Vaishnavi Bengaluru Mohan

+1-323-690-3208 vbmohan@uw.edu Github LinkedIn

EDUCATION

University of Washington, Seattle, WA *Sep 2022 - Present*
Ph.D.: Computational Neuroscience of Vision under Prof. Geoffrey Boynton and Prof. Ione Fine
Research area: Visual Perception, Computational Modeling, Neural Prostheses, Blindness

University of Southern California, Los Angeles, CA *Aug 2017 - Dec 2018*
Master of Science: Electrical Engineering (Honors Program Fellow)

National Institute of Technology Karnataka, India *July 2013 - May 2017*
Bachelor of Technology: Electrical and Electronics Engineering

TECHNICAL SKILLS

Languages : C/C++, Python, Unix Shell Scripting, MATLAB, SQL
Softwares/Frameworks: PsychToolBox, Tensorflow, OpenVINO, Keras, Docker, EEGLAB, Github, Audacity, LaTeX

RESEARCH EXPERIENCE

Graduate Researcher - Vision Neuroscience *Sep 2022 - Present*
Vision and Cognition Lab, University of Washington, Seattle, WA

- My work entails understanding perception from neural data in the context of sight restoration for late onset of blindness.
- Designing efficient psychophysics experiments using adaptive Bayesian estimation procedures and information theoretical approaches to predict spatiotemporal contrast sensitivity as a comparison metric of visual acuity to inform design methodologies for sight restoration.
- Developed computational perception models by integrating neural and behavioral data to simulate percepts as experienced by individuals with visual prosthetics.
- Conceptualized a systematic mathematical framework to characterize perceptual distortions across various visual paradigms
- Built a virtual prototype capable of predicting perceptual outcomes from neural response data for any optogenetic protein - pioneering the first systematic framework to evaluate and optimize optogenetic technology for functional vision restoration.

PROFESSIONAL EXPERIENCE

Software Development Engineer - Computer Vision and Machine Learning *Feb 2019 - Sep 2022*
Intel Corporation, Hillsboro, OR

- **PoC: Microsoft Windows 11 Studio Effects**
  Lead AI scientist and software developer for low-power, low-latency AI applications for Intel edge platforms. Created the AI-based automatic framing and background effects PoC, now integrated into Microsoft Windows 11 OS.
- **PoC: Intel Horseshoe Bend Foldable Display Laptops**
  Led development of a comprehensive test suite of 310+ tests for Intel's foldable display laptop PoC (Horseshoe Bend) now in production with HP, Lenovo and Asus.
- **Model Performance Evaluation Tool:** Built a computer vision tracking pipeline for a smart home visual analytics solution. Designed and developed an automated framework to evaluate KPIs for computer vision applications.
- **Workload Optimization:** Led performance analysis and optimization of AI workloads across Intel mobile and desktop processors, including CPU, GPU, and the Vision Processing Unit (VPU), providing strategic recommendations for optimal hardware and large AI model workloads.

CONFERENCES AND TALKS

- **Mohan, V.**, Yucel, E.I., Boynton, G., Fine, I. *"Characterizing Perceptual Performance of Optogenetic Vision: Moving from Cellular Responsiveness to Functional Vision"*. The Eye and the Chip 13th World Research Congress on Artificial Vision, Southfield, MI, October 2023. [Poster]
- **Mohan, V.**, Emami, Z., Chau, T. *"Development of an optimal Brain Computer Interface based on Motor Imagery using Electroencephalography"*. 10th annual Anne & David Ward Family Summer Student Research Day, Toronto, July 2016.

HONORS AND AWARDS

- Cold Spring Harbor Laboratory Computational Neuroscience of Vision Trainee Award, NY. *May 2024*
- Masters Student Honors Fellowship, Viterbi School of Engineering, University of Southern California. *Dec 2018*
- Mitacs Globalink Summer Research Scholarship, University of Toronto, Canada. *May 2016*

PROJECTS

- Attention-Driven Brain Computer Interface [Slides] *Aug 2018 - Dec 2018*
- Development of an optimal Brain Computer Interface based on Motor Imagery [Poster] *May 2016 - July 2016*