RAHAVEE PRABAKARAN

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EDUCATION

Master of Science in Computer Engineering **Expected May 2023**
Arizona State University, Tempe, AZ **3.33 GPA**
Coursework: Foundations of Algorithms, Machine Vision and Pattern Recognition
Random Signal Theory

B.E. Electronics and Communication Engineering, *First Class with Distinction* **June 2021**
Anna University, India **8.53 CGPA**
Coursework: Machine Learning Techniques, Python, C/C++, Data Structures

TECHNICAL SKILLS

Programming Languages: Python, SQL, C
Software: Jupyter Notebook, PyCharm, VSCode, Android Studio
Libraries & Frameworks: Scikit-learn, NumPy, Pandas, OpenCV, Matplotlib, Tableau, R Plotting, PowerBI, Flask
Deep Learning Platforms: Tensorflow, Pytorch
OS: Windows, Linux
Databases: MySQL

PROFESSIONAL EXPERIENCE

Android Application Development Intern, KBP Smarther Solutions Private Limited, India **June 2020-July 2020**

- Part of a team which developed an Android based Mobile Application using JAVA programming language in Android Studio.
- Developed UI for the application by incorporating Linear Layout, Relative Layout, Frame Layout, Grid View, List View, Navigation Bar and Bottom Navigation.
- Assisted in performing database CRUD operations thereby gaining exposure to understand MySQL database.

PROJECTS

Exploring the Mechanisms of Feature Extraction (Computer Vision – Feature Extraction- Python, Pytorch)

- Explored the mechanisms of feature extraction of VGG, by training two identical networks on identical data labelled for different image attributes. The network was trained on CelebA dataset.
- The pre-trained VGG-19 was trained on ImageNet dataset and fine-tuned to perform the classification.
- The model was trained for ten epochs with Adam Optimizer of learning rate le-3 and with binary cross entropy as the loss function with a batch size of 16.
- Visualized intermediate feature maps as heat maps to qualitatively assess the performance of the two networks.
- Observed the structural differences between the network by extracting weights and bias matrices of single layers in a network structure from all the networks saved during the training process and arranging them in an array.
- Used these weight matrices to calculate the mean and the variance of single weight and bias values, and arranged them in a matrix of the same dimensions.

Facial Recognition Web Application (Computer Vision – Image Processing- Python, Tensorflow, Flask)

- Gathered the dataset, analyzed the images for their dimensions, minimum and maximum RGB Values.
- Performed image pre-processing by extracting eigen values using Principal Component Analysis.
- Developed a Machine Learning Model and used Service Vector Machines classification algorithm for hyperparameter-tuning. Machine Learning Model obtained with an accuracy of 56%.
- Developed web server gateway in Flask and integrated the Machine Learning Model to Flask to obtain the Face Recognition Project.

Client Subscription Prediction (Machine Learning-Python, Jupyter Notebook)

- Analyzed the customer dataset of a retail banking Institution for any outliners and inaccuracies.
- The dataset contained details like age of the client, their job type, the duration of the call with the customer care specialist.
- Applied various Machine Learning algorithms like Linear Regression to train the model.
- Model created with an accuracy of 87%.

Design of Easy Appliance Control System Based on Virtual Reality (Embedded Systems, Image Processing -Visual basic, Arduino IDE, Proteus 8.6, Embedded C)

- Developed an Embedded system model incorporating Virtual Reality which enabled users to operate home appliances using just hand gestures.
- Built the Virtual Reality Sensing Device which consists of an ADC, PIC Controller, Motion Sensor, Camera. Connected this device to the transmitter (Micro-controller) and receiver section (Micro-controller, Relay Unit, Home Appliances).
- Used Arduino IDE to code for the working of the Liquid Crystal Device and used Visual Basic for image processing.