SHYAM SUNDAR RAVIKUMAR

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EDUCATION

Master of Science - Electrical and Computer Engineering January 2019 - December 2020
University of Southern California GPA: 3.5 / 4
Coursework: Data Mining, Image Processing, Machine Learning, Deep Learning, Pattern Recognition, Probability, Linear Algebra

Bachelor of Engineering - Electronics and Communication Engineering May 2018
PSG College of Technology, Coimbatore, India GPA: 8.48 / 10

SKILLS

Programming: Python, C++, Java, SQL, HTML, CSS
Tools: PyTorch, TensorFlow, OpenCV, Android SDK, MATLAB, Bootstrap, Git, JIRA, Docker
Frameworks: CNN, RNN, LSTM, Scikit-learn, NumPy, SciPy, Matplotlib, Pandas, Seaborn
Hardware: Arduino, Raspberry Pi

EXPERIENCE

Collins Aerospace, Cedar Rapids, IA - Full Stack Developer June 2020 - Present
· Developed a Flight Data Simulator that emulates sensor data from the Aircraft Flight Control System and integrated it to the Software Stack to simulate the Moving Maps Software Airshow-2 in Real-time.
· Worked on the Software development cycle of the Next Generation of Interactive Moving Maps Software Package Airshow-3
· Reduced Software Testing time by 25% through Static Analysis to identify vulnerabilities and enforce better coding practices

IISc Bangalore, India - Project Assistant, Indigenous 5G Testbed Initiative July 2018 - December 2018
· Contributed towards the development of PHY and MAC layers for the Indigenous 5G Testbed of India
· Primarily focused on building transport channel blocks and benchmarking performance for further integration to higher layers of the protocol stack

IIT Chennai, India - Research Assistant to Dr. Giridhar K May 2017 - July 2017
· Designed an OFDM Link and analysed the Error performance
· Employed FFT based Interpolation for Channel Estimation
· Constructed an optimal Frame structure of Physical Random Access Channel for Ranging in LTE networks

PROJECTS

Amazon Whole Foods Delivery Slot Checker - [Python, Selenium, BeautifulSoup4, Bash] 2020
· Wrote an automated script which identifies the available Delivery slots from Amazon Whole Foods in the time of high demand for groceries during the COVID-19 pandemic.
· Supports Google Chrome and Mozilla Firefox Web browsers and notifies about the delivery slots (if available) through e-mail.

3D Reconstruction of Objects from Single 2D Image - [PyTorch, OpenCV, ResNet-18, Android SDK] 2019
· Furniture objects segmented, cropped and centered through YOLO v3.
· Constructed a Model-free method using Autoencoders for 2.5D Prior Estimation and 3D Generation of models in Voxel Space.
· Additionally implemented a Model-based approach to Reconstruct 3D models with a reduced set of 15 parameters.
· Provided a comparative performance analysis and 3D models are visualized through an AR Mobile Application.

Song Genre and Hit Prediction - [Python, ML Algorithms] 2019
· Trained models on custom datasets constructed from song features to classify Genres and predict a song becoming a Hit.
· Analyzed the performance of models on Validation data to select the best performing model
· Evaluated the results of chosen models on unseen data and obtained an improved accuracy of 4% on the state-of-the-art model

Intelligent Driver Assistance System - [Java, Python, OpenCV, JSON requests, APIs] 2019
· Estimated Driver Emotion and Drowsiness (Facial Landmarks) and closest Rest spots (Google Maps API) and queried to/by (JSON Requests) the Ford SDL API
· Voice and Text Alerts are given if the driver is drowsy and 3 closest Rest-Spots are displayed on the Infotainment System.
· Based on Driver Emotion, a playlist of songs of similar mood is generated (Spotify API) and the top 10 results are suggested on the Infotainment System.
· **Winner of Ford Prize - CalHacks 6.0, UC Berkeley**

Human Activity Recognition - [Python, ML Algorithms] 2019
· Worked on UC Irvine's AReM dataset to predict the Activity of a person based on Multisensor data
· Analyzed the performance of Regression and Naive Bayes' Classification methods on the dataset and obtained a loss of 0.105 using L1 penalized Multinomial Regression

Self Driving Car Prototype - [Python, OpenCV, Control System] 2019
· Constructed an unmanned RC vehicle driven by image processing done with a Raspberry Pi
· Images acquired, filtered, edge detected to estimate the lanes, and peaks detected to control the steering
· Designed an efficient PID controller for smooth steering action and speed control before and after taking a turn