Muthu Jeyanthi Prakash

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Education

PhD, University of Tuebingen, Germany. Nov, 2023 – present

- Associated with the International Max Planck Research School for The Mechanisms of Mental Function and Dysfunction (IMPRS MMFD) and Graduate Training Centre of Neuroscience.

International Masters in Neurosciences, University of Bordeaux, France. Sep, 2019 – June, 2022

- Master 1: 14.1/20 (**Bien**)
- Master 2: 16/20 (**Très Bien**)

B.Tech. Industrial Biotechnology, Anna University, India. Aug, 2015 – May, 2019

- **First Class with Distinction**, CGPA: 8.68/10
- Qualified Graduate Aptitude Test in Engineering (GATE, 2019) with All India Rank of 392

Research Experience

PhD, University of Tuebingen, Germany. Nov, 2023 – present

- Studying the interactions between and within Medial Temporal Lobe regions during working memory and contextual processing tasks in humans.
- Analysing LFP and single unit data from iEEG recordings using python.

Master 2nd year traineeship, University of Bordeaux, France. Jan, 2022 – Jul, 2022

- Performed a whole exome sequencing association study to identify low frequency and rare genetic variants associated with incident stroke.
- Used R, regenie and METAL to perform the statistical analyses.

Remote student intern, Radboud university, Netherlands. Feb, 2021 – Sep, 2021

- Developed a synchronization pipeline for the electrophysiological and behavioural data from rodent experiments as part of the coding team at the Genzel lab.
- Utilized signal processing and computer vision principles and wrote python scripts using NumPy, SciPy, pandas and OpenCV-python packages.

Master 1st year traineeship, Nanyang Technological University, Singapore. Feb, 2020 – Jun, 2020

- Worked on the in vitro characterization of mitochondria targeted drugs for Alzheimer's disease at the Neurobiology of Aging and Disease laboratory.
- Optimized the protocol and conducted mitochondrial respirometry experiments in neuroblastoma cell lines.

Bachelor's thesis project, Indian Institute of Technology, Madras, India. Dec, 2018 – Apr, 2019

- Tested whether an oscillatory neural network model for spatial cells explains the properties of the newly discovered Object-Vector cells at the Computational Neuroscience laboratory.
- Wrote MATLAB scripts to replicate the tests performed in experimental paper on simulated data.
- The work was selected for poster presentation at Society for Neuroscience meeting, 2019.

Publications - preprints

- **Prakash, M. J**., Niediek, J., Surges, R., Mormann, F., & Liebe, S. (2025). Gamma–Theta–Spike Coupling Coordinates Sequential Memory in Human MTL. bioRxiv.2025.06.24.661371
- Dani, **M., Prakash, M. J**., Akata, Z., & Liebe, S. (2024). SemioLLM: Evaluating Large Language Models for Diagnostic Reasoning from Unstructured Clinical Narratives in Epilepsy. arXiv preprint arXiv:2407.03004.

Awards

- **Region Nouvelle-Aquitaine grant** for second year of master's degree.
- **FidEx International Mobility Scholarship** for master 1st year traineeship.
- Scholarship awarded for the **International Honours Program** at Taipei Medical University in June 2019.

Workshops

- **Summer School- Neuroepiomics** Oct, 2021
  University of Bordeaux, France.
- **Computational Neuroscience Online Summer School** Jul, 2020 & 2021
  Organized by Neuromatch Academy
- **International Honours Program - Brain Sciences and Bio-Imaging** Jun, 2019
  Taipei Medical University, Taiwan.
- **Machine Intelligence and Brain Research Workshop** Jan, 2019
  Indian Institute of Technology, Madras, India.
- **Computational Neuro-Musculoskeletal Biomechanics** Sep, 2018
  Indian Institute of Technology, Madras, India.

Professional Development courses

- **Applied Machine Learning in Python** by University of Michigan
- **Neural Networks and Deep Learning** by DeepLearning.AI
- **Structuring Machine-Learning Projects** by DeepLearning.AI
- **Fundamentals of Neuroscience for Neuroimaging** by John Hopkins University
- **Principles of fMRI-1** by John Hopkins University **Certificates: link**

Skills

- **Laboratory skills**
  Cell culture techniques, Western blot, Immunohistochemistry, Mitochondrial respirometry
- **Computational skills**
  Python (NumPy, SciPy, Pandas, OpenCV, scikit-learn), R, MATLAB, Unity 3D, UNIX, regenie
- **Language skills**
  Tamil, English (IELTS score: 8)
- **Soft Skills**
  Enthusiastic learner, Team player, Organized

Positions of Responsibility

Curriculum designer and Instructor, tinklab Jan, 2023 – May , 2023

- Organized online Science summer camp for kids aged 8 – 12 using story-based teaching and experiential learning.

Online volunteer teacher - Science, eVidhyaloka Sep, 2019 – Nov,2022

- Held weekly online sessions for middle-school students of a rural school in Tamil Nadu, India.

Operations & Logistics head, Bio-Hackathon 1.0 Mar, 2018

- Organized a Biotechnology-themed hackathon for the first time in the university and secured sponsorship for the event form various Research & Healthcare institutions.