**Neural Correlates of Fluid Intelligence via Functional and Structural Network Connectivity Measures**

Alvin Vuong\*, Nicco Reggente and Jesse Rissman, Ph.D.

University of California, Los Angeles

Connectivity across regions in the brain can be characterized as either functional (correlated fluctuations in by resting-state fMRI data) or structural (anatomical integrity based on diffusion MRI data). Emerging studies suggest that the connections across brain regions that make up distinct cognitive networks can partially explain psychiatric disorders and behavioral traits. Some theorize that a reliable benchmark of intelligence is the ability to identify subtle patterns across distantly related ideas or pieces of data. The Raven’s Progressive Matrices (RPM), a pattern completion task, is thought to test for this intelligence measure. Here, we use a combination of functional and structural connectivity values derived from subject data [n=127] provided by the Human Connectome Project to examine the relationship between neural connectivity and RPM scores. We used a Support Vector Regression cross-validation to assess the degree to which we could predict a subject’s intelligence based on their connectivity values. We were able to account for 14% of the variance in individuals’ intelligence scores when using specific combinations of functional and structural connectivity values.