Curriculum Vitae - Nivedya S Nambiar

nivedyasureshnambiar@gmail.com Nivedya Nambiar
https://nivedya-nambiar.github.io/nivedyaweb/ +91 7994803493

Education

2019-2023 **Bachelor of Technology,** Electrical Engineering — 9.39/10.0
Minor in **Healthcare Informatics**
Indian Institute of Technology Bombay

2017-2019 **Higher Secondary School,** CBSE — 98%
Veda Vyasa Vidyalayam

2007 – 2017 **Secondary School,** CBSE — 10.0/10.0
Devagiri CMI Public School

Awards and Achievements

2020 Awarded **AP Grade** for exceptional performance in Introductory Linear Algebra, IIT Bombay

2019 Secured **All India Rank 697** in JEE Advanced conducted by IIT Roorkee

Attained a **percentile of 100 in Mathematics** and a **total percentile of 99.906** in JEE Mains

2017 Achieved **All India Rank 407** in KVPY fellowship examination held by IISc, Bangalore

Research Positions

Since Jun 2023 **Research Assistant, Cognition Lab**.
Guide: Prof. Sridharan Devarajan, Indian Institute of Science Bangalore
- Received training in and completed data acquisition with functional MRI
- Working on task-based working memory decoding from fMRI, involved in experimental and computational aspects of the project
- Developed artificial neural networks to decode image data from encoded representation in fMRI activation patterns in separate project on image reconstruction

Research Publications

Conference Proceedings

1. K. K. Anmol Biswas Nivedya S Nambiar and U. Ganguly, "Madapter: A multimodal adapter for liquid state machines configures the input layer for the same reservoir to enable vision and speech classification," in *Proceedings of the 2023 International Joint Conference on Neural Networks (IJCNN)*, Gold Coast, Australia, 2023. URL: https://doi.org/10.1109/IJCNN54540.2023.10191376.

Additional Courses

Jul 2023 **Computational Neuroscience Summer Course, Neuromatch Academy**.
- Completed interactive three-weeks-long online course covering computational methods for neuroscience research
- Analysed HCP fMRI data to decode experimental condition and investigate brain areas involved for course project

Projects

Since Jun 2023 — **Decoding orientation of grating stimulus from fMRI data**
Guide: Prof. Sridharan Devarajan, Indian Institute of Science Bangalore
- Designed behavioural task and acquired fMRI data of human participants
- Explored analysis methods to decode stimulus orientation from fMRI

Jan-May 2023 — **Neuron Model for Filtering Noisy Speech,** Bachelor's Thesis Project - 2
Guide: Prof. Udayan Ganguly, Indian Institute of Technology Bombay
- Devised spiking neuron model to gate noise from speech in time domain
- Achieved improvement in speech classification accuracy from 42.5% to 60.4%

Aug-Nov 2022 — **Astrocyte Modulated Synaptic Plasticity in LSMs,**
Bachelor's Thesis Project - 1
Guide: Prof. Udayan Ganguly, Indian Institute of Technology Bombay
- Implemented modified version of astrocyte-modulated STDP for LSMs
- Achieved accuracy of 85.81% with TI-46 spoken words dataset

Mar-May 2023 — **Eye Blink Artifact Detection in EEG,** R&D Project
Guide: Prof. Kshitij Jadhav, Indian Institute of Technology Bombay
- Implemented unsupervised model to detect eye blink artifacts in raw EEG data

Oct-Nov 2022 — **Multimodal Neurons in LSMs,**
Course Project, Neuromorphic Engineering
Guide: Prof. Udayan Ganguly, Indian Institute of Technology Bombay
- Designed LSM to classify image and speech MNIST data in group of 3
- Trained LSM with cross-modal connections using STDP to achieve 97% accuracy

Jan-Apr 2022 — **Visible Light Communication,**
Course Project, Electronic Design Lab
Guide: Prof. Joseph John, Indian Institute of Technology Bombay
- Engineered visible light communication module as member in group of 3
- Designed and completed circuit assembly on printed circuit board

Jan-Apr 2021 — **Sweat-Based MEMS Glucose Monitor,**
Course Project, Biomedical Microsystems
Dept. of Biosciences and Bioengineering, IIT Bombay
- Reviewed research papers on non-invasive glucose measurement techniques
- Prepared blueprint for sweat-based MEMS (micro electro-mechanical system) glucose monitor including fabrication flowchart, mask layout and proposal for packaging

Skills

Languages — English, Hindi, Malayalam
Coding — Python, MATLAB, C++, VHDL, SystemVerilog, Julia, LaTeX, MySQL
Misc. — Git, Arduino, Experience with Gazebo and ROS, AutoCAD, SolidWorks

Extracurriculars

2014-15 — Member of Scientia, Students' Science Club at Regional Science Centre & Planetarium Calicut

2016 — Achieved Certificate of Merit in Grade 5 exam for Piano conducted by Trinity College London

2018 — Stood first in Calicut District Finals of Infinitum, annual Mathematics Quiz for high-schoolers conducted by Club Mathematica, National Institute of Technology, Calicut

2015 — Won Third Place in Western Music group competition at CBSE Kalotsav organized by Sahodaya Schools Complex Malabar Region