biological or medical domain. Together with the discussion about ethical and legal issues, authors are strongly suggested to include a computational part in their paper.

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
- Fairness metrics in the context of biomedicine
- 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 healthcare
- 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
- Social consequences of a biased AI model
- AI regulation proposal and AI models in biomedical research
- Legal and ethical issues concerning the use of smart robots for surgery
- Ethical issues of open-source medical AI systems
- Comparative perspectives on the above issues in different areas (papers exploring the legal system of under-represented countries are very welcome)

Important Dates

- Submission deadline: January 15 2024
- Notification of acceptance: March 15 2024
- Final paper submission: May 1 2024

Format

Regular papers

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 form and written in English. Detailed instructions and templates for preparing your manuscripts can be found on the IEEE website. Each paper will be peer-reviewed. Submission implies the willingness of at least one author to register and present the paper at the conference. Each registration can cover a maximum of two papers. Extra papers submitted by one registered author beyond the maximum of two papers per registration will incur a charge of €150 per paper. Papers that are more than 8 pages in length will incur an extra length page charge of €100/page. No papers greater than 10 pages in length will be accepted.

Submission guidelines

Special session papers should be uploaded online through the paper submission website of. Please select the corresponding special session name ("Special Session on Applied Medical AI Ethics) as the "main research topic" in the 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: <https://2024.ieeewcci.org/submission>.

Instructions for authors

Double-Blind Reviewing

The review process for WCCI 2024 will be double-blind, i.e. reviewers will not know the authors' identity (and vice versa). Authors should ensure their anonymity in the submitted papers. In brief:

authors' names should not be included in the submitted pdf;

please refer to your prior work in the third person wherever possible;

a reviewer may be able to deduce the authors' identities by using external resources, such as technical reports published on the web. The availability of information on the web that may allow reviewers to infer the authors' identities does not constitute a breach of the double-blind submission policy.

Note that anonymizing your paper is mandatory, and papers that explicitly or implicitly reveal the authors' identities may be rejected.

Paper Submission

Please read the following paper submission guidelines before submitting your papers:

Each paper should not reveal the author's identities (double-blind review process).

Papers will be checked for plagiarism. The Program Committee reserves the right to desk-reject a paper if it contains elements that are suspected to be plagiarized.

Submissions should be original and not currently under review at another venue.

Each paper is limited to 8 pages, including figures, tables, and references. A maximum of two extra pages per paper is allowed (i.e, up to 10 pages), at an additional charge of \$100 per extra page.

All papers must be submitted through the IEEE WCCI 2024 online submission system. For special session papers, please select the respective special session title under the list of research topics in the submission system. In this case, please specify “**Special Session on Applied Medical AI Ethics .**”

In order for your papers to be included in the congress program and in the proceedings, final accepted papers must be submitted, and the corresponding registration fees must be paid by May 1, 2024 (11:59 PM Anywhere on Earth).

IEEE WCCI 2024 will present the Best Overall Paper Awards and the Best Student Paper Awards to recognize outstanding papers published in each of the three conference proceedings (IJCNN 2024, FUZZ-IEEE 2024, IEEE CEC 2024). The awards will be judged by an Awards Committee and the recipient of each award will be given a certificate of the award and a cash prize.

It is the policy of WCCI 2024 that new authors cannot be added at the time of submitting final camera ready papers. Please ensure that you are following this guideline to avoid any issues with publication.

If you encounter any problems with the submission of your papers, please contact the WCCI 2024 Paper Submission Chairs.

Paper submission system

WCCI 2024 adopts EDAS as the submission system, available at the following link:

<https://edas.info/login.php?>

[url=aHR0cHM6Ly9IZGFzLmluZm8vTjMxNjE0P2M9MzE2MTQ=](https://edas.info/login.php?url=aHR0cHM6Ly9IZGFzLmluZm8vTjMxNjE0P2M9MzE2MTQ=)

LaTeX and Word Templates

To help ensure correct formatting, please use the IEEE style files for conference proceedings as a template for your submission. These include LaTeX and Word style files.

In order to implement the double-blind policy, please use the following author statement in the latex file: `\author{\IEEEauthorblockN{Anonymous Authors}}`

If you use Word, just use "Anonymous Authors" as authors' names.

Violations of any paper specification may result in rejection of your paper.

Manuscript Style Information

Only papers in PDF format will be accepted.

Paper Size: A4 (210mm x 297mm).

Paper Length: Each paper should have 6 to MAXIMUM 8 pages, including figures, tables and references. A maximum of two extra pages per paper is allowed (i. e., up to 10 pages), at an additional charge of \$100 per extra page.

Paper Formatting: double column, single spaced, #10 point Times Roman font. Please make sure to use the official IEEE style files provided above.

Note: Violations of any of the above specifications may result in rejection of your paper.

Organizers

- **Chiara Gallese (Eindhoven University of Technology, The Netherlands)**

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

- **Elena Falletti (Carlo Cattaneo University LIUC, Italy)**

Elena Falletti is an Assistant Professor at the School of Engineering at Carlo Cattaneo University - LIUC (Italy). She obtained her doctorate at the University of Turin and is a former Marie Curie and DAAD fellow. She has been a visiting scholar at the Max-Planck-Institute in Hamburg and Munich (Germany). Her research focuses on comparative law, anti discrimination law, and AI & privacy.

- **Elisaveta Gromova (South Ural State University, Russia)**

Elisaveta Gromova is an Associate Professor at the Department of Law of South Ural State University (Russia). She is Editor-in-chief of the International Journal of Law in Changing World, and Deputy Editor-in-chief of the Digital Technologies and Law Journal. As a researcher of the International Interdisciplinary Research Project “LegalTech: Legal Regulation of Artificial Intelligence, Robotics, Digitization of Law and Smart Law for Smart Industry” she is researching how digital transformation influences law

- **Daniele Papetti (Milano Bicocca University, Italy)**

MSc, PhD student in Computer Science at University of Milano-Bicocca. He specializes in Artificial Intelligence and global optimization problems. His main expertise focuses on applying Artificial Intelligence and machine learning in healthcare to develop clinical decision support tools.