RAJVI AGRAVAT

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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 Science*s

Research Experience

1. **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

2. **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

3. **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

4. **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

5. **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

6. **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

7. **Kokilaben Dhirubhai Ambani Hospital, India** Jun – Jul 2019
   Observer; Advisor: Dr. Hrishikesh Sarkar, Dr. Yuvika Kamdar
   Discipline: Neurosurgery, Neuropsychology

8. **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***
   "Anti-bacterial effects of organosulfur compounds against gram-negative bacteria" **R. Agravat**

8. ***Symposium of University Research and Creative Expression 2019***
   "Chiral Sensing of Natural Products via Chiroptical Spectroscopy" **R. Agravat**

Honors, Awards, and Scholarships

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** Summer 2024

Genetics and Neurobiology of Language *($2900)*

6. **SLHS Travel Award, Cold Spring Harbor Lab** Summer 2024
   Genetics and Neurobiology of Language *($500)*

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)** Nov 2023 – Present
   UT Austin, TX
   Student Board Member

2. **Institute for Neuroscience, UT Austin, TX** Jan 2022
   Student Buddy

3. **Biology Academic Conference for Emerging Scholars (BioAcCES)** Oct 2021
   Volunteer Reviewer

4. **Graphic Design and Printing Shop, NYIT, NY** Sep 2017 – May 2020
   Student Manager

5. **Telangana Jagruthi International Youth Leadership Conference, India** Jan 18-21, 2019
   International Delegate Organizer

Teaching

6. **Department of Speech, Language, & Hearing Sciences, UT Austin, TX** Spring 2025
   Graduate Teaching Assistant, SLH350: Language & the Brain

7. **Department of Biological Sciences, NYIT, NY** Fall 2019
   Undergraduate Teaching Assistant, Bioethics

Mentoring

8. **SAGES Women in STEM + STEM Muse Mentorship Program, UT Austin, TX** Feb – Jul 2023
   Mentor (Undergraduate Mentee: Melis Demiralp)

9. **Neuroscience Undergraduate Reading Program (NURP), UT Austin, TX** Jan – Apr 2023
   Graduate Student Mentor (Undergraduate Mentee: Ai-Vy Le)

10. **Letters to a Pre-scientist** Aug 2022 – Jun 2023
    STEM Pen Pal

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