



Duke  SCIENCE & SOCIETY

ETHICAL TECHNOLOGY

THE ETHICAL TECHNOLOGY PROGRAM

at the Duke University Initiative for Science & Society

Artificial Intelligence (AI), data, and emerging technologies hold tremendous promise, including unlocking economic opportunities and advancing national security, and helping to achieve the United Nations Sustainable Development Goals (SDGs) by 2030. However, if not developed and deployed appropriately, these same technologies can cause harms, such as compromising individual privacy, security, safety, and other rights; perpetuating or exacerbating undesired bias or unethical or illegal practices; diminishing accuracy and reliability as well as accountability and transparency in decision making; and displacing workers.

Policymakers and other stakeholders around the globe are grappling with the challenge of how AI, data, and other emerging technologies can be developed and deployed in ways that capitalize on their many benefits, but mitigate the legal, ethical, and other risks. The challenge is compounded by the fact AI, data and other emerging technologies (1) collectively comprise a broad and ever expanding range of scientific innovations, such as machine learning, natural language processing, and deep neural networks, and (2) have a vast range of use cases, including high risk applications

involving critical infrastructure, autonomous vehicles, medical and financial services, and facial recognition technology, as well as more prosaic tools, as AI enabled personal digital assistants and chatbots that recommend movies.

While responding to these challenges remains a work in progress, a consensus is emerging that an inter-disciplinary approach is required that fosters collaboration among experts in law, ethics, policy, business, engineering, computer science, and other disciplines and sectors. For example, our laws and policies need to be adopted and enforced in ways that align with sound scientific and engineering principles as well as appropriate legal, ethical, and policy principles. Additionally, organizations increasingly are assembling interdisciplinary “ethics by design” teams to help ensure that ethics and legal compliance are addressed throughout the product life cycle, starting with the product design phase, and continuing throughout commercialization and product retirement.

The Ethical Technology Program within the Duke Initiative for Science & Society brings together expertise throughout the university's many schools and programs to help address these challenges in a variety of ways, including the following:

Education and Curriculum

Educating students in innovative ways, including through cross-disciplinary relationships with schools and departments across the Duke campus.

- **The Master's in Bioethics & Science Policy** offers a concentration in Tech Ethics and Policy, to prepare future leaders in applied ethics and policy. Unique in its field, the program trains students to develop workable policy solutions to maximize the benefits of technological progress. Students study a core curriculum covering research law, science law and policy, science/tech policy writing and communication, and ethical issues of emerging technologies. Graduates of the MA program assume tech policy roles in government, corporate, non-profit, and academic research settings.
- **The Digital Intelligence Certificate** is an undergraduate, interdisciplinary course of study that equips students with foundational knowledge of computational technologies and their relationship to and impact on society.
- **Ethical Tech and Policy courses:**
 - *Ethical Tech Practicum* with Professor Lee Tiedrich, where students work collaboratively with each other to advise real-world-clients on ethical tech matters. *AI Law & Policy Seminar* with Professor Tiedrich in the Duke Law School.

- *Data Commons and Governance*.
- *Ethical Issues in Emerging Technologies* developed by Professor Nita Farahany.
- *Frontier Robotics* with Professor Jeff Ward.
- *Assorted tech policy courses* offered through Duke Law, Public Policy, Engineering, etc.



Research

Science & Society is committed to research that bridges the gap between emerging technology, ethics, and policy. Some examples of ongoing research include:

- **AI Institute (Athena):** Science & Society faculty and researchers participate in the NSF-funded collaborative interdisciplinary team focused on the ethical design and analysis of AI and computational systems. Research topics include algorithmic bias, discrimination, transparency, innovation, implications for workforce skilling, and distributional concerns in the development and deployment of artificial intelligence and machine learning.
- **The Science, Law, and Policy (SLAP) Lab:** is designed to bring novel data to address questions of law and policy concerning cutting-edge science and technology.
- **Data Commons and Data Sharing:** This research focuses on developing an adaptable

ethics and compliance-by-design framework that would apply throughout the entire data commons lifecycle, starting with the data commons formation and extending through launch and beyond. This research draws upon ongoing legal and policy developments (such as the EU Data Governance Act and relevant work of the OECD and GPAI, as applicable) and other expert's insight in this area.

- **Data and Algorithm Licensing:** This research explores the value of standardized form agreements for data, similar to open source and Creative Commons agreements currently used for software and other copyrightable works, respectively.
- **AI Law School Casebook:** Professor Tiedrich has been selected to serve as a co-author of a case book on AI law that can be used to educate law students on AI more broadly.





Convenings and Engagement

The Ethical Technology Program holds convenings, speaker series, meet-ups, dialogues, and student opportunities to engage in democratic deliberation toward the advancement of responsible technological progress.

- **The Ethical Tech Speaker Series** invites speakers from tech companies, government agencies, investors, and international agencies to Duke to discuss hot topics in tech policy. Past speakers have included Charina Chou, Global Policy Lead for Emerging Technologies at Google, Michele Pearce, Former US Army Acting General Counsel, and Rachel See, EEOC Senior Counsel for AI and Algorithmic Bias.
- **Conferences and Convenings:** Duke Science & Society holds regular conferences and multi-stakeholder convenings to bring together industry, government, academia, and other interested stakeholders to discuss current issues and work collaboratively to exchange ideas and

advance policy frameworks. Recent convenings have focused on artificial intelligence and neurotechnology.

- **The Tech Policy Meet Up** is a student-led event series bringing students from Science & Society, Law, Public Policy and more together for semi-monthly dinners to discuss current events in tech policy.
- **Tech Policy Research Assistantships** provide opportunities for students to assist faculty with on-going policy proposals to be presented to international committees, forums, and conferences.
- **Student Internships:** Duke Science & Society works to connect students with interesting internships and externships relating to ethical technology.

DUKE SCIENCE & SOCIETY

ABOUT US

The Duke Initiative for Science & Society advances the responsible use of science and technology for humanity through research, education, communication, democratic deliberation, and policy engagement.

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