**Project Summary**

Uncertainty is an often pervasive, stressful experience that arises when making judgments about others’ beliefs, intentions, or emotions (i.e., ambiguous social situations). Excessive uncertainty can have pernicious effects upon memory, mood, and physical and mental outcomes. Yet, we understand little of how judgments of social certainty form over time, the neural circuitry underlying these judgments, and how these judgments meaningfully differ from non-social uncertainty sources (e.g., calculations, perceptions). Uncertainty is featured in every developmental stage but adolescents and adults differ in their appraisals of and responses to ambiguity; both social and non-social. Traditional univariate neuroimaging analyses, which compare average magnitudes of activation across broad neural regions, are unresponsive to the subtle pattern differences that characterize complex social cognition. Novel multivariate techniques, such as intersubject correlations (ISC), applied to dynamic, feature-rich, and ecologically-valid sources of social ambiguity are crucial for understanding fundamental aspects of social cognition but have not yet been applied to answer these important questions.

**F99 Phase:** My proposed pre-doctoral project uses a novel study design in which adult participants continuously rate their certainty of a given social (e.g., a character’s innocence or guilt) and non-social (e.g., frame luminance) outcome while observing long-form narrative video stimuli (i.e., 45 min crime drama) during fMRI. This yields a continuous time course of concurrently-recorded neural and behavioral data which can be analyzed via ISC to determine the neural circuitry commonly implicated in uncertainty judgment formation among normative adult populations. Interdomain neural-behavioral synchrony can underscore how social and non-social certainty judgment formation mechanisms differ. Defining normative adult neural uncertainty responses provides a crucial comparison to vulnerable populations with pronounced uncertainty responses, including autism spectrum, anxiety, and mood disorders. Training during this phase includes instruction in computational methods relevant to the neuroscience of social decision-making and neurodevelopmental theory to prepare for the K00 Phase.

**K00 Phase**:This phase extends my pre-doctoral research by applying the F99 Phase study design to adolescent populations. This approach could identify whether adults and adolescents are generally relying on distinct or similar neural circuitry to assess the same stimuli and inform subjective indicators of uncertainty (i.e., behavioral ratings). Adolescence is a period marked by intense attention towards social others. The presence of ambiguous social stressors during this period predicts susceptibility to and severity of anxiety and depression into adulthood. Thus, how social uncertainty is processed has notable implications for researchers working at any later developmental stage. The training plan in this phase of the proposal will focus on developing expertise in the developmental social neuroscience literature, computational methods that can be applied to developmental social neuroscience research, and mentorship skills to establish a diverse, inclusive independent research lab.