10:30 a.m. BU 120 – Sean Stein Auditorium

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Training the next generation of scientists: How AI and machine learning are redefining neuroscience

Abstract: Over the past decade, new image analysis tools have emerged for studying the networks, circuits, and synaptic connections in the brain. As data collection exponentially increases in to tera- and petabyte ranges, manual analysis becomes an impossible task on researchers looking to shed insight on the structure and function of subcellular brain regions. Repetitive, routine tasks such as live imaging, image processing, segmentation, analysis, and reporting often require countless hours of work from highly trained scientists. In order to tackle this big data struggle, novel analyses leveraging the power of AI and deep learning are being developed and applied around the world. The fragmented nature of these methods translate to a high barrier of entry into their application, requiring new departments staffed with data scientists and programmers to supplement basic neuroscience research. At the Max Planck Florida Institute for Neuroscience (MPFI), we have partnered with Florida Atlantic University (FAU) and FAU High School to build a neural data science program which recruits top-tier students who are immersed into highly interactive programming, neuroscience, and data science curriculum. These students work closely with MPFI researchers to develop novel science-driven tools which leverage machine learning to help automate and improve analysis, collection, and insight drawn from cutting-edge neuroimaging data unique to our institute.