RAJVI AGRAVAT

UX Researcher, Neuroscientist

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I am a Ph.D. student with over 6 years of experience in qualitative and quantitative neuroscience experimental design. In my doctoral research, I have specialized in auditory attention in cocktail party scenarios and speech and music encoding in the human brain, both in naturalistic settings. Driven by a keen interest in UX Research, I am looking to leverage my skills in data collection, data analysis, and research design to generate actionable insights that inform and enhance user-centered design solutions.

WORK EXPERIENCE

Speech Brain Lab, UT Austin. *Ph.D. Researcher.* May 2023 – Present

- Designed and implemented dual-task paradigms integrating gaming and exercise to evaluate cognitive load and auditory attention in dynamic environments, using EEG to measure user performance and engagement.
- Conducted in-depth analysis of neural representations of speech and music, using intracranial EEG (sEEG) to uncover insights on acoustic feature processing and its implications for sound design.
- Developed predictive models for user responses to naturalistic auditory stimuli, informing design strategies for audio-focused interfaces.
- Collaborated with multi-disciplinary teams to interpret data and translate findings into actionable changes in data collection plans for better user experience.
- Mentored, trained & managed 6 undergraduates and research assistants in experimental design, data collection & advanced statistical analyses and data visualization in MNE-python.

Developmental Cognitive Neuroscience Lab, UT Austin. *Rotation Researcher.* Jan 2023 – May 2023

- Conducted fMRI analysis to investigate cognitive and executive functioning in children, identifying actionable insights to inform interventions for classroom environments.
- Initiated large data transfer and organization into the Texas Advanced Computing Center (TACC) using the Brain Imaging Data Structure (BIDS) format.

Laboratory of Neurogenetics of Language, The Rockefeller University. *Research Assistant.* Aug 2020 – Jun 2022

- Mapped neural connectivity of vocalization circuits in mice using advanced imaging and computational methods, contributing to foundational understanding of auditory-motor integration.
- Applied quantitative methods to analyze user interaction with experimental tools, improving precision and usability.

Department of Psychiatry Irving Medical Center, Columbia University. *Researcher.* Nov 2019 – Feb 2020

- Synthesized pharmacological and behavioral drug data to evaluate medication impacts on neurodevelopment, indirectly contributing to safer, user-informed medical practices and user-informed drug guidelines.
- Conducted qualitative analyses of patient data to identify correlations between maternal medication use and actionable insights, contributing to user-focused healthcare applications.

SKILLS

Research Design & Methods: Usability studies, A/B testing, contextual inquiry, experimental design, survey design, meta-analysis, data collection.

Communication & Collaboration: Excellent presentation, negotiation, stakeholder communication, and team management skills.

Technical Tools: Python (Pandas, NumPy, Matplotlib), R, Qualtrics, MNE-Python, MATLAB, LaTeX, MS Office, Adobe Audition, Audacity, Illustrator, Figma, Freeview, Praat.

Data Analysis: Statistical methods (ANOVA, regression), data visualization, behavioral analysis.

EDUCATION

The University of Texas at Austin, TX
Doctor of Philosophy, Major: Neuroscience
Advisor: Dr. Liberty Hamilton
Expected 2027

New York Institute of Technology, NY
Bachelor of Sciences, Major: Biological Sciences
May 2016 – 2020

PREPRINTS

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 & 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)* *equal contribution

AWARDS AND SCHOLARSHIPS

Reimagining Professional Development Award *($3000)*: Recognized for efforts to bridge academic expertise and applied practice.

UT INS Graduate Fellowship *($40,000 per year)*
The NYIT Scholarship *($21,000 per year)*

Texas SLH Foundation (TSHA) Elizabeth Wiig Research Award *($1000)*: A grant that supports ongoing research, awarded for excellence in auditory neuroscience research.

Travel Awards (CSHL, SfN, APAN) *(Total ~$10,000)*: Presented findings at leading neuroscience and auditory processing conferences.