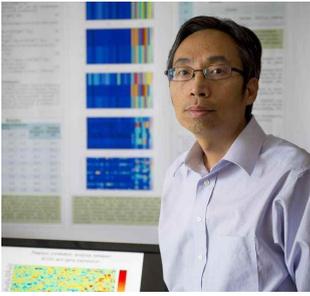


Biomedical Informatics Grand Rounds
Wednesday, September 7th, 2022 3:00 pm – 4:00 pm



Integration of multi-modal brain imaging and multi-omics for precision medicine

Yu-Ping Wang, PhD
Department of Biomedical Engineering, Biostatistics and Data Sciences,
Computer Science and Neurosciences
Tulane University

Remote Access

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Bio: Dr. Yu-Ping Wang received the BS degree in applied mathematics from Tianjin University, China, in 1990, and the MS degree in computational mathematics and the PhD degree in communications and electronic systems from Xi'an Jiaotong University, China, in 1993 and 1996, respectively. After his graduation, he had visiting positions at the Center for Wavelets, Approximation and Information Processing of the National University of Singapore and Washington University Medical School in St. Louis. From 2000 to 2003, he worked as a senior research engineer at Perceptive Scientific Instruments, Inc., and then Advanced Digital Imaging Research, LLC, Houston, Texas. In the fall of 2003, he returned to academia as an assistant professor of computer science and electrical engineering at the University of Missouri-Kansas City. He is currently a full Professor of Biomedical Engineering and Biostatistics & Data Sciences at Tulane University School of Science and Engineering & School of Public Health and Tropical Medicine. He is also a member of Tulane Center of Bioinformatics and Genomics, Tulane Cancer Center and Tulane Neuroscience Program. His research interests have been computer vision, signal processing and machine learning with applications to biomedical imaging and bioinformatics, where he has over 300 peer reviewed publications. He has been on numerous program committees and NSF and NIH review panels, and served as editors for several journals such as J. Neuroscience Methods, IEEE/ACM Trans. Computational Biology and Bioinformatics (TCBB) and IEEE Trans. Medical Imaging (TMI). His recent effort has been bridging the gap between biomedical imaging and genomics. For this work, he was elected to be a fellow of American Institute of Biological and Medical Engineering (AIMBE). More about his research can be found at his website: <http://www.tulane.edu/~wyp/>

Abstract: Recent years have witnessed the convergence of multiscale and multimodal brain imaging and omics techniques, showing great promise for systematic and precision medicine. In the meantime, they also bring significant data analysis challenges when integrating and mining these large volumes of heterogeneous datasets. In this talk, firstly I will give an overview on the combination of multi-modal brain imaging and omics for precision medicine. Secondly, I will present our latest developments of machine/deep learning and statistical models for multi-scale data representation and analysis. Thirdly, I will present examples of applying these models to the extraction of biomarkers from (epi)genomics and MRI imaging data. In particular, I will focus on the integration of multiscale genomic and imaging data for improved diagnosis of mental illnesses (e.g., schizophrenia) and brain development study.

Educational Objects: Review of imaging genomics. Progress in multi-modal machine/deep learning. Mental disorders and brain development study with multi-modal imaging and multi-omics

Disclosure Statement: The faculty and planners have no relevant financial relationship with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing health care products used by or on patients.

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