

# Soham Vishwasrao

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## Education

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Indian Institute of Technology (IIT), Bombay, *B.Tech Chemical Engineering*

08/2018 – 11/2022

Mumbai, India

## Projects

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### Plant Disease Detection

- Developed a plant disease image classifier using Keras and CNN with **Transfer Learning (InceptionV3)**.
- Trained model on a Kaggle dataset with **64621 images** of 30 classes of plant leaves, achieved **92%** accuracy.
- Implemented data preprocessing and **augmentation** for accurate disease detection.

### Credit Card Fraud Detection

- Build model to find fraud credit card transactions trained on **imbalanced** data with **0.0017% minor class**.
- Used **Resembling** techniques like **SMOTE** to up-sampling and **Tomek** to under-sampling of the dataset.
- Achieved **88% precision** and **80% recall** with Random Forest and combination of SMOTE and Tomek.

### Steam Game Recommender System

- Applied a **content-based** filtering algorithm to build a recommender system to recommend similar games.
- Extracted game data by interacting with **REST APIs** of steamspy and steamstore to gather information.
- Performed **word stemming** and **TF-IDF** vectorization using NLP libraries of **NLTK** and **sklearn** respectively.
- Measured similarity between different games using **cosine similarity matrix** method of **sklearn** library.

### Classification of COVID19 using Chest X-ray Images

- Built multi-layer **Convolutional Neural Network** architecture to detect the covid-19 infected people
- Used **Tensorflow** as backend with **Keras** library to preprocess and build the neural network architecture
- Achieved **96.4%** accuracy on the training set and **97.5%** accuracy on the test set of the dataset

### Loco App Reviews Analysis

- Conducted thorough analysis of user reviews for the Loco app, used **nlp** models to extract valuable insights.
- Utilized pre-build **web scrappers** from **Pypi** to extract reviews from Google play store and Apple app store.
- Utilized unsupervised **keyword extraction** method **YAKE** to extract and analyze keywords from user reviews, providing additional insights into user sentiment and preferences.
- Built an interactive **Tableau** dashboard to summarize the results of the Loco app reviews analysis.

### Image Compression

- Implement **Unsupervised learning** algorithm **K-Means Clustering** to compress the user input image.
- Used **scikit-learn** library and **Plot-utils** library to perform data preprocessing and visualization of data.
- Created interactive **GUI interface** using Jupyter widgets library to select images and pick k value with slider.

## Skills

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### Languages and Databases

Python, SQL, C++, HTML, MySQL, Markdown

### Libraries and tools

Numpy, Pandas, OpenCV, Git/Github, Tableau, Matlab

### Frameworks

Tensorflow, sklearn, Keras

## CERTIFICATIONS AND KEY COURSES

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- **Online Courses:** Machine Learning(Stanford| online)
- **Deep Learning Specialization Courses:** Online Coursera specialization by deeplearning.ai  
Neural Networks and Deep Learning, Structuring Machine Learning Projects, Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization, Convolutional Neural Networks.
- **Mathematics and Computing:** Calculus, Linear Algebra, Differential Equations, Computer Programming and Utilization