Summer Research Openings

Opportunity with Dr. Robert Malenka's laboratory

Lab Mentor: David C. Wang, MD, PhD

Project Title: How Early Life Experiences Shape Neural Circuits for Learning

Project Description: How environmental experiences shape the development of neural circuits and their function later in life is a central question in neuroscience and psychiatry. These experiences have lasting effects on cognition, response to stress, and behavior, yet the specific neuronal circuit changes underlying these effects are poorly understood. Here we explore the role of norepinephrine, a neuromodulator known to regulate neural plasticity and stress reactivity, as a potential link between early life experiences and the development of circuits underlying learning and cognition. We aim to understand how the norepinephrine system matures, how it influences neural circuit development, and critical periods during which early life stress shapes these processes. We take a modern systems neuroscience approach, using techniques such as developmental circuit mapping and neural activity recordings. Students will have opportunities to participate in hands-on experiments in animal models and computational analyses. All experience levels welcome!

Contact: davcwang@stanford.edu

Opportunity with Dr. Kevin Chan's Neuroimaging and Visual Science Laboratory

Lab Mentors: Muneeb A. Faiq, PhD; Rozina T. Noristani, MD; Seung Hoon Kim, MD, JD, PhD

Project Title: Neuroimaging of the Visual System in Health and Disease

Project Description: Our laboratory focuses on developing and implementing new, useful methods for non-invasive imaging of neurodegeneration, neurodevelopment, neuroplasticity, and neuroregeneration in people with vision-related diseases and injuries. We study the structural, metabolic, physiological, and functional relationships among the eye, brain, and behavior in health and disease, with the mission of improving vision preservation and restoration. We are seeking candidates to perform imaging research on the visual system and to continue the Lab's ongoing research projects in one or more of the following areas: (1) Glaucoma Neuroimaging and Neurotherapeutics; (2) The Neural Basis of Sensory Substitution in the Blind; (3) Ocular Structures and Physiology; (4) Imaging Methods Development for the Visual System. Students will have opportunities to participate in hands-on experiments in animal models and computational analyses. Candidates with imaging research interests and programming skills are particularly encouraged to apply. More info can be found on the lab website: https://www.nivs-lab.org/

Contact: kevinchan@stanford.edu