HARVARD
MEDICAL SCHOOL

Master's student position available for neurobiology research:
Title: Investigating dopamine-driven salience detection at the molecular, cellular, and behavioral level
Location: Bernardo Sabatini Laboratory, Harvard Medical School, Boston, USA

Position Description: We are looking for a master's student in neuroscience, biology, or related fields to take on the following research project with us during an internship period of 8-12 months, starting between April 2026 — June 2026. Ideal candidates are self-motivated, independent, communicative, thoughtful, patient, flexible, and organized, with great attention to detail. Experience working with a mouse model is not required; enthusiasm and motivation is sufficient! We will provide training in any case.

Research Project Description: Neuromodulators such as dopamine can activate receptors that regulate downstream signaling cascades in a cell. These intracellular signaling pathways regulate neuronal activity to implement behaviors such as reward- and aversion-driven reinforcement learning in a mouse model. We are investigating how dopamine signals act on receptor types to integrate context-dependent information at the cell- and circuit-level to mediate positive and negative reinforcement learning. We will use cutting-edge methods developed or recently adopted by our lab to study dopamine, calcium, protein kinase A, and other types of signaling, for example, to probe the function of dopamine receptors using fluorescence-based live imaging, examine signaling during learning *in vivo* via new photometry approaches, and study cell-type-specific properties that contribute to dopamine signaling via molecular and anatomical labeling.

Methods & Scientific Development: During this research internship, you will have the opportunity to learn essential techniques in molecular, circuits, and systems neuroscience, such as:

- mouse brain stereotactic surgery for craniotomies and intracranial injections of viral tools
- fluorescence-based live imaging in acute slice
- fluorescence-based photometry during behavior *in vivo*
- pharmacological & optogenetic manipulations of neural populations
- mouse brain dissections, tissue sectioning, and histological or molecular analysis following *in situ* hybridization, immunohistochemistry, and/or transgenic & viral labeling
- confocal microscopy, high-resolution slide scanning

You will also learn the following skills: implementation of experimental protocols and data collection, experimental design and interpretation of results, programming and data analysis, discussion of journal articles, and presentation of your findings to a broader audience. Depending on your interest, you can learn about whole-cell electrophysiology in acute slice. Additionally, your position in our neurobiology community will enable you access to excellent research seminars and conferences, department events, and networking opportunities.

We are dedicated to mentoring students, fostering critical thinking, and encouraging your development as a scientist. We intend to prepare you for graduate programs and future opportunities in research. Please feel free to reach out to me (*sganesh@g.harvard.edu*) if you would like to apply for this position!

Thank you,
Sanika Ganesh | sganesh@g.harvard.edu
Ph.D. Candidate in the Bernardo Sabatini Lab