

NEUROTECH

Neurotechnology and the Law

October 28, 2022
8:30 AM - 5:00 PM
1200 Chestnut St,
Philadelphia, PA



**Drexel
Law Review**
Thomas R. Kline School of Law



DREXEL UNIVERSITY
**Center for Law and
Transformational Technology**
Thomas R. Kline School of Law



About Neurotechnology and the Law:

The Drexel University Kline School of Law's Center for Law and Transformational Technology and *Drexel Law Review* are excited to co-host this year's symposium on neurotechnology and the law. We live in an era of rapid development and evolution in the field of technology. But, with every advancement, we are challenged to answer how best to regulate the complex connection between the technological industries while still protecting consumers.

Neurotechnology emulates this challenge: With its advanced technology and its potential impact on our daily lives, it creates a unique challenge to provide opportunities for innovation while also protecting society. Neurotechnology focuses on tapping into the nervous system to gather data and monitor an individual's neural activity. The collected data can be used for a multitude of purposes including, but not limited to, medical research and advancements in artificial intelligence. This fragile intersection between bodily autonomy and revolutionary technology is a vital topic for discussion that requires a thoughtful balance between science, business, ethics and the law.

This year's symposium will provide a forum for interdisciplinary presentations and contemplative conversation on the future of neurotechnology and the law. We will explore the ethical, legal and policy considerations in the development of neurotechnologies, and the ways in which we can create workable protections while still promoting innovation. The symposium will include global experts who are working on neurotechnology and these broader considerations of law and policy.



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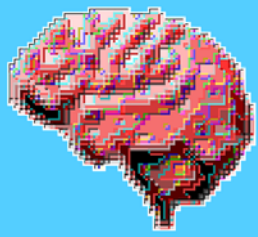
Jordan L. Fischer

Director of the Center for Law &
Transformational Technology
Assistant Teaching Professor Of Law

In an age of rapid technological change, law schools play a key role in understanding how this innovation transforms society, and how lawyers and laws can meet the resulting challenges.

The Center for Law and Transformational Technology at Drexel University's Thomas R. Kline School of Law brings together key stakeholders, including legal and technological scholars, industry leaders, activists, regulators and other experts from across the country and the world. The Center supports concrete efforts to gauge the legal impact of transformational technology, promote critical conversations about the role of law in technological change and bring legal experts into interdisciplinary conversations with researchers and developers at all stages of design and development.

Working across industries, the Center helps educate lawyers to play a positive role navigating a technological landscape we cannot yet imagine. By facilitating international and multi-disciplinary partnerships, the Center seeks to contribute to a future in which technology moves forward hand-in-hand with society.



NEUROTECH

Program

8:30 – 9:00

Breakfast

9:00 – 9:15

Welcome Speech

9:15 - 11:15

First panel: What is Neurotechnology?

Moderator: Banu Onaral- Drexel Kline School of Law

Panelists: Hasan Ayaz, Salvador Durá-Bernal, Anna Wexler,

11:15 - 11:30

Break

11:30 - 12:30

Second Panel: Human Rights 1

Moderator: Sharon Bassan- Drexel Kline School of Law

Panelists: Christoph Bublitz, Nita Farahany, Robert Field, Stephanie Herrmann

12:30 - 1:15

Lunch

1:15 - 2:45

Third Panel: Human Rights 2 (question and answer)

Moderator: Chloe Silverman- Drexel College of Arts and Sciences

Panelists: Laura Cabrera, Philipp Kellmeyer, Marta Maria Sosa Navarro, Clare Stark

2:45 - 3:00

Break

3:00 – 3:45

Fourth Panel: IP Protection / Rights

Moderator: Jordan Fischer- Drexel Kline School of Law

Panelists: Ryan Abbott, Andreas Kuersten

3:45 - 4:00

Closing Statement

4:00 – 5:00

Happy Hour Reception



Speaker Profiles



Ryan Abbott, MD, JD, MTOM, PhD

Ryan Abbott, MD, JD, MTOM, PhD, is Professor of Law and Health Sciences at the University of Surrey School of Law, Adjunct Assistant Professor of Medicine at the David Geffen School of Medicine at UCLA, partner at Brown, Neri, Smith & Khan, LLP, and a mediator and arbitrator with JAMS, Inc. He is the author of *The Reasonable Robot: Artificial Intelligence and the Law* published in 2020 by Cambridge University Press. He has published widely on issues associated with life sciences and intellectual property in leading legal, medical, and scientific books and journals, and his research has been featured prominently in the popular press including in *The Times of London*, *the New York Times*, *the Financial Times*, and other media outlets involving time. Professor Abbott has worked as an expert for, among others, the United Kingdom Parliament, the European Commission, the World Health Organization, and the World Intellectual Property Organization. He is a licensed physician and patent attorney in the United States, and a solicitor advocate in England and Wales. *Managing Intellectual Property* magazine named him as one of the fifty most influential people in intellectual property in 2019 and again in 2021. www.ryanabbott.com.



Hasan Ayaz, Drexel University, School of Biomedical Engineering, Science and Health Systems

Dr. Hasan Ayaz is an Associate Professor of Biomedical Engineering (with tenure) and Psychological and Brain Sciences (with courtesy) at Drexel University, adjunct professor at the University of Pennsylvania and associate fellow at the Children's Hospital of Philadelphia, and a Provost Solutions Fellow at the Drexel Solutions Institute. He is also core faculty at the Cognitive Neuroengineering and Quantitative Experimental Research (CoNQuER) Collaborative (drexel.edu/conquer), a brain observatory that is equipped with state-of-the-art brain and body sensors, as well as electronic design, assembly and testing facilities for new sensor development. He leads the Drexel Neuroergonomics and Neuroengineering Core for Brain Health and Performance Research, focusing on understanding human brain function using mobile neuroimaging and physiological biosensing in realistic and real-world environments with complex cognitive tasks, across the lifespan and from healthy (typical to specialized groups) to diverse clinical conditions (mental to neurological).

For close to two decades, he has worked on the development of miniaturized continuous wave near infrared spectroscopy systems specialized for neuroimaging. He has developed brain monitoring tools that are routinely utilized for clinical and field research globally and has led the software development of FDA approved mobile brain imaging medical devices deployed in 42 countries/6 continents in both civilian and military hospitals. Dr. Ayaz's research involves understanding the neural mechanisms related to human cognitive function with a focus on real-world contexts, mobile neuroimaging, and neuroengineering approaches for neuroergonomics applications. He has 85+ journal papers and 200+ book chapters/conference publications with over 6k citations.

Dr. Ayaz has been serving society of Neuroergonomics, an emerging field that investigates the human brain function in relation to behavioral performance in natural environments and everyday settings. He has co-founded the Neuroergonomics Conference series (Paris, 2016; Philadelphia, 2018; GatherTown, 2021; NewYork, 2022). He has co-edited over ten journal special issues, and a comprehensive book on Neuroergonomics with Prof. Frederic Dehais, published by Elsevier. He is also the co-founding Field Chief Editor of the new journal: *Frontiers in Neuroergonomics*, with board of over 400 editors from around the world. More information can be found at Drexel Biomed, Google Scholar, Frontiers Loop, ResearchGate.



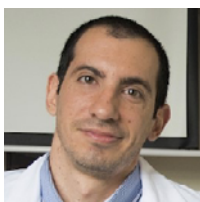
Dr. Christoph Bublitz

Dr. Christoph Bublitz is a legal scholar at the University of Hamburg working at the intersection of law, philosophy, and neuroscience. He is currently the PI of the research project HYBRIDMINDS that explores ethical and legal issues of the blending of organic and artificial intelligence. He is an associate editor of the journal *Neuroethics* and co-founder of the Palgrave Studies of Law, Neuroscience, and Human Behavior. Bublitz has extensively written on topics of neuroscience and law. With respect to human rights, he has proposed a contemporary construction of the human right to freedom of thought, and recently co-edited the volume “The Law and Ethics of Freedom of Thought, Vol. I” (Palgrave 2022).



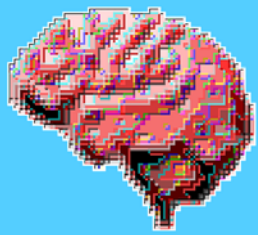
Laura Cabrera

Dr. Cabrera is the Dorothy Foehr Huck and J. Lloyd Huck Chair in Neuroethics. She is an Associate Professor of Engineering Science and Mechanics, and Philosophy at Penn State University. She is a Senior Research Associate at the Rock Ethics Institute, and affiliated with the Center for Neural Engineering. She is also Faculty Affiliate at Neuroethics Canada, University of British Columbia. She received a BEng in Electrical and Communication Engineering from the Instituto Tecnológico de Estudios Superiores de Monterrey (ITESM) in Mexico City, an MA in Applied Ethics from Linköping University in Sweden, and a PhD in Applied Ethics from Charles Sturt University in Australia. Dr. Cabrera’s interests focus on the ethical and societal implications of neurotechnologies used for health and medicine, as well as for non-medical purposes. She has been working on projects at the interface of normative, conceptual and empirical approaches, exploring attitudes and ethical concerns of professionals, patients and members of the public toward brain interventions. Her work has also focused on the ethical and social implications of environmental changes for brain and mental health. Her current work focuses on the responsible use of psychiatric electroceutical interventions, and the timing of deep brain stimulation for Parkinson’s Disease. Dr. Cabrera is an honorific member of the Mexican Neuroethics Society, chair of the IEEE Brain Neuroethics Subcommittee, and member of the International Neuroethics Society (INS) Board of Directors.



Salvador Dura-Bernal

Salvador Dura-Bernal is an Assistant Professor in the Physiology and Pharmacology department at SUNY Downstate, and a Research Scientist at the Nathan Kline Institute for Psychiatric Research. He completed his PhD and first postdoc at the University of Plymouth, UK; followed by postdocs at Johns Hopkins and SUNY Downstate. Dr. Dura-Bernal teaches neuroscience to PhD students, and organizes several international courses and workshops. Two years ago he started his own lab (<http://dura-bernal.org>) focused on developing large-scale biophysically-detailed simulations of the brain circuits to understand the brain’s neural code and develop new treatments for brain disease, including brain machine interfaces. He received the 2017 Best Use of AI Award from *HPCwire*, a leading supercomputing publication; the 2019 Robert Furchgott Scholar Award, an early career investigator prize; and in 2021 he was elected as one of the directors of the Organization for Computational Neuroscience, and selected as a Google Cloud Research Innovator. Dr. Dura-Bernal is currently the Principal Investigator in 3 grants funded by the National Institutes of Health (NIH), the National Science Foundation (NSF) and the NY State Spinal Cord Injury Board.



Nita A. Farahany

Nita A. Farahany is the Robinson O. Everett Distinguished Professor of Law & Philosophy and Founding Director of the Duke Initiative for Science & Society. She is a widely published scholar on the ethics of emerging technologies, including the forthcoming book *The Battle for Your Brain: Defending Your Right to Think Freely in the Age of Neurotechnology* (St. Martin's Press 2023). Farahany is a frequent commentator for national media and radio and keynote speaker at events including TED, the Aspen Ideas Festival, the World Economic Forum, and judicial conferences worldwide. From 2010-2017, she served as a Commissioner on the U.S. Presidential Commission for the Study of Bioethical Issues. She currently serves on the National Advisory Council for the National Institute for Neurological Disease and Stroke, as an elected member of the American Law Institute, Fellow of the American Association for the Advancement of Science, immediate past President of the International Neuroethics Society, ELSI advisor to the NIH Brain Initiative and to the Defense Advanced Research Projects Agency, member of the Forum on Neuroscience and Nervous System Disorders and the Standing Committee on Biotechnology Capabilities and National Security Needs for the National Academies of Sciences, Engineering, and Medicine, the Global Future Council on Frontier Risks for the World Economic Forum. She is the Reporter for the Drafting Committee on updating the Uniform Determination of Death Committee for the Uniform Law Commission (ULC), as well as a ULC Commissioner. Farahany is a co-editor-in-chief of the *Journal of Law and the Biosciences* and on the Board of Advisors for *Scientific American*. She also serves on scientific and ethics advisory boards for corporations. Farahany holds an AB (Genetics) from Dartmouth College, an ALM (Biology) from Harvard University, and a JD, MA, and Ph.D. (Philosophy) from Duke University.

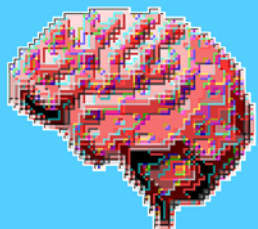


Robert I. Field, JD, MPH, PhD

Robert I. Field is professor of law at the Thomas R. Kline School of Law and professor of health management and policy at the Dornsife School of Public Health at Drexel University. He is also a senior fellow of the Leonard Davis Institute of Health Economics at the University of Pennsylvania. His recent research has focused on genetic and neurotechnology privacy, the structure of national health systems, health reform, and ethical issues in vaccines. He is the author of two books, *Mother of Invention: How the Government Created "Free-Market" Health Care* and *Health Care Regulation in America: Complexity, Confrontation and Compromise*, both published by Oxford University Press, and is author or co-author of more than 50 scholarly articles. He has lectured globally, including in New Zealand, China, Japan, France, Denmark, Switzerland, the Netherlands and Portugal.

Before joining the Drexel faculty, Professor Field founded and chaired the Department of Health Policy and Public Health at University of Sciences in Philadelphia, where he was also professor of health policy. Previously, he led business planning and development for the primary care network of the University of Pennsylvania Health System. He has also conducted health policy research at the Institute of Medicine of the National Academy of Sciences and the Center for Law and Health Sciences at Boston University, practiced health law with the Philadelphia law firms of Ballard Spahr, LLP and Dilworth Paxson, LLP, and directed public policy research at Cigna Corporation.

He received a PhD in psychology from Boston University, MPH from the Harvard Chan School of Public Health, JD from Columbia Law School where he was associate editor of the *Columbia Journal of Environmental Law*, and AB magna cum laude from Harvard College.



Stephanie Herrmann

Stephanie Herrmann is an International Human Rights Lawyer at both Perseus Strategies, LLC, and the Neurorights Foundation. She leads the Neurorights Foundation's project on neurotechnology, human rights, and consumer protection, and advocates at the UN for the further interpretation of international human rights law to account for emerging technologies. At Perseus Strategies, Stephanie represents political prisoners before the UN Working Group on Arbitrary Detention and the UN Special Procedures. She previously served as a Special Assistant at the UN Committee Against Torture, as an advocate and adviser at the Anti-Torture Initiative, and as the University of Pennsylvania Perry World House's Inaugural Research Fellow.

Stephanie received her B.A. from the University of Pennsylvania, her M.Sc. from the London School of Economics, and her J.D. from American University Washington College of Law. She is a member of the D.C. bar.



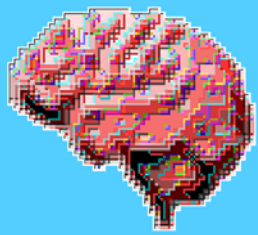
Philipp Kellmeyer

Dr. Kellmeyer is a neurologist at the University Medical Center Freiburg where he heads the Human-Technology Interaction Lab (2019-2022: Neuroethics and AI Ethics Lab) at the Department of Neurosurgery. He studied human medicine in Heidelberg and Zurich and received a Master of Philosophy from the University of Cambridge (GB). As a neuroscientist he works in the fields of neuroimaging and translational neurotechnology, in particular the clinical application of medical technologies, such as brain-computer interfaces, assistive robots and VR systems. He is a scientific member of [BrainLinks-BrainTools](#) at the University of Freiburg and from 2018-2021 he was a Research Fellow at the Freiburg Institute for Advanced Studies (FRIAS) in the "Responsible Artificial Intelligence" research group. In his highly transdisciplinary research at the intersection of neurology, neuroscience / neurotechnology, ethics and social sciences, he works on human-technology interaction in medicine and other health-related contexts. He is also an affiliated researcher at the [Institute for Biomedical Ethics and History](#) of Medicine at the University of Zurich, where he also teaches biomedical ethics. Since November 2020, he is a member of the [Board of Directors of the International Neuroethics Society](#) (INS). In 2021/22 he is a Fellow at the [4th Intercontinental Academia](#) of UBIAS on "Intelligence and Artificial Intelligence".



Andreas Kuersten

Andreas Kuersten is a researcher with the Neuroethics Studies Program, Center for Clinical Bioethics, Georgetown University Medical Center. He previously clerked for the U.S. Court of Appeals for the Federal Circuit and the U.S. Court of Appeals for the Armed Forces. He was also a legal fellow with the National Oceanic and Atmospheric Administration, Office of General Counsel, International Law Section. His work has appeared in numerous forums, including the *Duke Law Journal*, *Nature Biotechnology*, the *Scientist*, the *Journal of Law and the Biosciences*, and the *American Journal of Bioethics Neuroscience*.



Marta Maria Sosa Navarro

Research fellow in international law, Business and Law Department, Università degli Studi di Milano-Bicocca, teaching International Commerce Law and European Union Law. Master in Human Rights Law and PhD in International Criminal Law, Universidad Carlos III de Madrid.

She has extensively published book chapters and scientific articles on international human rights law from multiple perspectives in peer reviewed journals.

Among her past experiences she has worked as an analyst for the “Spanish Observatory for Corporate Social Responsibility” and as a case reporter for the *Oxford Reports on International Law*. Member of the Società Italiana di Diritto Internazionale e di Diritto dell’Unione Europea. Member of the European Society of International Law. Member of the Association Internationale de Droit Pénal.

Current research lines: impact of emerging technologies on human rights, human rights due diligence, business and human rights law.

Link to list of publications: <https://www.unimib.it/marta-maria-sosa-navarro>



Clare Stark

Clare Stark has 20 years of experience working in international relations and strategic planning. As UN Coordination Officer in the Priority Africa and External Relations Sector at UNESCO, she is responsible for enhancing UN system wide coordination and providing strategic policy advice on emerging technologies, including on artificial intelligence, biotechnology and neurotechnology. She co-chairs the High-Level Committee on Programmes Interagency Group on AI, bringing together 40 UN entities to strengthen the ethical development and deployment of AI to support the 2030 Sustainable Development Goals. Prior to this position, she served as Strategic Planning Officer in the Bureau of Strategic Planning at UNESCO where she supported the development of the Organization’s Medium-Term Strategy and Programme and Budget, and led on issues related to UN reform, sustainable development and multilateral cooperation. She has contributed to a number of UNESCO’s publications. She holds a Master’s degree in International Environmental Policy from the Middlebury Institute of International Studies in Monterey, California and a Bachelor’s degree in Political Science from the College of Charleston. She is bilingual in French and English.



Anna Wexler

Anna Wexler is an Assistant Professor in the [Department of Medical Ethics and Health Policy](#) at the Perelman School of Medicine at the University of Pennsylvania. She is the principal investigator of the Wexler Lab, where she studies the ethical, legal, and social issues surrounding emerging technology, with a particular focus on do-it-yourself medicine, direct-to-consumer health products, and neuroethics.

Dr. Wexler is the recipient of a 2018 NIH Director’s Early Independence Award and a senior fellow at the [Leonard Davis Institute for Health Economics](#). She received her Ph.D. from MIT in the [HASTS](#) (History, Anthropology, Science, Technology & Society) Program, where her dissertation centered on the DIY brain stimulation movement. Her essays have been published in outlets such as the The New York Times, Washington Post, Boston Globe, Slate, and STAT.

Prior to her Ph.D., Dr. Wexler spent several years working as documentary filmmaker and science/travel writer. She co-directed and co-produced the feature documentary [Unorthodox](#) (2013). She received a dual BS from MIT in Brain and Cognitive Science, and in Humanities and Science with a focus in Writing and Neuroscience.