



Opportunities and Barriers to Effective Use of AI in Cancer Research

ABSTRACT

Jennifer Couch, Ph.D., is co-chair of the National Cancer Institute's AI working group which identifies and prioritizes cancer research areas that can most benefit from AI methods. She works with colleagues across the National Institutes of Health and other parts of the U.S. government and international groups, industry, and academia to coordinate efforts and build programs at the intersection of biomedical research and AI, including developing and adapting new methods, creating training opportunities and identifying and addressing ethical issues. She co-leads workshops and collaboration building programs called Innovation Labs that bring together individuals from diverse fields to form new partnerships and launch trans-disciplinary pilot projects to address critical biomedical research questions. SEE MORE.



Computational prediction of anti-cancer drug response in preclinical drug screening experiments using machine learning and deep learning approaches

ABSTRACT

Yitan Zhu, Ph.D., is a senior computational scientist in the Data Science and Learning Division at the Argonne National Laboratory and a senior scientist at the University of Chicago Consortium for Advanced Science and Engineering. His research interests include machine learning, deep learning, cancer genomics, drug discovery, and medical informatics. Before joining the Argonne National Laboratory, Dr. Zhu worked in the pharmaceutical industry and hospital organization. For the past more than fifteen years, Dr. Zhu has been working on developing machine learning and statistical methods to integrate and analyze biomedical data for disease research and therapeutics development. Dr. Zhu obtained his Ph.D. from the Department of Electrical and Computer Engineering at Virginia Tech. He also holds a Master's degree in pattern recognition and intelligent system and a Bachelor's degree in automatic control from Shanghai Jiao Tong University.



Opportunities and Challenges for Medical Imaging AI: Lessons from Oncology

ABSTRACT

Jayashree Kalpathy-Cramer, Ph.D, is the chief of the Division of Artificial Medical Intelligence in the Department of Ophthalmology at the University of Colorado. Previously, she was an Associate Professor of Radiology at Harvard Medical School where she was actively involved in data science activities with a focus on medical imaging. Her research spans the spectrum from novel algorithm development to clinical deployment. Her lab has been actively involved in research in topics related to bias and fairness in AI. Dr. Kalpathy-Cramer has authored over 200 peer-reviewed publications and has written over a dozen book chapters.

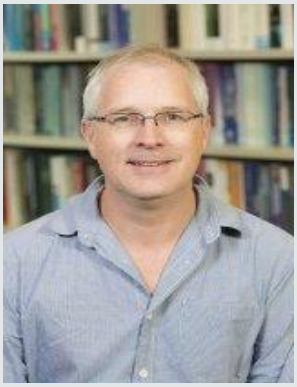


Generative Adversarial Networks for Synthetic Cancer Imaging Data

ABSTRACT

Fred Prior, Ph.D., is Distinguished Professor and Chair of the Department of Biomedical Informatics and Professor of Radiology at the University of Arkansas for Medical Sciences (UAMS). Dr. Prior has extensive R&D experience in industry and academia, focused on the design of advanced medical information management and imaging technologies. He has held senior management positions in a variety of R&D environments ranging from Silicon Valley startups to major multi-national corporations in the US and Europe. Dr. Prior's research interests include cancer informatics, radiomics, and neuroimaging informatics. He serves as Principal Investigator and Director of the US National Cancer Institute's Cancer Imaging Archive project and is the lead PI of an NCI ITCR team exploring the integration of radiomics and pathomics. SEE MORE.

Moderator



David Chalmers, Ph.D., is Senior Lecturer at the Faculty of Pharmacy and Pharmaceutical Sciences, Monash University. He gained his PhD in Medicinal Chemistry from University of Melbourne. He is an accomplished computational scientist with broad research interests and outputs from computational and medicinal chemistry; drug design and discovery; molecular dynamics and modelling.