

# RAJVI AGRAVAT

## Address

Institute for Neuroscience  
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## Education

### The University of Texas at Austin (UT Austin), TX

Expected 2027

*Doctor of Philosophy (Ph.D.), Major: Neuroscience*

### New York Institute of Technology (NYIT), NY

May 2016 to 2020

*Bachelor of Sciences (B.S.), Major: Biological Sciences*

## Research Experience

- Hamilton Lab, UT Austin, TX** May 2023 – Present  
*Graduate Research Assistant*; Advisor: Dr. Liberty Hamilton  
Project 1: Higher Order Auditory Cortex Prioritizes Speech Over Music in an Implicit and Naturalistic Attention Task  
Project 2: Neural Mechanisms of Explicit Selective Auditory Attention in Naturalistic Listening Environments
- Developmental Cognitive Neuroscience Lab, UT Austin, TX** Jan – May 2023  
*Rotation Student*; Advisor: Dr. Jessica Church-Lang  
Project: Analyzing fMRI Responses in Children During Academic and Executive Function Tasks to Inform Classroom Interventions
- Laboratory of Neurogenetics of Language, The Rockefeller University, NY** Aug 2020 – Jun 2022  
*Research Assistant*; Advisor: Dr. Erich Jarvis  
Project: Functional Representation of Larynx in the Primary Motor Cortex of Mice
- Department of Psychiatry Irving Medical Center, Columbia University, NY** Nov 2019 – Feb 2020  
*Research Intern*; Advisor: Dr. Kristina Denisova  
Project: Impact of Prenatal Medication Exposure on Neurodevelopment: Investigating Risk Factors for Autism Spectrum Disorder in High-Risk Infants
- Department of Molecular, Cellular, and Developmental Biology, Yale University, CT** Jul – Aug 2019  
*Research Intern*; Advisor: Dr. Haig Keshishian  
Project: Microbeam Laser Ablation of Motoneurons and Synapse Formation in *Drosophila*
- Department of Biological and Chemical Sciences, NYIT, NY** Oct – May 2020  
*Senior Research Assistant*; Advisor: Dr. Niharika Nath  
Project: Antibacterial Efficacy of Organosulfur Compounds Against *Klebsiella pneumoniae*, *Escherichia coli*, and *Pseudomonas aeruginosa*
- Kokilaben Dhirubhai Ambani Hospital, India** Jun – Jul 2019  
*Observer*; Advisor: Dr. Hrishikesh Sarkar, Dr. Yuvika Kamdar  
Discipline: Neurosurgery, Neuropsychology
- New York University, NY** Jan – Jul 2019  
*Research Assistant*; Advisor: Dr. Eleni Nikitopoulos  
Project: Behavioral and Genetic Insights into Kinship and Social Structures of Wild Monkeys

## Manuscripts Under Preparation

**Agravat, R. K.,** Desai, M, Field, A. M, Foox, G, Georges, S, Leisawitz, J, Asghar, S, Anderson, A. E, Clarke, D, Tyler-Kabara, E. C, Watrous, A. J, Weiner, H. L, Hamilton, L. S. Neural Selectivity for Speech Over Music in Pediatric Auditory Cortex Using Intracranial EEG (*in prep.*)

Vargas, C. D. M., **Agravat, R. K.,** Waidmann, E. N., Bochalis, C., Bermudez, H., Giannakopoulos, T., & Jarvis, E. D. (2024). A Functional and Non-Homuncular Representation of the Larynx in the Primary Motor Cortex of Mice, a Vocal Non-Learner. In bioRxiv (p. 2024.02.05.579004). <https://doi.org/10.1101/2024.02.05.579004> (*pre-print*)

## Presentations

1. ***The University of Texas System-wide Brain Research Summit, 2024***  
**R. Agravat,** M. Desai, G. Foox, A. Field, A. Anderson, D. Clarke, E. T. Kabara, H. Weiner, L. Hamilton. Neural Encoding of Acoustic Features Across Speech and Music in the Human Brain. Austin, TX: The University of Texas System-wide Brain Research Summit, 2024.
2. ***Advances and Perspectives in Auditory Neuroscience (APAN), 2024***  
**R. Agravat,** M. Desai, G. Foox, A. Field, A. Anderson, D. Clarke, E. T. Kabara, H. Weiner, L. Hamilton. Neural Encoding of Acoustic Features Across Speech and Music in the Human Brain. Chicago, IL: Advances and Perspectives in Auditory Neuroscience, 2024.
3. ***Society for Neuroscience (SfN), Neuroscience 2024***  
**R. Agravat,** M. Desai, G. Foox, A. Field, A. Anderson, D. Clarke, E. T. Kabara, H. Weiner, L. Hamilton. Neural Encoding of Acoustic Features Across Speech and Music in the Human Brain. 2024 Neuroscience. Chicago, IL: Society for Neuroscience, 2024.
4. ***UT Austin CARE Research Day (UT CARE), 2024***  
**R. Agravat,** M. Desai, G. Foox, A. Field, A. Anderson, D. Clarke, E. T. Kabara, H. Weiner, L. Hamilton. Comparing Speech and Music Encoding Models. 2024 Research Day: UT Austin Cellular and Clinical Applied Rehabilitation Research and Engineering.
5. ***Society for Neuroscience (SfN), Neuroscience 2022***  
C.D.M. Vargas, **R. Agravat,** E. Jarvis. Mouse Motor Cortex Can Influence Vocal Musculature. 2022 Neuroscience. San Diego, CA: Society for Neuroscience, 2022.
6. ***Society for Neuroscience (SfN), 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.
7. ***Sigma XI Virtual Science Scholars' Symposium 2020***  
**R. Agravat,** N. Nath. Anti-bacterial effects of organosulfur compounds against gram-negative bacteria. New York City: Sigma XI Virtual Science Scholars' Symposium 2020
8. ***Symposium of University Research and Creative Expression 2019***  
**R. Agravat,** A. Petrovic. Chiral Sensing of Natural Products via Chiroptical Spectroscopy. New York City: Symposium of University Research and Creative Expression 2019.

## Honors, Awards, and Scholarships

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|------------------------------------------------------------------------------|-----------|
| 1. Graduate Student Professional Development Award, UT Austin (\$412)        | Fall 2024 |
| 2. Reimagining Professional Development Award, UT Austin (\$800)             | Fall 2024 |
| 3. Travel Award, Advances and Perspectives in Auditory Neuroscience (\$1000) | Fall 2024 |
| 4. Travel Award, Society for Neuroscience (\$1500)                           | Fall 2024 |

5. **INS Travel Award, Cold Spring Harbor Lab**  
**Genetics and Neurobiology of Language (\$2900)** Summer 2024
6. **SLHS Travel Award, Cold Spring Harbor Lab**  
**Genetics and Neurobiology of Language (\$500)** Summer 2024
7. **Reimagining Professional Development Award, UT Austin (\$400)** Fall 2023
8. **Texas SLH Foundation (TSHA) Elizabeth Wiig Research Award (\$1000)** 2024
9. **UT INS Graduate Fellowship (\$40,000 per year)** 2022-2027
10. **Dr. Barbu Kestanband Annual Scholarship (\$5000)** 2018
11. **The NYIT Scholarship (\$16,000 per year)** Sep 2016 – May 2020
12. **NYIT Dean's List** Spring: 2017, 2018, 2019, 2020
13. **NYIT Presidential Honor's List** Fall 2019

### **Leadership and Activities**

1. **UT Cellular to Clinical Applied Rehabilitation Research and Engineering (CARE)**  
**UT Austin, TX**  
*Student Board Member* Nov 2023 – Present
2. **Institute for Neuroscience, UT Austin, TX**  
*Student Buddy* Jan 2022
3. **Biology Academic Conference for Emerging Scholars (BioAcCES)**  
*Volunteer Reviewer* Oct 2021
4. **Graphic Design and Printing Shop, NYIT, NY**  
*Student Manager* Sep 2017 – May 2020
5. **Telangana Jagruthi International Youth Leadership Conference, India**  
*International Delegate Organizer* Jan 18-21, 2019

### **Teaching**

6. **Department of Speech, Language, & Hearing Sciences, UT Austin, TX**  
*Graduate Teaching Assistant, SLH350: Language & the Brain* Spring 2025
7. **Department of Biological Sciences, NYIT, NY**  
*Undergraduate Teaching Assistant, Bioethics* Fall 2019

### **Mentoring**

8. **SAGES Women in STEM + STEM Muse Mentorship Program, UT Austin, TX**  
*Mentor (Undergraduate Mentee: Melis Demiralp)* Feb – Jul 2023
9. **Neuroscience Undergraduate Reading Program (NURP), UT Austin, TX**  
*Graduate Student Mentor (Undergraduate Mentee: Ai-Vy Le)* Jan – Apr 2023
10. **Letters to a Pre-scientist**  
*STEM Pen Pal* Aug 2022 – Jun 2023

## **Skills**

Programming & Data Analysis:

Languages: Python, MNE-Python, R

Signal Processing: Time-frequency analysis, spectral analysis, filtering, artifact removal, independent-component analysis (ICA), principle-component analysis (PCA), power analysis

Computational Modeling: Encoding and decoding models, linear/multivariate regression, Multi-temporal (MTRF) & Spatio-temporal (STRF) receptive field modeling

Statistical Analysis: Hypothesis testing, Linear Mixed-Effects Regression (LMER)

Neuroscience Techniques:

EEG: Intracranial EEG (stereo-EEG), scalp EEG (event-related potentials/ERPs, time-frequency decomposition)

Software & Tools:

EEG/MRI Tools: MNE-Python, FreeSurfer

Stimulus Design: Adobe Audition, Audacity, PRAAT (acoustic analysis)

Audio Processing DNN Tools: Moises, MVSEP, AudioShake, GAUDIO studio, NeuralMixPro (for source separation)

Markup: LaTeX (for academic writing), HTML

Writing/Presentation: Microsoft Word, PowerPoint, Excel

Visualization: Adobe Illustrator, Python (Matplotlib, seaborn)

Data Collection: Qualtrics (for surveys/experiments)

Operating Systems:

Experienced user of macOS, Windows

Fluent in Spoken Languages:

English, Hindi, and Gujarati

## **Community Service**

Volunteer at **Austin Animal Shelter**, Austin, USA

**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