Biomedical Informatics Grand Rounds
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3:00 pm – 4:00 pm

AI, Imaging Biomarkers and Digital Pathology

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Abstract: During the past 150 years, much of anatomic pathology consisted of characterization and diagnostic recognition of visually identifiable morphological patterns seen in tissue. Over the past few decades, molecular characterizations have become increasingly important in anatomic Pathology. The advent of AI and ubiquitous high-end computing are enabling a new transition where quantitatively linked morphological and molecular tissue analyses can be carried out at a cellular and subcellular level of resolution. Along with quantitative assessments of predictive value and reproducibility of traditional morphological patterns employed in anatomic pathology, AI algorithms are enabling exploration and discovery of novel diagnostic biomarkers grounded in prognostically predictive spatial and molecular patterns. In this talk, I will describe Pathology imaging biomarker work our group has been doing in the area of tumor immune interaction, in development of AI Pathology methods and in creation of real-world Pathology datasets.

Bio: Dr. Joel Saltz is the Cherith Professor and Founding Chair of the Department of Biomedical Informatics, Vice Chair for Laboratory Initiatives and Digital Medicine in the Department of Pathology, Vice President for Clinical Informatics at Stony Brook Medicine, Associate Director of Stony Brook Cancer Center and Director of Institute for Engineering Medicine. His research focuses on Biomedical Informatics, Imaging Informatics, Clinical & Translational Research Informatics, and High-End Computing. He is a leader in research on advanced information technologies for large-scale data science and biomedical/scientific research. He has developed innovative pathology informatics methods, including the first published whole slide virtual microscope system. He is a pioneer in developing Digital Pathology tools, methods, and algorithms with the ultimate goal of extracting and leveraging digitalized Pathology information to better predict cancer outcomes and to steer cancer therapy. He is also an expert in high-end computing and has developed a variety of highly cited systems software methods.

Dr. Saltz received his MD and Computer Science Ph.D. from the Medical Scientist Training Program at Duke University. He is trained both as a computer scientist and as a physician through the MSTP program. He founded and built two highly successful departments of biomedical informatics, one at Ohio State University and one at Emory University. He has deep experience in computer science, having served on the computer science faculties at Yale University and the University of Maryland. He completed his residency in clinical pathology at Johns Hopkins University and he is a practicing, board-certified clinical pathologist. He has participated in over 70 grants and contracts, serving as principal investigator on roughly half of those, and has an extensive publication track record with over 18,000 citations.

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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