

Rajvi Agravat

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Education and Training

The University of Texas at Austin, Austin, TX
Doctor of Philosophy, Major: Neuroscience

Fall 2022

New York Institute of Technology, New York City, NY
Bachelor of Sciences, Major: Biological Sciences

May 2016 to 2020

Research Experience

Laboratory of Neurogenetics of Language, The Rockefeller University, New York, NY

Research Assistant; Advisor: Dr. Erich Jarvis

August 2020 – Present

- Tested for intracortical connectivity between the laryngeal motor cortex and orofacial motor cortex. Both regions are associated with vocal communication in mice.
- Used retrograde and anterograde viral tracing to map out the connectivity between these areas. I used immunohistochemistry to label proteins on interest, imaged sections with light and confocal microscopy. I used Nanoject II for stereotaxic injections, and data were analyzed in FIJI, Python, and Excel.
- Used tissue clearing techniques, iDISCO and AdipoClear, to generate 3D visualizations of the cortico-brainstem and cortico-cortical connectivity of the mouse vocal communication circuits.
- Maintained and performed routine genotyping on important mouse lines used for my experiments and others in the lab.

Department of Psychiatry Irving Medical Center, Columbia University, New York City, NY

Research Intern; Advisor: Dr. Kristina Denisova

Nov 2019 – Feb 2020

- Conducted a literature review through PubMed to understand the neurobiology and side effects of drugs used to manage autism symptoms in infants. Used this data to understand which drugs enter the blood-brain barrier and what side effects each drug has in infants.

Department of Molecular, Cellular, and Developmental Biology, Yale University, New Haven, CT

Research Intern; Advisor: Dr. Haig Keshishian

Jul 2019 – Aug 2019

- Performed ablations using a microbeam laser confocal microscope to access individual motoneurons in *Drosophila* embryo to understand the development of synapses.
- Maintained *Drosophila* (adult and larvae) lines used for my experiments.

Department of Biological and Chemical Sciences, New York Institute of Technology, New York, NY

Senior Research Assistant; Advisor: Dr. Niharika Nath

Oct 2019 – May 2020

- Studied organosulfur compounds for potential anti-bacterial activity using the disc diffusion and growth curve assay. Bacterial strains of *Klebsiella pneumoniae*, *Escherichia coli*, and *Pseudomonas aeruginosa* were examined using Chloramphenicol as a positive control and DMSO as a negative control.
- Tested if the organosulfur compounds release hydrogen sulfide and if there is a relationship between hydrogen sulfide and antibacterial effects.

New York University, New York City, NY

Research Assistant; Advisor: Dr. Eleni Nikitopoulos

Jan 2019 – Jul 2019

- Performed a literature review on social cues among paternal sisters in wild monkeys like migration decisions, grooming patterns, parental care, vocal and gestural communication skills. Used this data to compare and study the behavioral differences in kin and the effect on rank in a group of wild monkeys.
- Extracted DNA from fecal samples, performed PCR of microsatellite loci, and sequenced DNA.

Kokilaben Dhirubhai Ambani Hospital, Mumbai, India

Researcher; Advisor: Dr. Hrishikesh Sarkar, Dr. Yuvika Kamdar

Jun 2019 – Jul 2019

- Observed inpatient sessions concerning epilepsy and stroke cases; studied pre-ops and post-ops of brain tumor patients.
- Assessed patients' cognitive functionality: memory (verbal, visual, working, long-term), attention and concentration, phonemic fluency, and response inhibition through the NIMHANS battery of neuropsychological examinations.

Teaching Experience

Department of Biological Sciences, New York Institute of Technology, New York City, NY

Undergraduate Teaching Assistant

Sep 2019 – Dec 2019

- Taught a class on Bioethics to 30 students during Fall 2019. Guided students to do the class essay assignments and graded them.

Presentations

Society for Neuroscience, Neuroscience 2021

R. Agravat, C.D.M. Vargas, E. Jarvis. Connectivity and Neuroanatomy of the Orofacial Motor Cortex and Laryngeal Motor Cortex for Vocal Modulation in Mice. 2021 Neuroscience. Chicago, IL: Society for Neuroscience, 2021.

Sigma XI Virtual Science Scholars' Symposium 2020

“Anti-bacterial effects of organosulfur compounds against gram-negative bacteria”

Symposium of University Research and Creative Expression 2019

“Chiral Sensing of Natural Products via Chiroptical Spectroscopy”

Leadership and Activities

Biology Academic Conference for Emerging Scholars (BioAcCES)

Volunteer Reviewer

Oct 2021

- Reviewed abstracts and presentations from undergraduate biology students and provided relevant feedback for a successful virtual conference.

Graphic Design and Printing Shop, New York Institute of Technology, New York City, NY

Student Manager

Sept 2017 – May 2020

- Supervised and managed the work of 40 student workers in the shop each semester.
- Oversaw budgeting, allotting hours to each student worker, and reporting my team's work to the Assistant Director of the Academic Computing department at NYIT.
- Assisted the AD in hiring a diverse and fully inclusive team.

American Medical Students' Association, New York Institute of Technology, New York City, NY

Senator

Jan 2017 – Dec 2017

- Sought approval and provided documentation for planned events for AMSA from the student government association on campus.
- Attended senate meetings with the E-board members of other clubs on campus to discuss budgets, upcoming events, and major on-campus affairs.

International Student Ambassadors, New York Institute of Technology, New York City, NY

Student Leader

2017

- Helped set up all major and minor events held in school for incoming freshmen.
- Planned the orientation and other ice-breaker events throughout the year for both international and domestic students.

Telangana Jagruthi International Youth Leadership Conference, Hyderabad, India

International Delegate

Jan 18-21, 2019

- Participated in a program designed for young leaders worldwide to implement the United Nations Sustainable Development Goals and the Gandhian path to sustainability and innovation.

Photography

2019, 2020

- Photographed student-organized events on the NYIT-Manhattan campus.

Awards and Scholarships

Dr. Barbu Kestanband Annual Scholarship (\$5000)

2018

The NYIT Scholarship (\$16000 per year)

Sept 2016 – May 2020

NYIT Dean's List

Spring 2017, Spring 2018, Spring 2019, Spring 2020

NYIT Presidential Honor's List

Fall 2019

Language, Community Service, and Other Skills

Proficient in Python, Microsoft Excel, Word, and PowerPoint

Fully trilingual in English, Hindi, and Gujarati

Rotaract Club, Mumbai, India

- Causes: Protecting the environment and supporting education

Interact Club, Mumbai, India

- Causes: Cleanliness, fighting disease, and education

Children's Movement for Civic Awareness, Mysore, India

- Causes: Children's education, civic awareness