ADITYA R. VAIDYA

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EDUCATION

University of Texas at Austin, Austin, TX *August 2020 – present*
Ph.D. Computer Science

Currently a Visiting Student at UC Berkeley.

University of Texas at Austin, Austin, TX *August 2016 – May 2020*
B.S. Computer Science, *Turing Scholars Honors*
B.S. Mathematics
B.A. Linguistics

Honors Thesis: *Visual Hand Pose Estimation for Modeling Haptic Perception*
Committee: Alexander Huth, Etienne Vouga, and Devangi Parikh

RESEARCH

University of Texas at Austin *August 2018 – present*
Advisor: Dr. Alexander G. Huth

- Understanding speech processing in the brain with artificial neural networks (ANNs) trained on speech via self-supervision [2, 5]. Generating speech and learning speech representations from brain data [1].
- Simulating intracortical (sEEG and ECoG) data with fMRI responses and ANNs [4].
- Identifying and controlling the memorization ability of language models using human behavioral data [3].
- Using multiple cameras and physical simulation to recover the 3D pose of a hand manipulating an object [6]. Mapping how the brain represents and processes haptic information using fMRI and motion capture.

AWARDS AND HONORS

- 2025 — Professional Development Award from the UT Graduate School *($245)*.
- 2023 — Professional Development Award from the UT Graduate School *($250)*.
- 2022 — ICML Participation Grant *($200)*.
- 2022 — Professional Development Award from the UT Graduate School *($1,000)*.
- 2019 — Attended the Cornell, Maryland, Max Planck Pre-doctoral Research School (CMMRS), *Saarbrücken, Germany*.
- 2019 — Advanced Summer Research Fellowship from Texas Institute for Discovery Education in Science (TIDES) for "Motion capture and visual force estimation of hand-object manipulation for modeling haptic perception" *($4,000)*.

INDUSTRY EXPERIENCE

Research Intern *June – September 2025*
Microsoft Research, *Redmond, WA*
Mentors: Chandan Singh, Weiwei Yang, Kate Lytvynets

- Used TabPFN, a tabular foundation model, to fuse high spatial resolution brain data (fMRI) with high temporal resolution data (EEG).

Software Engineer Intern — Machine Learning *May – August 2018*
GoDaddy, *Kirkland, WA*

- Added features to and restructured existing neural network models for domain name appraisal.
- Adapted models to predict year-by-year domain valuation, allowing domain investors to measure portfolio performance.

Software Engineer Intern — Data Platform *May – August 2017*
GoDaddy, *Tempe, AZ*

- Monitored and managed the company-wide Hadoop cluster and HDFS.
- Reorganized and decentralized monitoring infrastructure for the Hadoop cluster, freeing more resources for Spark and MapReduce jobs.

TECHNICAL SKILLS

- Languages: Python, C/C++, Java, R, Perl, LaTeX
- Technologies: Hugging Face Transformers, PyTorch, TensorFlow, JAX, CUDA, Kaldi

SERVICE

- Reviewer for ICML – 2025
- UT Computer Science Ph.D. admissions committee – 2022
- UT Graduate Application Assistance Program (GAAP) mentor – 2020

PUBLICATIONS (PEER-REVIEWED)

[2] Richard Antonello, Aditya Vaidya, Alexander Huth. "Scaling Laws for Language Encoding Models in fMRI". *Advances in Neural Information Processing Systems* (2023). URL: https://dl.acm.org/doi/10.5555/3666122.3667080.

[3] Aditya Vaidya, Javier Turek, Alexander Huth. "Humans and language models diverge when predicting repeating text". *Proceedings of the 27th Conference on Computational Natural Language Learning (CoNLL)*. 2023. URL: https://aclanthology.org/2023.conll-1.5.

[5] Aditya R. Vaidya, Shailee Jain, Alexander Huth. "Self-Supervised Models of Audio Effectively Explain Human Cortical Responses to Speech". *Proceedings of the 39th International Conference on Machine Learning (ICML)*. 2022. URL: https://proceedings.mlr.press/v162/vaidya22a.html.

[6] Akarsh Kumar, Aditya R. Vaidya, Alexander G. Huth. "Physically Plausible Pose Refinement using Fully Differentiable Forces". *EPIC@CVPR 2021 Workshop* (2021). arXiv: 2105.08196. URL: https://arxiv.org/abs/2105.08196.

[7] Aditya Vaidya, Angel D. Bravo-Salgado, Armin R. Mikler. "Modeling Climate-dependent Population Dynamics of Mosquitoes to Guide Public Health Policies". *Proc. 5th ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB)*. 2014. URL: http://doi.acm.org/10.1145/2649387.2649415.

PRE-PRINTS

[1] Nishitha Vattikonda, Aditya R. Vaidya, Alexander G. Huth. *BrainWavLM: Fine-tuning Speech Representations with Brain Responses to Language*. 2025. arXiv: 2502.08866 [cs.CL]. URL: https://arxiv.org/abs/2502.08866.

PRESENTATIONS

[4] Aditya R. Vaidya, Liberty S. Hamilton, Alexander G. Huth. "Replicating fast auditory intracranial responses using fMRI and large neural network models." Society for Neuroscience (SfN). 2023.