

University of Houston - Biomedical Engineering Seminar
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New Capabilities in Neuroscience Research Workflows



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Abstract

To relate neural activity to perception and behavior, leading neuroscience teams are implementing new approaches to vastly increase the scale, speed, and validity of research activities and their computational aspects. They are adopting a new set of technologies—*Automated Research Workflows*—to ease access to computing infrastructure, automate data acquisition and analysis, and collaborate across broad teams. DataJoint implements standardized, automated data analysis pipelines for the major types of neuroscience experiments: neurophysiology, histology, and behavior—as open source-software—and operates them on its cloud platform. These techniques allow new team structures to evolve around scientific projects, also creating opportunities for artificial intelligence applications in the discovery loop. In this seminar, we review how large-scale projects operate their data pipelines, and how these solutions can be integrated in diverse research labs.

Biosketch

Dr. Dimitri Yatsenko is the Chief Executive Office at DataJoint—leading efforts to develop data science frameworks, platforms, and services for collaborative research with a focus on neuroscience and AI. With a Ph.D. in Neuroscience (Baylor College of Medicine) and M.S. in Computational Engineering and Science (University of Utah), Dimitri holds an extensive record of projects in academia and industry in areas of signal analysis and image processing, machine learning, medical imaging, data science, and neurophysiology. Dimitri conceived the DataJoint framework during his graduate studies at BCM, and then co-founded the company to develop technology for data-driven team science.