Department of Bioengineering
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The Department of Bioengineering

is please to invite you to our next Bioengineering Seminar Series event featuring:

Dr. Li Shen, PhD,

Perelman School of Medicine, University of Pennsylvania

"Enhancing Alzheimer's Research with AI and Informatics: Strategies for Mining Brain Imaging Genomics Data"

Friday, May 3rd, 2024
10:45AM-11:45AM
HST/HE 211

Please contact the bioengineering graduate coordinator, Rebekah Short (rjs323@lehigh.edu), with any questions or comments.

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Dr. Li Shen, PhD,
Perelman School of Medicine, University of Pennsylvania

"Enhancing Alzheimer's Research with AI and Informatics: Strategies for Mining Brain Imaging Genomics Data"

Professor of Informatics and Radiology
Deputy Director, Division of Informatics, Dept of Biostatistics, Epidemiology and Informatics
Associate Director for Bioinformatics, Penn Institute for Biomedical Informatics (IBI)
Faculty Director, IBI Bioinformatics Core
Co-Director, Center for AI and Data Science for Integrated Diagnostics
Perelman School of Medicine, University of Pennsylvania

ABSTRACT: Alzheimer's disease (AD) is a major public health crisis, affecting millions worldwide, with a substantial social and economic burden. Effective strategies are urgently needed to discover new AD genes for disease modeling and drug development. Studying AD genetics using multimodal imaging and multi-omics data is becoming a rapidly growing field with distinct advantages in power over categorical diagnosis under imaging and omics traits as well as in capturing new insights into disease mechanism and heterogeneity from genetic determinants to omics-level molecular signatures, to brain imaging biomarkers, and to AD outcomes.

In this talk, we will discuss AI and informatics strategies for discovering AD risk and protective genes through analyzing multidimensional genetics, omics, imaging and outcome data from landmark and local AD biobanks. We show that the wide availability of these rich biobank data, coupled with advances in trustworthy AI and informatics, provides enormous opportunities to contribute significantly to gene and biomarker discovery in AD and to impact the development of new diagnostic, therapeutic and preventative approaches.

BIO: Li Shen, Ph.D., is a Professor of Informatics and Radiology at the Perelman School of Medicine in the University of Pennsylvania. He serves as the Associate Director for Bioinformatics at the Penn Institute for Biomedical Informatics and Co-Director of the Penn Center for AI and Data Science for Integrated Diagnostics. His research interests include medical image computing, biomedical informatics, machine learning, trustworthy AI, NLP/LLMs, network science, imaging genomics, multi-omics, Alzheimer's disease, and big data science in biomedicine. He has authored over 360 peer-reviewed articles in these fields. His work has been continuously supported by the NIH and NSF. His current research program is focused on developing and applying informatics, computing and data science methods for discovering actionable knowledge from complex biomedical and health data (e.g., genetics, omics, imaging, biomarker, outcome, EHR, health care), with applications to complex disorders such as Alzheimer's disease.

Dr. Shen has served on a variety of scientific journal editorial boards, grant review committees, and organizing committees of professional meetings in medical image computing and biomedical informatics. He served as the Executive Director of the Medical Image Computing and Computer Assisted Intervention (MICCAI) Society between 2016 and 2019. He is a fellow of the American Institute for Medical and Biological Engineering (AIMBE), a distinguished member of the Association for Computing Machinery (ACM), and a distinguished contributor of the IEEE Computer Society.

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