Rahul Garg

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Education

Ph.D. Biology, Stowers Institute for Medical Research, Kansas City, USA (Aug'17 – Aug'24)
Dissertation: "Top-down modulation of sensory processing in goal-directed behaviors"

B.Tech. Biological Sciences and Bioengineering, Indian Institute of Technology, Kanpur, India (Jul'13 – Apr'17)

Research experience

Graduate student, C. Ron Yu Lab, Stowers Institute for Medical Research (Jul'18 – present)

- Designed behavior paradigms in mice with the intention of solving real-life neurological problems in humans that led to the discovery of circuits related to attentional dysfunction and impulsive aggression

- Developed in-house automation and analysis pipelines for neuroscience data collection at a predominantly non-neuroscience institute. Enhanced research on top-down attention and adaptation in sensory learning using these innovations

- Performed 1077 mouse survival surgery procedures with a success rate ~100% in the past 3 years. Proven track record for ability to maintain long-term stable recording and imaging preps using sterile tip technique

- Trained and supervised 7 masters-level students in mouse neuroscience, data analysis, and critical thinking over a span of 4 years and mentored them into graduate school. Collaborated with field experts across imaging techniques that led to 2 publications in systems neuroscience

Undergraduate researcher, Nitin Gupta Lab, Indian Institute of Technology (Jul'15 – Apr'17)

- Led an inter-department collaboration consisting of biology, mechanical and electrical engineers to design and manufacture a wind tunnel system to test effects of CO_2 plume dynamics on mosquito host-seeking behavior

Technical skills

(Instrumentation)	DIY mouse behavior and imaging automation, Neuropixel, LFP recording, optogenetics, chemogenetics, mini-endoscope, 2-photon and wide-field calcium imaging, Light sheet microscopy, TEM, immunohistochemistry, tissue clearance
(Programming and software)	DIY neural recording and multi-omics data analysis in MATLAB, python, R, C++, ImageJ, µmanager, Kilosort, DEEPLABCUT, Moseq, micro-SAM, IMOD, AutoCAD
(Mouse surgery)	GRIN lens and Neuropixel implantation for free moving and head fixed behaviors, Stereotaxic viral injection and cranial window prep for in-vivo optogenetics and neural imaging

Achievements

- Full scholarship for the course Advanced Techniques in NeuroImaging, Stanford, CA'23
- Selected for oral presentation at Modulation of Neural Circuits and Behavior, Gordon Research Conference'23
- Selected for oral presentation at Vertebrate Sensory Systems, Keystone Symposia'22
- First place oral presentation, Crossroads conference, Kansas City'21
- First place oral presentation, Bio innovation award, Indian Institute of Technology Kanpur'17