

# Saarang Panchavati

 saarangp |  saarangp |  saarangp.github.io |  saarang@ucla.edu

## SUMMARY

---

PhD candidate in Medical Informatics at UCLA developing foundation models for neural signals, with a focus on EEG and intracranial recordings for decoding, prediction, and disease characterization. My work combines large-scale self-supervised representation learning with translational clinical research in epilepsy and movement disorders, emphasizing generalization across cohorts, recording setups, and low-resource settings. I previously interned with the Brain AI group at Meta FAIR (London) and have published in venues including ICLR, Epilepsia, and ICASSP.

## EDUCATION

---

### University of California, Los Angeles

Sep 2021 – May 2026 (expected)

Ph.D. in Medical Informatics

NSF GRFP Fellow

Training in Neurotechnology Translation Fellow

### University of California, Berkeley

May 2021

B.S. in Bioengineering & Electrical Engineering & Computer Science

Sutardja Dai Entrepreneurship Fellowship

## SELECTED PUBLICATIONS

---

**Panchavati, Saarang\***, A. Daida\*, S. Kanai, S. Oana, H. Ono, M. Izumi, et al. (2026). “Distinct Spectral and Directional Thalamocortical Network Dynamics Define Focal Seizure Evolution”. *medRxiv*.

Chandravadia, N., S. Pendekanti, D. Roberts, R. Tran, **Panchavati, Saarang**, C. Arnold, et al. (2025). “Comparing P300 flashing paradigms in online typing with language models”. *PloS one* 20.2, e0303390.

Daida, A., Y. Ding, Y. Zhang, S. Oana, **Panchavati, Saarang**, B. D. Edmonds, et al. (2025). “Fast ripple band high-frequency activity associated with thalamic sleep spindles in pediatric epilepsy”. *Clinical Neurophysiology*.

Daida, A., **Panchavati, Saarang**, S. Oana, S. Kanai, Y. Zhang, Y. Ding, et al. (2025). “Evidence of thalamocortical network activation during epileptic spasms: A thalamic stereotactic EEG study”. *Epilepsia*.

**Panchavati, Saarang**, C. Arnold, and W. Speier (2024). “Mentality: A Mamba-based Approach towards Foundation Models for EEG”. *The Twelfth International Conference on Learning Representations (ICLR)*.

**Panchavati, Saarang**, A. Daida, B. Edmonds, M. Miyakoshi, S. Oana, S. S. Ahn, et al. (2024). “Uncovering spatiotemporal dynamics of the corticothalamic network at ictal onset”. *Epilepsia* 65.7, pp. 1989–2003.

Parthasarathy, N., J. Soetedjo, **Panchavati, Saarang**, N. Parthasarathy, C. Arnold, N. Pouratian, et al. (2024). “High performance P300 spellers using GPT2 word prediction with cross-subject training”. *Brain-Computer Interfaces* 11.4, pp. 210–224.

**Panchavati, Saarang**, S. Vander Dussen, H. Semwal, A. Ali, J. Chen, H. Li, et al. (2023). “Pretrained transformers for seizure detection”. *ICASSP 2023-2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*. IEEE, pp. 1–2.

**Panchavati, Saarang**, N. S. Zelin, A. Garikipati, E. Pellegrini, Z. Iqbal, G. Barnes, et al. (2022). “A comparative analysis of machine learning approaches to predict C. difficile infection in hospitalized patients”. *American Journal of Infection Control* 50.3, pp. 250–257.

**Panchavati, Saarang**, C. Lam, N. S. Zelin, E. Pellegrini, G. Barnes, J. Hoffman, et al. (2021). “Retrospective validation of a machine learning clinical decision support tool for myocardial infarction risk stratification”. *Healthcare technology letters* 8.6, pp. 139–147.

Pellegrini, E., **Panchavati, Saarang**, C. Lam, A. Garikipati, N. Zelin, G. Barnes, et al. (2021). “A Machine Learning Clinical Decision Support Tool For Myocardial Infarction Diagnosis”. *Journal of the American College of Cardiology* 77.18.Supplement\_1, pp. 653–653.

Mohamadlou, H., **Panchavati, Saarang**, J. Calvert, A. Lynn-Palevsky, S. Le, A. Allen, et al. (2020). “Multicenter validation of a machine-learning algorithm for 48-h all-cause mortality prediction”. *Health Informatics J.* 26.3, pp. 1912–1925.

Shen, K., A. Yau, **Panchavati, Saarang**, and M. M. Maharbiz (2020). “An automated system for reactive accelerated aging of implant materials with in-situ testing”. *2020 42nd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)*. IEEE, pp. 4466–4469.

Find more on [Google Scholar](#)

## EXPERIENCE

---

### Medical Informatics PhD Candidate

September 2021 – Present

*Biomedical AI Research, Los Angeles*

- Designing JEPA-style EEG foundation models to learn transferable neural representations for downstream decoding and clinical prediction tasks.
- Leading translational research in pediatric epilepsy focused on seizure-network analysis and machine learning based strategies for closed-loop neuromodulation.
- Developed machine learning methods to link EEG-derived features with gait impairment phenotypes in Parkinson’s disease.
- Mentored undergraduate researchers to build a real-time motor-imagery BCI pipeline (PyTorch, MNE, BCI2000), culminating in a first-place award at UCLA Bioengineering Research Day.

### Research Scientist Intern

Mar 2025 - August 2025

*Meta FAIR (BrainAI), London*

- Conducted research on representation learning for neural decoding and encoding in the Brain AI group.
- Contributed to scalable neural data training and evaluation pipelines in large collaborative codebases, with a focus on reproducibility and robust benchmarking.

### Data Science Intern

March 2020 – May 2022

*Dascena, Remote*

- Evaluated deep learning models for ICU C. difficile prediction, contributing to a peer-reviewed publication.
- Built longitudinal EHR predictive models across multiple clinical indications, resulting in three peer-reviewed publications.
- Developed EHR data-processing pipelines using AWS and SQL to support model development and retrospective analysis.

### Undergraduate Researcher

January 2018 – May 2020

*Maharbiz Lab, Berkeley*

- Designed experiments to evaluate neural-implant biocompatibility under accelerated aging conditions.
- Built automated aging experiments using Raspberry Pi, PySerial, and MATLAB, contributing to a conference publication.

## SELECTED RESEARCH PROJECTS

---

### EEG Foundation Model for Cross-Dataset Neural Representation Learning

2024–Present

- Developing an EEG foundation model based on JEPA that can learn reusable and transferable representations.
- Trained on 30,000 hours and over 20K subjects and evaluated on both BCI and clinical tasks to assess cross-task and cross-cohort transfer.
- Built a cross-dataset evaluation suite covering transfer, robustness to channel mismatch, and low-label adaptation across research and clinical tasks.

### Epilepsy Dynamics and Biomarkers for Closed-Loop Neurostimulation

2023–Present

- Established evidence for thalamic involvement in seizure dynamics in pediatric epilepsy using SEEG spectral and connectivity analyses.
- Characterized thalamocortical interaction patterns during seizures to clarify candidate mechanisms of modulation and termination.
- Investigating biomarker-driven deep learning approaches for identifying adaptive closed-loop thalamic stimulation protocols in pediatric epilepsy.

## SKILLS

---

### Neuroscience

EEG/SEEG preprocessing; spectral and connectivity analysis; neural decoding; brain-computer interfaces; neuroanatomy

### Machine Learning

State-space models (Mamba); transformers; self-supervised learning; foundation models; time-series modeling; representation learning

### Programming & Tooling

Python; PyTorch; PyTorch Lightning; MNE; scikit-learn; TensorFlow; SQL; Pandas; Git; distributed training (DDP)

Last updated: February 5, 2026