Mirudhula Mukundan

Pittsburgh, Pennsylvania, USA | mirudhula.tm@gmail.com | +1 (650) 4644625
https://www.linkedin.com/in/mirudhula | mirudhula-m.github.io

Education

Carnegie Mellon University, *School of Computer Science* — ***Pittsburgh, USA***
Master of Science in Computational Biology, GPA: 3.80/4.33 (2021 - 2023)
Relevant Courses: Machine Learning, Intermediate Deep Learning, Convex Optimization

PES University — ***Bangalore, India***
Bachelor of Technology in Biotechnology, GPA: 9.27/10 (2016 - 2020)
Bachelor of Technology, Minor in Computer Science, GPA: 9.35/10 (2016 - 2020)
Achievements: CNR and MRD Scholarships for ranking among the top ten

Skills

C, Python, Java, Go, R, MATLAB, Pytorch, Tensorflow, Keras, HTML, Javascript, AWS Cloud

Projects

A single cell RNA-seq based aging clock for human neurons *Sept 2022 - Nov 2022*
- Developed Poisson Variational Autoencoder for efficient age prediction, which beat the baseline Multilayer Perceptron model and Standard VAE model performance with around 36% improvement.

Common Signatures between Severe Asthma and Lung Cancer *Oct 2022 - Nov 2022*
- Implemented Gene Set Enrichment Analysis on data from GEO, to identify common signatures.
- Validated results by classifying a separate lung cancer dataset using Decision Trees.

Classification of Glioma *Feb 2022 - Mar 2022*
- Processed gene expression data from TCGA to classify glioma subtypes.
- Employed Gaussian Naive Bayes and Support Vector Machine to model the data
- Validated the results with a 5-fold cross-validation and achieved over 85% accuracy.

Natural Selection Simulator *Oct 2021 - Nov 2021*
- Developed a graphical game-like simulator to observe selection over several generations.

Experience

Research Assistant
Lee Lab, Carnegie Mellon University, Pittsburgh, USA *Jan 2022 - Present*
- Analyzing macaque EEG time-series data to evaluate evolution of neural firing rates.
- Utilizing predictive coding to model spatiotemporal patterns in the brain.

Project Assistant and Research Intern
Cognition Lab, Indian Institute of Science (IISc), Bangalore, India *Dec 2019 - July 2021*
- Designed and developed behavior tasks for investigating the effect of cognitive load on attention.
- Worked with multiple PhD students to conduct experimental tasks and decode EEG signal data.
- Pioneered the use of web-based experiments to remotely conduct experiments during COVID-19.

Software Developer, Intern
CGI, Bangalore, India *June 2018 - Aug 2018*
- Developed a spelling corrector for a ChatBot platform using LSTM recurrent neural networks.
- Employed sequence-to-sequence and character-based encoder-decoder model.