# 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. Rendered the project in 4 weeks building from scratch.
- **Solarillion Website** (Javascript, ) — Dec 2021
  Official website of Solarillion Foundation
  Revamped research and contact pages using Google App Script with better UI. Delivered the changes in 1 day.
- **Bradycardia Prediction** (Python, ) — Dec 2021
  Programmed deep neural networks using PyTorch
  Developed models including Encoder and InceptionTime to predict bradycardia events prior to onset.
- **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. Data processing performed on over 10 million datapoints. Achieved a Mean Absolute Error of 13.82 minutes, and $R^2$ score of 0.94.

## 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. 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