# Vijay Vanapalli

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## Education

San Jose State University, San Jose – **Bachelor of Science in Electrical Engineering**. 2018
•**President of IEEE - Eta Kappa Nu, Electrical and Computer Engineering Honor Society:** Achieved Membership, Awarded Best Club 2018

## Experience

**3Frames Software Labs, Bangalore**- *Computer Vision Engineer*                    *(April 2020- Present)*
•Training models for Face Recognition, Mask Detection
• Implementing Re-Identification, Computer Vision to identify known and stored IDs
• Implementing OCR, training on custom data. Surface Defect Detection analysis.
**3Frames Software Labs, Bangalore**- *Software Internship*                    *(June 2019- September 2019)*
• Implemented Hotword detection on Android Application
• Implemented NLP offline on Android Applications through OpenNLP
• Unit Tested modules within a provided framework and integrated servers to update App with new models, live.
**San Jose State University**- *Lab Instructor*                    *(May 2016- May 2018)*
• Introduction to Programming Microcontrollers (EE 30)
• Schedule and maintain regular office hours to meet with students
• Designed course modules for beginners in C++ /Used MSP430 for keystone projects

## Projects

**iSentinel,  Behavioral Recognition, Anomaly Detection -**
*Computer Vision Engineer, 3Frames Software Labs*
• Worked on implementing a cohesive UI, integrating multiple camera streams as an input to data inference modules
• Trained general anomaly detection models, extracting I3D features over a set of frames from live feed for Anomaly Detector
• Implemented MediaPipe Face Detection to classify emotions and behaviors

**Surveillance System with Zone Detection, Person Re-Identification, and Mask Detection**
*Data Scientist, POC, 3Frames Software Labs*
• Worked on data acquisition from CCTV footage in real time, across multiple streams
• Designed a Zone Security Module that also allowed to look at Customer Behavioral Patters including Product preferences, Stillness
• Helped in setting up Server Client interpretation of data through Apache ActiveMQ and app design
• Designed a Re-Identification Module that spawns feature vectors to continually compare customers and differentiate from staff
• Implemented Mask Detection Module with active testing during Pandemic

**Training Custom OCR for License Plates, Labels for Products**
*Data Scientist, POC, 3Frames Software Labs*
• Implemented a License Plate Detection Module with OCR to recognize number plates under dusty conditions
• Deployed preprocessing on images and postprocessing on OCR output of labels of products to isolate important information
• Trained custom OCR models, helped in data acquisition to build a custom dataset for the client.

**Acoustic Beamforming with Voice Activity Detection Using a Microphone Array**
*Lead Designer and Hardware, Senior Project, Spring 2018, SJSU  (Sponsored by Nuvoton)*
• Worked on data acquisition and , algorithm and interfacing between the NAU85L40 and NuTiny
• Helped integrate the VAD module with the Delay Sum Algorithm in use.
• Create an LED interface to map beam steering capability in real-time.

**Self Driving RC Car**
*Technical Lead - Communications, SJSU*
• Designed Mobile Application used to control the RC Car, implemented Dijkstra's Algorithm.
• Implemented Wifi communication, Implemented GPS (NEO-6M Ublox GPS) with on-board SJOne, within FreeRTOS.
• Unit Tested modules within SJOne framework.
• Helped design the power board

## Relevant Coursework

- CMPE 244 - Embedded Software
- EE 258 - Neural Networks
- CMPE 200- Computer Architecture
- CMPE 257- Machine Learning
- EE 160 - Principles of Communication Systems
- CS 146 - Data Structure and Algorithms
- EE 161 - Digital Communication Systems
- CMPE 243 - Embedded System Application
- EE 138 -  Embedded Control System Design
- EE 153 - Digital Signal Processing

## Technical Skills
**Programming Languages:** Python | C | C++ | Java
**Frameworks/Libraries:** OpenCV, Pytorch, Numpy, Scikit-learn, Pytesseract