Shanmukha **Saketha Ramanujam** S

Apt 351, 950 S Terrace Road, Tempe, AZ

+1 480-939-9701 • ssamaved@asu.edu • sakethramanujam.me

Education

M.S.E in Electrical Engineering — **Tempe, AZ**
Arizona State University — *Expected graduation: 2022*
CGPA: N/A

B.Tech in Electronics and Communications — **Vizag, IN**
Gayatri Vidya Parishad College of Engineering — *2019*
CGPA: 7.92/10

Research Interests

▪ Digital Signal and Image Processing ▪ Real Time Signal Processing ▪ Electromagnetic Accelerators and Detectors ▪ Statistical Machine Learning ▪ Electrical Engineering

Work Experience

Project Associate | Scientific and Industrial Research Centre, GVP Dec 2019 – Dec 2020
Technologies: Python, C, LabView, MATLAB, Eagle, Statistical Inference
- Conducted research in higher order moments for relating scattering characteristics of gaseous mixtures.
- Developed and deployed, signal conditioning, processing and machine learning algorithms for near real time evaluation of output parameters in Photonic System(s).
- Devised and conducted experiments for analysing structural health analysis of metallic structures with opto-electronic devices.
- Built tooling for extracting, visualising and archiving Air Quality Index data-sets from the Central Pollution Control Board of India, website.

Google Summer of Code Mentor | Beagleboard.org May 2020 – Aug 2020
Technologies: C, Linux, Pocketbeagle, BeagleBoneBlack
- Co-mentored a project aimed at implementing a bidirectional-bus using pocket-beagle device to add additional I/O capabilities using P.R.U. based architecture.

Software Engineering Intern | Rorodata June 2019 – Dec 2019
Technologies: Python, Apache Airflow, Docker, Apache Bench, Nginx, GCP, GitHub Actions
- Built and deployed a automated test suite bot using Pytest, Selenium and Nginx for availability and functionality test on data ingestion platform.
- Responsible for maintaining CI/CD pipelines using Google Cloud Build and GitHub Actions.
- Performed evaluation of Apache Airflow platform for use in Machine Learning workloads and developed test workflows.
- Aided in performance testing of APIs on Google Cloud Platform components such as App Engine, Compute Engine and Cloud Run using Apache-Bench and Locustio.
- Deployed a internal python package management server using devpi.
- Built web-scrapers and cli tools to obtain causal data from various platforms and deployed datasets using Datasette.

Summer Research Intern | Scientific and Industrial Research Center, GVP Apr 2018 – June 2018
Technologies: Python, C, Raspberry-pi, Arduino, Web-Sockets, Firebase, GCP
- Responsible for development of wireless data transmission client using socket programming to enable sensor data transfer.
- Custom image upload and analysis engine (using Google Firebase) for microbial monitoring in water samples.
- Aided in designing of a trans-impedance amplifier circuit for a photonic system.
- Designed a band-pass filter (using LabView, MATLAB) for noise cancellation in opto-electronically recorded audio.

Projects

Notable Projects

Percy Image Downloader [GitHub]
Command line utility to download images from Mars 2020 Mission Rover, Perseverance website.
Application of Machine Learning Algorithms for Photonic Sensor Data
Developed a signal processing and machine learning algorithm system to identify and measure pollutant concentrations using photonic sensor data transmitted over TCP sockets and provide real time insights into air quality.
CPCB-CCR Client [GitHub]
Python library to import air quality monitoring data as recorded by Central Pollution Control Board's weather stations across various stations in India.
Py-Ar MQxx [GitHub]
Serial logger in python to extract **MQ2, MQ5, MQ9, MQ135** (gas sensors) data connected to an Arduino board, to monitor the presence of atmospheric pollutants such as Methane, Butane, LPG, Smoke when the device suite is placed in an area of interest.
Gaze Point Heat map [GitHub]
Webcam enabled gaze point tracking and visualization tool developed using HAAR Cascades and Open-CV to analyse visual areas of concentration on a computer screen.

Other Selected Projects

- **Naas-Docker** Notebook server with Jupyter and Docker. [GitHub]
- **Fortune Teller** web-hook based quote delivery. [GitHub]
- **Quad Copter** using KK Flight Computer.
- **Darlington Pair Amplifier** using NPN transistors.

Selected Coursework

- Electromagnetic Theory in Transmission Lines
- Millimeter Waves and Terahertz Measurements
- Digital Signal Processing
- Antennas and Wave Propagation
- Signals and Systems
- Coherent Optics
- Analog and Digital Electronics
- Random Variables, Signal Theory

Technical Skills

Languages: Python ▪ Shell ▪ C ▪ MATLAB ▪ JS
Familiar with: Go ▪ Julia ▪ Docker ▪ Machine Learning ▪ Statistical Inference
Web Development Frameworks: Flask ▪ Jekyll
Software: HFSS ▪ LabView

Volunteering and Outreach

- GitHub Campus Expert — 2018 – Present.
- GitKraken Ambassador — 2019 – Present.
- National Service Scheme Volunteer, Gayatri Vidya Parishad — 2016–2018.
- Mentor for Machine Learning, Mathematics, GVP-AI Club — 2018 – 2019.
- Mentor for Programming, Pocket Computers, Technical Club, Gayatri Vidya Parishad — 2017 – 2019.

MISC

- Science Team Member, Hyper-spectral Cube-sat Team, Sun Devil Satellite Laboratory
- Coordinator, College Cultural Club, Gayatri Vidya Parishad.
- Lead Pianist,Arranger, College Cultural Club.
- Pianist, Unflugged Band.