

DR. SHARMILA VENUGOPAL is an Assistant Professor in Integrative Biology and Physiology and Life Sciences Core Education at University of California Los Angeles. She is an Electrical Engineer and Neuroscientist and leads the Neural Dynamics Group at UCLA. Her research integrates computational, experimental and biohybrid approaches to model neural circuit dynamics in normal and disease-inflicted conditions.

She is further committed to education innovation and has developed and taught state-of-the-art interdisciplinary Math-Biology curriculum for undergraduate life sciences majors at UCLA. She serves on the Board of Directors as the Education and Training Chair for the Organization for Computational Neuroscience, as a member of the Council for Training, Sciences and Infrastructure, a governing body of the International Neuroinformatics Coordinating Facility, and as an advisor for the National Society of Collegiate Scholars.



DR. SHARMILA VENUGOPAL

**Assistant Adjunct Professor in Integrative Biology and Physiology and Life Sciences Core Education
University of California, Los Angeles**

MODELING NEURODEGENERATIVE DISEASE DYNAMICS: FROM ION CHANNELS TO NEURAL MICROCIRCUITS

ABSTRACT: Neurodegenerative diseases (e.g., Alzheimer's, Parkinson's etc.) affect millions of people around the world and are a growing health concern in aging populations. Their diverse causes and progression rates combined with a lack of early biomarkers have hampered effective treatment strategies. Basic science plays a crucial role in developing a deeper understanding of early disease mechanisms. Particularly, availability and use of transgenic animal models have enabled close examination of molecular and cellular abnormalities at pre-symptomatic stages, offering valuable insights into the fundamental neurobiology of these complex diseases.

Exploiting this opportunity, our lab has taken a unique stride to develop integrative data-driven computational models of a neural circuit and its vulnerability in neurodegeneration. In my talk, I will discuss our recent and ongoing work on computational and mathematical modeling to define disease dynamics, use of a biohybrid technique to integrate models into experiments in real-time, and our novel experimental findings in a devastating neurodegenerative motor neuron disease, Amyotrophic Lateral Sclerosis, commonly known as Lou Gehrig's disease.

FRIDAY, OCTOBER 2 / 9:00 AM / VIA ZOOM

Zoom Registration ▶ <https://bme.fiu.edu/seminars>



Through the generous support of the Wallace H. Coulter Foundation the Department of Biomedical Engineering facilitates weekly lectures each year during academic terms. Experts in all areas of Biomedical Engineering are invited to campus to provide a research seminar and to meet with faculty and students and to tour our academic and research facilities.

<https://bme.fiu.edu/seminars>