

ETHICS-2023: Welcome messages

I. ETHICS-2023 GENERAL CHAIR'S WELCOME

Purdue and IEEE have been my dual professional homes for most of my 47-year career, so I am thrilled to welcome you to IEEE ETHICS-2023 at Purdue. I am especially proud to have ties with both co-sponsors of this year's conference, as a member of the IEEE Society on Social Implications of Technology and as a professor by courtesy in Purdue's School of Engineering Education, the home of the National Institute for Engineering Ethics.



I think it's impossible to overstate how important ethics is in today's world, or how critical it is to engineering. In 2003, a Harris survey commissioned by the American Association of Engineering Societies reported that 31% of respondents agreed that "engineers are responsible for creating things that are harmful to society." In 2014, in an update commissioned by the US National Academy of Engineering, the number had risen to 49%. Amid ever-accelerating technology developments in AI, ML, IoT, autonomous vehicles, cryptocurrency, and others and heightened need to address challenges including systemic racism, diversity, equity, belonging, misinformation, security, access to healthcare, and climate change, it is difficult to imagine that engineering would fare better in a "perceptions of engineering in society" survey conducted today.

I'm honored to be the **General Chair of ETHICS-2023**, which is asking these hard questions about the relationships across interplay of technology, ethics, and society. I extend my heartfelt thanks and congratulations to the superb Conference Committee led by Brent Jesiek: the Program Co-chairs Joe Herkert and Justin Hess and members of the Technical Program Committee; and the Organizing Chair Murty Polavarapu, Publications Chair Marc Cheong, and Website and Social Media Coordinator Andrew Gray; and to the ETHICS Conference Series Chair Greg Adamson. To this great team, and to all of the authors, presenters, and attendees, and to the conference sponsors – on behalf of Purdue and IEEE, welcome to ETHICS-2023!

--- **Leah H. Jamieson**
Ransburg Distinguished Professor of Electrical and Computer Engineering
Professor of Engineering Education (by courtesy)
John A. Edwardson Dean Emerita of Engineering
IEEE President, 2007

II. ETHICS CONFERENCE SERIES CHAIR WELCOME

IEEE adopted its first Code of Ethics in 1912, identifying ethical behavior as part of what it means to be a technology professional. The IEEE ETHICS conference series continues that tradition. Ethical responsibility for the early electrical engineering industry may seem a world away from obligations to warn of bias and "hallucinations" in artificial intelligence. Yet these two cases separated by more than a century share the need for consideration. For example, bribery is an insidious but relatively simple ethical challenge. Today, most ethical challenges are more complex. Does a Californian technologist have an ethical duty to a Bangladeshi family impoverished by the automation of the role of the textile worker breadwinner? That is not simple; the world is a complicated and interconnected place. However, the technologist surely has an ethical responsibility to consider the question. For an individual that may be overwhelming, but through a professional association they can be made aware of such challenges and given the opportunity to consider them.



This conference is part of a continuing series on ethical challenges in the interaction between technology and society, led by the IEEE Society on the Social Implications of Technology. In business today there is a concept of "social license to operate". If a company's behavior is legal but reprehensible, it may struggle to survive. The technology community as a whole needs such a social license. For our community, a reflective approach to ethical responsibilities is part of what grants us that community support. This conference series is a contribution to that.

--- **Greg Adamson**
School of Population and Global Health, University of Melbourne
Technical Activities Vice-President, IEEE Society on Social Implications of Technology

III. ETHICS-2023 CONFERENCE CHAIR'S WELCOME

As the **Conference Chair** for IEEE ETHICS-2023, it is a great pleasure to welcome you to Purdue University and West Lafayette, Indiana. As a leading land grant institution, Purdue's mission has historically centered on serving the state of Indiana, as well as the nation and world more broadly. While we support this mission every day and in countless ways, hosting a conference on the social and ethical dimensions of engineering and technology seems, from my perspective, an especially apt undertaking at this moment in time. As technological change accelerates and technology assumes an ever-growing presence in our lives, interdisciplinary forums are urgently needed to open up spaces for lively discussion and critical engagement among stakeholders representing academic, government, non-profit, industry, citizen, and other perspectives. And as the conference program suggests, there is no shortage of pressing topics to explore – from artificial intelligence and automation to weapons technology and responsible innovation, to name just a few. It is further notable that the conference features an impressive number of presenters and attendees from outside of the U.S., enabling truly globe-spanning conversations, collaborations, and impacts.



Additionally, we are proud to be hosting such conversations in affiliation with the National Institute for Engineering Ethics (NIEE), which is housed within and administered by Purdue's School of Engineering Education. Given NIEE's long commitment to the "promotion and understanding of ethics throughout the engineering profession," helping to organize and host this event is a natural fit with our mission. We very much look forward to hearing your ideas about how we can work together to raise the visibility of professional ethics and related concerns among students and practitioners in engineering, technology, and related fields.

I sincerely hope that ETHICS-2023 is a productive and fulfilling experience for you, and that you find time during your visit to enjoy our beautiful campus and support our local businesses. In closing, I would like to acknowledge the legion of support staff and volunteers who helped make this event possible, and hope you will take a moment to thank them for their service. Technical Program Co-Chair Joe Herkert deserves special plaudits for his fantastic help with coordination and planning – thank you again, Joe! Finally, I am grateful to Purdue University's Office of the Provost for a generous conference grant - which not only made the conference possible, but allowed us to enhance and improve the event in numerous ways.

--- **Brent K. Jesiek**
Professor, Engineering Education, Electrical and Computer Engineering
Director, National Institute for Engineering Ethics (NIEE)

IV. ETHICS-2023 TECHNICAL PROGRAM CO-CHAIRS' WELCOME

As **Technical Program Co-chair**, it is with great pleasure that I welcome you to IEEE ETHICS-2023, sponsored by the IEEE Society on Social Implications of Technology (SSIT) and hosted by the Purdue University School of Engineering Education. We expect participants from several countries outside the US including Canada, Australia, Germany, Spain, Italy, UK, Denmark, France, and India (virtual). I am extremely pleased with the ETHICS-2023 program, and I hope you will feel the same as the conference unfolds over the next three days. The conference theme is Ethics in the Global Innovation Helix, but the program also includes other aspects of ethics and technology and ethics in engineering education and practice. The program includes three plenary sessions, six paper sessions with a total of twenty papers, a poster session with fifteen posters, six workshops and tutorials, and an open forum on building a technology ethics community. The conference also features eight panel sessions, both invited panels and panels submitted through the conference Call for Papers. For their help in putting the conference program together, I'd like to thank my Co-program Chair, Justin Hess, the ETHICS-2023 Conference Committee, the ETHICS-2023 Technical Program Committee, the SSIT Technical Committee on Ethics and Human Values, and the ETHICS-2023 technical co-sponsors and partners, as well as all the presenters, moderators, and facilitators. In 2021, the COVID-19 pandemic caused us to meet online, but this year we are pleased to again convene the conference face-to-face. I hope to meet with many of you. In particular, if you need any assistance during the conference, please don't hesitate to ask.



--- **Joe Herkert**
Associate Professor Emeritus of Science, Technology and Society, North Carolina State University
Chair, SSIT Technical Committee on Ethics & Human Values

Welcome to IEEE ETHICS-2023! We have many prestigious speakers joining us for the conference, newcomers to the IEEE-ETHICS and NIEE communities, and many folks who live ethics in their unique sectors each day. As a result, we have a quite interdisciplinary conference program. As



Technical Program Co-chair, I am excited to hear and learn from the perspectives of folks across sectors (academia, industry, government, communities), US regions, nations (about 10 countries!), and experience levels. The interdisciplinary

nature of the conference (and the resultant interactions we shall have) is exactly what we need to identify and respond to ways forward in the quintuple helix. I attended and enjoyed IEEE ETHICS-2021 and I was delighted when my School of Engineering Education here at Purdue was asked to host ETHICS-2023. We are also hosting ETHICS-2023 in conjunction with the National Institute of Engineering Ethics (NIEE), which now lives within the School of Engineering Education. The conference provides a unique opportunity to spotlight NIEE in its new home and will help ensure that NIEE is responsive to the needs of the engineering ethics community. I envision many outcomes of this conference will invigorate actions of NIEE.

On a personal note, I found my way to the space of engineering ethics as a graduate student in engineering education around 2012. I am amazed by the growth in the overall engineering ethics community. This is especially evident in the increase in scholarship and engagement I have witnessed throughout this community over the past decade. This sizeable conference (both in terms of attendees and international coverage) is a testament to this strong and still growing community. ETHICS-2023 will provide a unique opportunity to engage in critical conversations on numerous timely ethical issues in the engineering and education domains, including (but not limited to) equity, artificial intelligence, and sustainability. I especially welcome the newcomers to this community, who prompt thinking and seeing in novel ways. Thank you all for contributing to IEEE ETHICS-2023, and I look forward to seeing you all soon!

--- *Justin Hess, Assistant Professor of Engineering Education, NIEE Deputy Director of Research*

V. ETHICS-2023 ORGANIZING CHAIR'S WELCOME

It is my distinct pleasure to welcome you to the IEEE ETHICS-2023 Conference of IEEE Society on Social Implications of Technology in my capacity as the **Organizing Chair**. This Conference Series dates back to 2014 but our last conference in 2021 was held virtually due to the pandemic. We are now very much looking forward to our first in-person gathering since 2016. In addition to the strong technical program, the interactions among all of you, I hope, will help renew old relationships, develop new networks, collaborate and learn from each other. Our conference organization is strengthened by our financial co-sponsor, School of Engineering Education of Purdue University and our Technical Co-sponsors, IEEE-USA and National Institute of Engineering Ethics. I hope you will find your experience at this conference professionally rewarding and personally enriching.

--- *Murty Polavarapu, Managing Director, Virginia Microelectronics Consortium (VMEC)*



VI. ETHICS-2023 PUBLICATIONS CHAIR WELCOME

As the Publications Chair for IEEE ETHICS-2023, I'd like to warmly welcome you to the 2023 edition of the conference, to be held in person for the first time since the pandemic started.

ETHICS-2023 is an important 'meeting of minds' for interdisciplinary researchers to investigate ethical, societal, and environmental issues pertaining to the design, use, and deployment of technology.



The theme "Ethics in the Global Innovation Helix" brings together contributions from scholars worldwide on crucial topics ranging from: engineering ethics education, to ethical risks of AI and emerging technologies, to safeguarding the environment and human rights, to building an inclusive community of practice. In preparing the ETHICS-2023 proceedings, I am delighted to see such high-quality research in the form of papers, posters, panels, and special sessions, and am looking forward to networking with participants in Purdue. My thanks to fellow Chairs, committee members, participants, co-sponsors, and all who have made the ETHICS-2023 conference a reality.

--- *Marc Cheong, Senior Lecturer, Computing and Information Systems, and Senior Fellow, Melbourne Law School, University of Melbourne*



School of Engineering Education