SPECIAL RESEARCH SEMINAR
Presented by the Center for Human Neuroscience Research at the Fralin Biomedical Research Institute at VTC

VT | FRALIN BIOMEDICAL RESEARCH INSTITUTE AT VTC
CENTER FOR HUMAN NEUROSCIENCE RESEARCH
VIRGINIA TECH

KENNETH T. KISHIDA, Ph.D.

Associate Professor
Physiology and Pharmacology
Wake Forest University School of Medicine

In Person Seminar: Computing Conscious Experience: Reinforcement Learning, Neuromodulatory Systems, and Dynamic Changes in Phenomenal Experience

Dr. Kishida and his research team seek a theoretical account of 'how conscious phenomenal experience comes to be'. Such a theory should be founded in neurobiological and behavioral data and ought to yield engineerable solutions for the spectrum of psychiatric and neurological burdens that plague human mental (and physical) experience. Recent advances in the ability to monitor dopamine release in the human brain (with sub-second temporal resolution) while participants express adaptive behavior and report how they subjectively feel suggest a novel hypothesis about *how* the contents and context of conscious experience come to be laden with subjective value and emotional affect. The team hypothesizes a "*Dynamic Affective Core*", which combines ideas about network representations of the contents and context of experience with signals derived from computational reinforcement learning theory that can add and dynamically modulate the subjective phenomenal value of constantly changing information states. Dr. Kishida will present a brief overview of the supporting neuroscientific data including intracranial sub-second measurements of dopamine release in humans and computational principles involved, but also discuss gaps in our understanding and future directions. The lab hopes to circumscribe the challenge of characterizing the neurobiological mechanisms that give rise to conscious experience in humans and provide a path forward for investigating disorders of human experience like mood disorders and substance use and addiction disorders.