Senthil Palanivelu

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PROFILE:

- Background in computer science. Interested in developing predictive models which combine physiological, behavioral, clinical, imaging, genetic, and epidemiological measures with the goal of improving outcome predictions in various diseases.

PROFESSIONAL EXPERIENCE:

Bioinformatician I, Brigham and Women's Hospital Sep 2022 – Present

- Contributed to an open-source C++ software package for manipulating and analyzing polysomnographic recordings, with a focus on the sleep EEG
- Developed a web based interactive tool that captures real time user inputs and display analytical results
- Validated and deployed ML predictive model for automated sleep staging and brain age prediction
- Implement best practices and methods for building efficient docker container images
- Automated the process of building and distributing Python packages across different platforms using GitHub Actions

Research Associate, Battelle Center for Mathematical Medicine, Nationwide Children's Hospital Sep 2021 - July 2022

- Developed programs in MATLAB for analyzing sleep rhythms in human brain
- Developed MALTAB data analysis pipeline for detecting spindles and slow oscillations
- Used K-clustering algorithm to categorize the spatial patterns of slow oscillations
- Studied the neurophysiology of sleep through the lens of multi-taper spectral analysis
- Used SVM to classify slow oscillations based on their source current densities

Research Data Analyst I, **Department of Psychological & Brain Sciences, Boston University** Apr 2020 - Aug 2021

- Built computing tools for multimodal analysis of large-scale connectivity structure of spontaneous and task active rhythmic brain activity
- Implemented and supported statistical analyses and processing pipelines in Python for behavioral, EEG and multimodal neuroimaging analysis, including MEG resting-state and volumetric data

Clinical Research Coordinator II, **Department of Psychiatry, Massachusetts General Hospital**
Psychiatry Neuroimaging Lab, Brigham, and Women's Hospital Jan 2019 - Mar 2020

- Developed Image processing pipelines in python and shell scripting
- Trained an encoder-decoder deep learning model for brain MRI segmentation
- Design and run MATLAB scripts for analysis of task-based fMRI data
- Hands on experience in image processing and analysis tools like 3D slicer, Free surfer, FSL and SPM

Research Assistant, **IT Research Computing, University of Massachusetts Boston** Jul 2016 - Aug 2017

- Developed programs for data retrieval and processing in python and UNIX shell scripting
- Handled high throughput data in Linux HPC clusters with UNIX shell scripting
- Developed data visualization tool for high performance computing usage using python and bash

IT Specialist, **Mphasis, Pune, India** Oct 2012 - Feb 2014

Part of HP Storage Services Management System (SSMS) Backup and Restore

- Performed client data collection, data restoration and reporting
- Identified data collection issues and monitored data collection progress
- Extracted reports from SQL server by running basic SQL queries

EDUCATION:

- MS Computer science, University of Massachusetts Boston, USA Jan 2015 - Jan 2019
- Bachelor of Electronics and Communication Engineering, Anna University, India Sep 2007 - Nov 2011

CERTIFICATIONS:

- Mathematics for Machine Learning and Data Science by DeepLearning.AI on Coursera. July 2024