Deciphering the Continuous Autism Phenotype through Omics and AI

Monday, March 2, 2020 | 12:00pm - 1:00pm
Munzer Auditorium, Beckman Center
279 Campus Drive, Stanford, CA 94305

Dennis Wall, PhD
Associate Professor of Pediatrics (Systems Medicine) and of Biomedical Data Science
Recipient of Pilot Grants Award

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Autism has risen to become one of the most pressing developmental health concerns. The phenotype, of which at least 60% stems from genetic causes, ranges from severe to mild. Interventions have strong potential to work yet can be difficult to access due to limitations in the current practices for diagnostics and therapeutics. In this talk, Professor Dennis Wall and Brianna Chrisman will describe computational approaches to decoding the genetic and environmental complexity of the autism phenotype and their potentials for improving detection and treatment.

Professor Wall will provide a detailed report on the lab's recent advances in computer vision artificial intelligence for mobile games & wearables and where opportunities lie for AI in adaptive diagnostic tracking and treatment. Next, he will summarize the lab's efforts to tie the autism phenotype to combinations of genetic and environmental features through crowdsourced acquisition and analysis of host and gut microbial DNA, respectively. Brianna Chrisman will then present findings from paired analysis of the gut microbiomes from 100 autistic children and their unaffected sibling over the course of 3 timepoints, which so far show significant enrichment of bacterial families and gene pathways in the gut microbiome of autistic children, notably those involved in lactate fermentation. They will close with overall implications of this work for earlier detection, prognosis, and treatment of autism, and potentially other complex neuropsychiatric conditions.

The seminars series is open to all, including faculty, staff, trainees, postdocs, and all members of the research community. Seats are limited, and reservation is required. Limited lunch will be provided on a first come, first served basis.

Register here: https://mchri-seminar-mar2.eventbrite.com/