BHUMI GODIWALA

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EDUCATION

University of Southern California **May 2023**

- Master of Science in Electrical and Computer Engineering (Machine Learning and Data Science specialization). **(GPA 4.0/4.0)**

Dwarkadas J. Sanghvi College of Engineering, University of Mumbai, India **October 2020**

- Bachelor of Engineering in Electronics and Telecommunications **(CGPA 9.19/10)**

TECHNICAL SKILLS

- **Programming Languages**: Python, Java, C, C++, MySQL, SQL, Oracle, Git, Object Oriented Programming (OOP/OOPs)
- **Operating System**: Windows, Linux
- **Software**: Jupyter Notebooks, Anaconda, PyCharm, Eclipse, PyTorch, Mathematica, Firebase, MATLAB, Simulink, Scilab
- **Python Libraries**: Matplotlib, Tensorflow, Keras, Numpy, OpenCV, Scikit-Learn, Pandas.
- **Web-Technologies:** HTML, CSS, Javascript

WORK EXPERIENCE

Tata Consultancy Services, India **October 2020–July 2021**

Assistant System Engineer – Software Developer

- Worked as a Software Developer in the TCS iON educational unit.
- Managed end to product development process from online application form development to deploying the forms in live environment over the university's portal using company's internal framework along with Data Structures and Algorithms using Java, HTML, CSS and Javascript technologies.
- Analyzed metadata configuration mapping and performed debugging, testing on Dev, QA and live environments.
- Designed reports and academic records along with their live deployment on university's portal along with data segregation and optimization based on course name and course codes.

ACADEMIC PROJECTS

Performance Analysis of Clustering Algorithms – KNN, K-Means, GMM, DBSCAN, Spectral Clustering

- Implemented KNN, K-means, Gaussian Mixture Models, Density Based Spatial Clustering Algorithms, Spectral Clustering algorithm on images and test data to gain insights on their performance and accuracy using Statistics and Regression Analysis.
- Performed visualization of data points using **Matplotlib** library and utilized **Principal Component Analysis** for dimensionality reduction and **Least Squares solution** using **Python** and achieving random score metrics of **96%**.

Detecting COVID-19 with Chest X-Ray using PyTorch

- Categorized the Chest X-Ray dataset into three categories: Normal, Viral Pneumonia and COVID-19 by training a ResNet-18 model using PyTorch achieving performance analysis results of **accuracy of 96%** using **Matplotlib, Torchvision, NumPy, PIL, Python**

Facial Expression Recognition with Keras

- Developed and generated a training dataset repository using batch normalization and created a DL Convolutional Neural Network (CNN) model to classify facial expressions into seven categories using Haar Cascade XML and deployed model on Flask to run it on videos with help of **Numpy, Seaborn, Matplotlib, Tensorflow, Keras, OpenCV, Python**

Training and Placement Cell Android Application

- Developed an Android framework using **Java, Firebase and Android Studio**. By automating critical PAT cell tasks such as displaying notifications, holding student information, student qualifications, business requirements, training sessions, schedule of interviews, planning seminars, etc. The program aims to reduce human resources and errors.

Face Mask Detection system using OpenCV, Keras/TensorFlow libraries

- Performed Data Augmentation on a custom dataset designed using concept of features extraction of facial landmarks and extraction of region of interest (ROI). Fine-tuning the model using MobileNetV2 classifier and visualized the image data post preprocessing of images and deployed the deep learning model for Face Mask detection in static images as well as real time video streams with **97% accuracy** using **MobileNetV2 architecture, OpenCV and Keras/TensorFlow libraries, Jupyter Notebooks, Python**

YOLO – Object Detector

- Designed an Artificial Intelligence (AI) based Convolutional Neural Network (CNN) Model using YOLO algorithm to classify objects finding the bounding boxes for ROI extraction followed by non-max suppression and predicting the object classes from static images as well as video streams utilizing libraries and software like **Numpy, OpenCV, Python, Anaconda**

PUBLICATIONS

- **"Training & Placement Cell Android Application"** published on SSRN portal for 3rd International Conference on Advances in Science & Technology (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3565457).
- "**GPS & Bluetooth Synchronized Pothole Detection System using Arduino**" showcased the project at DJ Strike and DJ Spark competitions 2018-2019(IETE-SF D J Sanghvi) and selected for state level competition DJ Spark 2020 with ISBN: 978-93-5391-520-9).

ACTIVITIES

- Winner of E-Summit'18 (Shark Tank) Competition, Mumbai and achieved a position in top 8 at Colloseum 2018 for "Bid your Start-up"