CASBBI SEMINAR

GEORGE MASON UNIVERSITY | Center for Adaptive Systems of Brain-Body Interactions

Neurobehavioral models of Autism Spectrum Disorder

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Advances in genetics, molecular biology, and cognitive neuroscience offer hope for personalized treatment and improved outcomes in those with Autism Spectrum Disorder (ASD). However, the promise of precision medicine is limited by a lack of mechanistic models that explain phenotypic and etiological heterogeneity; instead of using such models to identify subgroups likely to respond to specific treatments, the field relies on service availability, trial-and-error, and clinical judgment to make treatment decisions.

In line with the computational Psychiatry objective, my research integrates mathematical models of behavior and brain activity to establish neurocognitive models that can describe social and nonsocial profiles on an individual level. Of particular interest to us is to describe perceptual and cognitive processes of individuals with ASD, in particular habituation and learning. We explore the biological validity of these models with functional neuroimaging by investigating whether predictions of cognitive models are encoded in neural activity.

This approach can advance novel theories about the etiology of ASD. It directly tests the predictions of two recent theoretical accounts of autism that posit a deficit in prediction and a lack of informative priors across domains. This research line also has important implications for clinical practice. By assessing individuals' unique perceptual and cognitive profiles, it has the potential to inform, refine, and individualize diagnosis, prognosis, and treatment on an individual basis.

Friday, January 31st @ 1:00 p.m.
Krasnow Institute, Room 229