VISHAL NAGARAJAN

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Education

University of California, San Diego — San Diego, United States
M.S. Computer Science — Sep 2022 – Jun 2024 (Expected)

Sri Sivasubramaniya Nadar College of Engineering — Chennai, India
B.E. Computer Science and Engineering, GPA: 8.55/10.00 — Aug 2018 – May 2022

Skills

- **Machine Learning:** scikit-learn, Keras, TensorFlow, PyTorch
- **Frameworks & Libraries:** Numpy, Pandas, Matplotlib, Git, ReactJS, MongoDB, Angular
- **Languages:** Python, Java, C, C++, HTML, JavaScript, SQL, TypeScript
- **Hardware:** Raspberry Pi
- **Linux Server Admin:** Managed dependencies for ML compute server and workplace automations

Professional Experience

Solarillion Foundation — Chennai, India
Teaching Assistant and Research Assistant — Jun 2020 – Jun 2022

- Guided **5 students** through orientation assignment phase in Python and basics of machine learning.
- Analyzed various techniques and detected atrial fibrillation with maximum accuracy of **95%**. Applied data preprocessing techniques and wrote a research paper published in **IEEE ICMLA** conference.

Publications

- Led the team through inception and implementation process. Spearheaded the programming and deployment process - Scalable machine learning architecture for neonatal seizure detection on ultra-edge devices — IEEE AISP, Feb 2022
- Co-authored the research paper. Managed data preprocessing and model tuning steps. End-to-end optimized arrhythmia detection pipeline using machine learning for ultra-edge devices — IEEE ICMLA, Dec 2021

Selected Projects

- **TechWorld** (Javascript) — Feb 2022
  E-commerce web application based on MERN Stack
  Managed team of 3 and designed a web app with functionalities enabling users to purchase and admin to add products. Cart uses cookies to store products in cart accurately. Profile sign-ins are authenticated using JWT. [code-link]
- **Solarillion Website** (Javascript) — Dec 2021
  Official website of Solarillion Foundation
  Revamped research and contact pages using Google App Script and Javascript with better UI. [code-link]
- **Bradycardia Prediction** (Python) — Dec 2021
  Programmed deep neural networks using PyTorch
  Developed models including Encoder and InceptionTime to predict bradycardia events prior to onset. [code-link]
- **Flight Delay Prediction** (Python) — Jul 2020
  eXtreme Gradient BOOST classifiers and regressors
  Built a two-staged pipeline consisting XGBoost Classifier and Regressor to improve performance of evaluation of flight delay in minutes. Achieved a Mean Absolute Error of 13.82 minutes, and R^2 score of 0.94. [code-link]

Open-Source Contribution

PySigPro: Collaborated a one-stop open-source Python package for signal processing and feature extraction of HRV features, and features pertaining to seizures, maintained interactively on GitHub. To be published as PyPI distribution.

Community Service and Volunteering

- Participated in 10-day bootcamp conducted by National Sports Organization to promote fitness lifestyle
- Volunteered to work with a team of 20 people to plant trees and propagate afforestation organized by National Service Scheme