



THE BANDER CENTER FOR MEDICAL BUSINESS ETHICS

Presents

THE PERILS AND PROMISES OF ARTIFICIAL INTELLIGENCE IN HEALTHCARE AND BUSINESS

A groundbreaking program offering insights on how artificial intelligence is changing healthcare - and re-wiring the relationship to business, law and ethics.

If you are a healthcare professional, business leader, educator or entrepreneur, join us to learn how AI will be changing your world.

November 6, 2019 | Chase Park Plaza Royal Sonesta Hotel | St. Louis, MO

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INVITATION



The Bander Center for Medical Business Ethics is pleased to announce a rare and engaging conference that will share the most current research, analysis and debates about a topic that is nearly hidden from our lives, but will certainly help define our civilization in the years ahead. This will be a unique gathering - thought-provoking, data rich, practical, and surprising. We will be focused on helping each other better understand a future that is evolving faster than we can imagine.

Please join us in St. Louis for **The Perils and Promises of Artificial Intelligence in Healthcare and Business**, which will bring together extraordinary leaders in business, law, technology, and bioethics. This one-day conference is structured to offer dynamic discussions and meaningful human connections - helping all of us see our world with more discernment and perspective.

Wednesday, November 6 will be an unforgettable day – when we showcase multiple disciplines to discover insights that you can use now – in your practice, in your research, in your classroom, in your business, and in your home.

Sponsorships are available – for more information please visit us online at www.slu.edu/medicine/bander-center or email us at bander.center@slu.edu

Sincerely yours,

Jason D. Keune, MD, MBA, FACS

Executive Director, The Bander Center, Saint Louis University School of Medicine

ABOUT THE BANDER CENTER

The Saint Louis University Bander Center for Medical Business Ethics was established in 2007 with a generous endowment gift from the BF Charitable Foundation.

The mission of the Bander Center for Medical Business Ethics is to promote ethical business practices in medicine and healthcare, through research, education, and community engagement.

THANKS TO OUR PROGRAM PARTNERS:



Albert Gnaegi Center for Health Care Ethics
& Center for Health Law Studies



PROGRAM SCHEDULE

WEDNESDAY, NOVEMBER 6, 2019

8:00 AM - 8:15 AM

Greetings

Jason D. Keune, MD, MBA, FACS, Executive Director, The Bander Center, Saint Louis University School of Medicine, St. Louis, MO

8:15 AM - 8:30 AM

Laying the Groundwork

Philip O. Alderson, MD, Saint Louis University School of Medicine, St. Louis, MO

THE CURRENT STATE AND THE FUTURE OF ARTIFICIAL INTELLIGENCE IN HEALTHCARE

Moderator: Michael J. Costello, Associate Teaching Professor, College of Business Administration, University of Missouri-St. Louis, St. Louis, MO

8:30 AM - 9:15 AM

Using Artificial Intelligence to Streamline the Workplace

David Karandish, Founder and CEO, Jane.ai, St. Louis, MO

9:15 AM - 10:00 AM

Precision Health: Faster Research, More Cures, Healthier Communities

Phillip R.O. Payne, PhD, FACMI, Director, Institute for Informatics (I2), Washington University School of Medicine, St. Louis, MO

10:00 AM - 10:15 AM

Break

10:15 AM - 11:00 AM

AI: Opportunities With a Hint of Skepticism

Keith Perry, MBA, CHCIO, FCHIME, Sr. Vice President, CIO, St. Jude Children's Research Hospital, Memphis, TN

11:00 AM - 11:45 AM

Real Time Artificial Intelligence Algorithm in Healthcare: Benefits and Risks

Komla M. Ahlajah, MS, Manager – Data Science, Enterprise Analytics, Centene Corporation, St. Louis, MO

11:45 AM - 12:30 PM

Lunch

THE LEGAL FRAMEWORK FOR AI AND HEALTHCARE

Moderator: Elizabeth Pendo, JD, Joseph J. Simeone Professor of Law, Center for Health Law Studies, Saint Louis University School of Law, St. Louis, MO

12:30 PM - 1:15 PM

Data, Context, and Bias in Health-Care Artificial Intelligence

W. Nicholson Price, II, JD, PhD, Assistant Professor, University of Michigan School of Law, Ann Arbor, MI

1:15 PM - 2:00 PM

Artificial Professional Advice

Claudia E. Haupt, PhD, LLM, JSD, Associate Professor of Law and Political Science, Northeastern University School of Law, Boston, MA



PROGRAM SCHEDULE

2:00 PM - 2:45 PM

AI Monism and Legal Reactivity

Ana Santos Rutschman, SJD, Saint Louis University School of Law, St. Louis, MO

2:45 PM - 3:00 PM

Break

THE ETHICS OF ARTIFICIAL INTELLIGENCE IN HEALTHCARE

Moderator: Harold Braswell, PhD, Assistant Professor of Health Care Ethics,
Albert Gnaegi Center for Health Care Ethics, Saint Louis University, St. Louis, MO

3:00 PM - 3:45 PM

Prospects for Machines with Common Sense

Melanie Mitchell, PhD, Professor, Portland State University, Portland, OR

3:45 PM - 4:30 PM

Discerning What Matters: Artificial Intelligence and Medical Judgement

Jeffrey P. Bishop, MD, PhD, Tenet Endowed Chair in Health Care Ethics, Albert Gnaegi Center for Health Care Ethics,
Saint Louis University, St. Louis, MO

4:30 PM - 5:15 PM

Creating Space for AI in Healthcare: How Patients Weigh the Trade-offs

James DuBois, PhD, DSc, Bander Professor of Medical Ethics and Professionalism and Alison L. Antes, PhD, Assistant
Professor of Medicine, Bioethics Research Center, Washington University School of Medicine, St. Louis, MO

5:15 PM

Closing Remarks/Adjournment

Jason D. Keune, MD, MBA, FACS

5:15 PM - 6:00 PM

Closing Reception

Missouri CLE pending approval

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HOTEL RESERVATIONS

Chase Park Plaza Royal Sonesta
212 N. Kingshighway Boulevard, St. Louis, MO

\$174 single/double occupancy

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THE BANDER CENTER FOR MEDICAL BUSINESS ETHICS

LAYING THE GROUNDWORK

8:15 AM - 8:30 AM



Philip O. Alderson, MD, Saint Louis University School of Medicine

Philip O. Alderson earned his bachelor's degree and MD from Washington University in St. Louis, and completed his residency in nuclear medicine and radiology at Washington University School of Medicine. Alderson spent more than 25 years at Columbia University Medical Center (CUMC) in NYC where he served as chair of the Department of Radiology and had the privilege of working with leaders in informatics who made significant contributions to early work in natural language processing. In 2008, Alderson became Dean of the School of Medicine at Saint Louis University (SLU) and served in that role and as Vice-President for Medical Affairs at SLU until December 31, 2016. From January - June of 2017, Alderson was on sabbatical at the NIH in Bethesda, MD, where he explored the frontiers of big data science in the Lister Hill National Center for Biomedical Communications, an R&D division of the National Library of Medicine (NLM/NIH). He returned to Saint Louis University in July 2017 and now focuses on student education related to artificial Intelligence applications for precision medicine. Alderson is certified by both the American Board of Radiology and the American Board of Nuclear Medicine, and has over 200 publications; including over 150 journal articles. He has made more than 200 presentations at local, national and international meetings including 10 named lectureships. He has had the honor of serving as the president of several national and international medical societies including the American Board of Radiology (2006-08). Dr. Alderson resides in St. Louis, MO with his wife, Marjorie. They have two children and five grandchildren.

USING ARTIFICIAL INTELLIGENCE TO STREAMLINE THE WORKPLACE

8:30 AM - 9:15 AM

Artificial intelligence is poised to radically transform the modern workplace. The presentation will discuss trends on what is happening in AI, and specifically how AI can transform and simplify access to information from a company's applications, documents, and people.



David Karandish, CEO & Founder, Jane.ai

David Karandish is Co-founder/CEO of Jane.ai – an enterprise artificial intelligence SaaS company focused on helping people do their best work. Prior to starting Jane.ai, Karandish was the CEO of Answers Corporation. He and his business partner Chris Sims started the parent company of Answers in 2006 and sold it to a private equity firm in 2014 for north of \$900m. Karandish sits on the boards of Varsity Tutors (an on-demand, real-time learning platform in the ed tech space), Create a Loop (a computer science education non-profit tackling the digital divide by teaching kids to code), and Prepare.ai (a non-profit providing educational resources and strategic guidance about Artificial Intelligence to individuals, communities, and companies).



PRECISION HEALTH: FASTER RESEARCH, MORE CURES, HEALTHIER COMMUNITIES 9:15 AM - 10:00 AM

Learning healthcare systems (LHS) exhibit many if not all of the features of what has been previously described as an “Ultra Large Scale System” (ULSS). Ultimately, delivering precision healthcare will require a systems-based approach, aligned with the characteristics of a ULSS, wherein we will create value for all stakeholders (researchers, care providers, patients, families, communities, and policy-makers)



Phillip R. O. Payne, PhD, FACMI, Director, Institute for Informatics (I2), Washington University School of Medicine

Phillip Payne is the founding director of the Institute for Informatics (I2) at Washington University where he also serves as the Robert J. Terry Professor and Professor of Computer Science and Engineering. He is an internationally recognized leader in the field of clinical research informatics (CRI) and translational bioinformatics (TBI). Payne received his PhD with distinction in Biomedical Informatics from Columbia University, where his research focused on the use of knowledge engineering and human-computer interaction design principles in order to improve the efficiency of multi-site clinical and translational research programs. His leadership in the clinical research informatics community has been recognized through his appointment to numerous national steering, scientific, editorial and advisory committees, as well as his engagement as a consultant to academic health centers throughout the United States and the Institute of Medicine.

AI: OPPORTUNITIES WITH A HINT OF SKEPTICISM 10:15 AM - 11:00 AM

While it is known that our dependency on technology continues to grow, the hope and the hype of how we use machine learning and artificial intelligence today and in the future is just starting to be understood. This talk seeks to bring a thoughtful discussion about healthcare AI and machine learning opportunities - both available today and promised for the future - along with a dialogue about the non-technical challenges facing the industry.



Keith Perry, MBA, CHCIO, FCHIME, Senior Vice President and Chief Information Office, St. Jude Children's Research Hospital

Keith Perry is the senior vice president and chief information officer for St. Jude Children's Research Hospital. In this role, he oversees all aspects of delivering a technology strategy for clinical, research, and administration that aligns with the institutional mission to find cures and save children. Prior to St. Jude, he was associate vice president and deputy chief information officer at The University of Texas MD Anderson Cancer Center responsible for executive leadership for a portfolio of information services that support the institutional mission to eliminate the burden of cancer. Perry completed his Bachelor of Science in computer science at Harding University and Master's in Business Administration from the University of Houston. Perry has obtained the Certified Healthcare Chief Information Officer (CHCIO) designation through the College of Healthcare Information Management Executive (CHIME) organization. He is also a member of Healthcare Information and Management Systems Society (HIMSS) and a board member of the Greater Memphis IT Council.



REAL TIME ARTIFICIAL INTELLIGENCE ALGORITHM IN HEALTHCARE: BENEFITS AND RISKS 11:00 AM - 11:45 AM

The unprecedented and continuous advances in Artificial Intelligence (AI) over the last decade are poised to reshape and transform almost all industries and Healthcare is no exception. It is important for healthcare professionals to understand the stakes of AI in order to harness its full benefits; limit unintended adverse effects and effectively lead the transition of their organization. It is equally important to separate facts from fiction when looking at the promises of AI and objectively assess the real possibilities of this new exciting field.



Komla M. Ahlijah, MS, Manager, Data Science, Enterprise Analytics

Komla Ahlijah is a Data Science and Analytics Manager at Centene Corporation. He leads the team of scientists and statisticians responsible for all data driven research and development initiatives i.e. Predictive Modeling, Machine Learning, Deep Learning and Artificial Intelligence. Born in Togo, West Africa, Ahlijah moved to the U.S. to further his education. He holds a Master's degree in Applied Mathematics from the University of Nebraska and has over 16 years of experience in Data Analysis and Statistical Modeling. In addition to English, Ahlijah is fluent in French and his native Mina language. A family man, he is married and is a proud father to two wonderful little girls. He is the co-chairman of Toysfortogo.org, a St Louis based

not-for-profit organization dedicated to providing a healthy childhood experience to needy children and at-risk youth in Togo (West Africa).

DATA, CONTEXT, AND BIAS IN HEALTH-CARE ARTIFICIAL INTELLIGENCE

12:30 PM - 1:15 PM

Artificial intelligence in healthcare depends on massive amounts of high-quality data. Unfortunately, the legal and policy structures in place around health data are badly warped, simultaneously providing too few protections for data subjects and too many hurdles for researchers. As a result, health-care data are fragmented into private silos, consolidated haphazardly, and riddled with problems. These legal structures also push the state of the science towards those places where data are easiest to gather and use. But the whole landscape means that health-care AI doesn't get the comprehensive, high-quality, unbiased datasets it needs to learn the best and make the best recommendations. Instead, problems with data carry over to problems with health-care AI itself.



W. Nicholson Price, II, JD, PhD, Assistant Professor, University of Michigan School of Law

Nicholson Price is Professor of Law at the University of Michigan Law School. Previously, he taught law at the University of New Hampshire. He holds a PhD in Biological Sciences and a JD, both from Columbia, and an AB from Harvard. He clerked for Judge Carlos T. Bea on the Ninth Circuit and was then an Academic Fellow at the Petrie-Flom Center for Health Law Policy, Biotechnology, and Bioethics at Harvard. Nicholson teaches and studies life science innovation, including big data and artificial intelligence in medicine. His work has appeared in Nature, Science, Nature

Biotechnology, the Michigan Law Review, and elsewhere. Nicholson is cofounder of Regulation and Innovation in the Biosciences; co-chair of the Junior IP Scholars Association; co-PI of the Project on Precision Medicine, Artificial Intelligence, and the Law; and a Core Partner at the University of Copenhagen's Center for Advanced Studies in Biomedical Innovation Law.



ARTIFICIAL PROFESSIONAL ADVICE 1:15 PM - 2:00 PM

What does it mean to give professional advice, and how do things change when various forms of technology are inserted into the process of professional advice-giving? Professional advice is valuable to clients because of the asymmetry between lay and expert knowledge where professionals have knowledge that their clients lack. But technology is increasingly changing the traditional process of professional advice-giving. What happens when we introduce artificial intelligence (AI) into the healthcare provider-patient relationship? Technological innovation in medical advice-giving occurs in a densely regulated space. The legal framework governing professional advice-giving exists to protect the values underlying the provider-patient relationship. I suggest that to the extent the existent regulatory framework is responsive to these changes, it ought to be kept in place. But when the introduction of AI into medical advice-giving changes the dynamics of the relationship in a way that threatens the underlying values, new regulatory responses become necessary.



Claudia E. Haupt, PhD, LLM, JSD, Associate Professor of Law and Political Science, Northeastern University School of Law

Claudia Haupt is an Associate Professor of Law and Political Science at Northeastern University. Her current research is situated at the intersection of professional regulation, the First Amendment, health law, and law and technology. Prior to joining Northeastern in 2018, Haupt was a resident fellow with the Information Society Project at Yale Law School, where she continues to be an affiliate fellow, and a research fellow with the Solomon Center for Health Law and Policy at Yale Law School. She has also held an appointment as associate-in-law at Columbia Law School. Before entering academia, Haupt practiced law in Cologne, Germany, with a focus in information technology law. She is admitted to practice in Germany and New York. She holds a PhD in political science from the University of Cologne, a JSD from Columbia Law School, and her first law degree from the University of Cologne.

AI MONISM AND LEGAL REACTIVITY

2:00 PM - 2:45 PM

While artificial intelligence (AI) is becoming increasingly important in our daily lives, there is very little consensus surrounding the meaning and the precise contours of the concept of AI as applied to ongoing innovations. This presentation explores this problem from the viewpoint of the use of AI in the development of new health technologies. The emergence of AI poses unique challenges to contemporary legal regimes designed to incentivize and regulate the development and deployment of emerging technologies. Because our shared understanding of AI is imprecise, our legal and policy choices aimed at increasing AI-based innovation in healthcare may be misguided. This presentation highlights some of the problems and ongoing practices that reflect imprecise understandings of AI, and suggests that our legislators and policy makers should refrain from AI-specific interventions in the field of healthcare.



Ana Santos Rutschman, SJD, Saint Louis University School of Law

Ana Santos Rutschman is assistant professor of law at Saint Louis University. She teaches and writes in the areas of health law, intellectual property, innovation in the life sciences, and law and technology. Rutschman has published and presented widely on topics related to emerging biotechnologies, biobanking, artificial intelligence, and e-health. In 2015-16, she consulted for the World Health Organization on the development of the Ebola and Zika vaccines. In 2017, she was named a Bio IP Scholar by the American Society of Law, Medicine & Ethics, and in 2018 she was named a Health Law Scholar by the same institution.



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PROSPECTS FOR MACHINES WITH COMMON SENSE

3:00 PM - 3:45 PM

Today's AI systems have made impressive strides in domains ranging from image recognition to language processing. However, their lack of a robust foundation of common sense makes them susceptible to unpredictable and unhumanlike errors. In humans, "common sense" roughly refers to our broad knowledge about the world and the ability to adapt that knowledge so as to do the right thing in novel situations. In this presentation, focus will be on how common sense comes about in human intelligence, and the prospects for imbuing AI systems with such abilities.



Melanie Mitchell, PhD Professor, Portland State University

Melanie Mitchell is Professor of Computer Science at Portland State University, and External Professor and Co-Chair of the Science Board at the Santa Fe Institute. She attended Brown University, where she majored in mathematics and did research in astronomy, and the University of Michigan, where she received a PhD in computer science. Her dissertation, in collaboration with her advisor Douglas Hofstadter, was the development of Copycat, a computer program that makes analogies. Mitchell is the author or editor of six books and numerous scholarly papers in the fields of artificial intelligence, cognitive science, and complex systems. Her book *Complexity: A Guided Tour* (Oxford University Press) won the 2010 Phi Beta Kappa Science Book

Award and was named by Amazon.com as one of the ten best science books of 2009. Melanie's latest book, *Artificial Intelligence: A Guide for Thinking Humans*, will be published by Farrar, Straus, and Giroux in October 2019.

DISCERNING WHAT MATTERS: ARTIFICIAL INTELLIGENCE AND MEDICAL JUDGEMENT 3:45 PM - 4:30 PM

Artificial intelligence in medical decision making promises to be better at making diagnoses and treatment options than the average practitioner. Insofar as we imagine that what doctors do and what doctors ought to do in making decisions to be algorithmic, then it might indeed be the case that computers will be better at making diagnoses and treatment options than human doctors. Algorithmic decision chains work in the realm of generalities, but does the particularity of a particular patient's history fit into algorithmic chains? Typically, we think of medical judgement as different from algorithmic decisions. There is an infinite gap between the evidence base and the N of 1 that sits on the patient's bed. Is judgement what steps into the breach of that gap? Does medical judgement lend itself to algorithmic decisions? Can a machine make a judgement? This presentation will explore these questions.



Jeffrey P. Bishop, MD, PhD, Tenet Endowed Chair in Health Care Ethics, Albert Gnaegi Center for Health Care Ethics

Jeffrey P. Bishop is a social and moral philosopher. His scholarly work is focused on the historical, political, and philosophical conditions that underpin contemporary medical and scientific practices and theories. His interests are diverse, with publications in medical journals, philosophical journals, theological journals, and medical humanities journals. Bishop has also written on diverse topics from transhumanism and enhancement technologies to clinical ethics consultation and medical humanities.

His book, *The Anticipatory Corpse*, explores the way that anatomical ideas about the body shape and inform the care of the dying from ICU care to palliative care. He is currently working on a book on the philosophy of technology and the ways that our thinking about machines shapes how we think about the care of the human body.



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CREATING SPACE FOR AI IN HEALTHCARE: HOW PATIENTS WEIGH THE TRADE-OFFS 4:30 PM - 5:15 PM

To realize the promise and mitigate potential pitfalls of AI in healthcare, the perspectives of patients must be included in the development and implementation of AI technologies. In this study, we developed a new scenario-based measure to investigate the openness of the public to AI applications in healthcare. Further, we examined perceived concerns and benefits of AI, such as concerns about privacy, cost, and effects on the patient-doctor relationship, and benefits like improving access to care and enhancing the quality of healthcare. Patients must remain at the center of all AI development and implementation efforts. These findings can inform how key stakeholders, from AI developers to policy makers and physicians, might engage the views of patients to advance patient trust and acceptance of AI technologies. Further, this study suggests important future directions in research on public views of AI.



**Alison L. Antes, PhD, Assistant Professor of Medicine,
Bioethics Research Center, Washington University School of Medicine**

Alison L. Antes is an Assistant Professor in the Division of General Medical Sciences at Washington University School of Medicine where she conducts research and directs educational programs in the Bioethics Research Center. She is an organizational psychologist who focuses on ethical behavior and leadership among healthcare professionals and researchers. Antes' research focuses on understanding the individual, situational, and organizational factors that foster or undermine ethical practices and ethical decision-making.



**James DuBois, PhD, DSc, Bander Professor of Medical Ethics
and Professionalism, Bioethics Research Center,
Washington University School of Medicine**

James DuBois is the Steven J. Bander Professor of Medical Ethics and Professionalism, Professor of Psychology and Professor of Medicine as well as the Director of the Center for Clinical and Research Ethics at Washington University School of Medicine in the Division of General Medical Sciences. He is an Adjunct Professor in the Albert Gnaegi Center for Health Care Ethics at Saint Louis University, where he was the inaugural Hubert Mäder Professor of Health Care Ethics and Director of the Bander Center for Medical Business Ethics. DuBois completed his PhD in philosophy at the International Academy of Philosophy in Liechtenstein and his DSc in psychology at the University of Vienna in Austria, where he focused on cross-cultural moral psychology. He directs the NIH-funded Professionalism and Integrity Program (PI Program), which offers personalized assessments, a group workshop, and post-workshop coaching calls to help researchers operate professionally in today's complex environments. He is a Board Certified Coach (BCC) specialized in career coaching for researchers. DuBois directs the Professional and Social Issues Lab within the Department of Medicine, which conducts social science research aimed at understanding barriers and facilitators to research integrity and professionalism.

