

ELVIN JOHNSON

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EDUCATION

Carnegie Mellon University (CMU)

Pittsburgh, PA

Master of Science in Electrical and Computer Engineering - Applied Program [GPA 3.67/4]

December 2022

Courses completed: Machine Learning for Engineers, Machine Learning for Signal Processing, Computer Vision, Speech Processing

Future Courses registered (Next semester): Advanced Deep Learning, Big Data Science and Data Analytics

Veermata Jijabai Technological Institute (VJTI)

Mumbai, India

Bachelor of Technology in Electronics with *Distinction* [3rd rank in dept: GPA 9.04/10]

May 2020

PROFESSIONAL EXPERIENCE

Protiviti India

Mumbai, India(Remote)

Intern (Data & Analytics)

August 2020 - December 2020

- Collaborated with the data science team to identify relevant use cases for image analytics in retail; initiated work on building solutions, and published a white paper on 'Image Analytics in Retail'
- Executed truck load optimization (logistics) and automation for a client with the team, thus, achieving significant cost saving
- Assisted in performing vendor performance assessment for logistics, using basic data analysis for vendor data provided by the client
- Developed an end-to-end solution for signature extraction, where a ML model was trained to identify, extract signatures from an input document; built a local web app for deploying it, which drastically reduced the time/effort for tracking signatures for a client

Veermata Jijabai Technological Institute

Mumbai, India

Project Intern (Machine Learning)

May 2019 - June 2019

- Performed detection and classification of skin cancer (images) by leveraging ML to classify skin lesions as benign/malignant and further into one of seven types of lesions
- Incorporated architectures such as Resnet50, InceptionV3 etc, in models; employed fine tuning, added custom layers to train models and attained an accuracy of **89%** for the model identifying lesions as benign/malignant and **85%** for the model involved in classifying lesions further

ACADEMIC AND GROUP PROJECTS

Emotion detection using Machine Learning for EEG signal data (CMU)

August 2021 - December 2021

- Performed feature engineering on EEG data to generate relevant features using techniques such as Principal Component Analysis and wavelet decomposition, which significantly boosted the accuracy of trained models as compared to other current baseline models
- Trained various ML models such as SVM's, KNN's, Random forests, Naïve Bayes using grid search and cross validation for tuning hyperparameters, and achieved an accuracy of 81.5%, which is much higher than current benchmarks present for the same dataset

Neural Networks for MNIST Digit and Fashion Dataset Classification (CMU)

April 2021 - April 2021

- Built neural networks with Numpy for classification of handwritten digits with a test accuracy of over 97%
- Implemented neural networks using Pytorch for classification of MNIST fashion dataset with a test accuracy of over 85%

Prediction whether a song will be Liked or Hated on Spotify (CMU)

May 2021 - May 2021

- Trained a decision tree model with 80% accuracy to classify whether a person would like a song based on a set of input features
- Used grid search to find best hyperparameters such as max depth, maximum leaf nodes etc

Crawl Bot (Finalist in Smart India Hackathon 2020-VJTI)

June 2020 - July 2020

- Managed model building and trained various NLP models for blacklisting/classifying websites promoting child abuse, cyber bullying based on textual content outputted by crawling, and obtained an overall classification accuracy of 95%

Deep Fake Detection in Videos using Machine Learning (VJTI)

August 2019 - May 2020

- Processed and cleaned about 1 million frames from deep fake videos by Facebook, Faceforensics, Google for building a dataset
- Developed a method to detect deep fakes via Transfer learning, CNNs and attained an accuracy of 90% on the test set
- Conducted training, processing of ML models on the Nvidia DGX-1 AI Supercomputer and finished amongst the top 15% in Kaggle's 'Deep Fake detection Challenge' by Facebook
- Presented and published findings as 'Suratkar Shraddha, Elvin Johnson, Karan Variyambat, Mihir Panchal, and Faruk Kazi. "Employing Transfer-Learning based CNN architectures to Enhance the Generalizability of Deep fake Detection." In 2020 11th International Conference on Computing, Communication and Networking Technologies (ICCCNT), pp. 1-9. IEEE, 2020'

The Eyewriter (Society of Robotics and Automation VJTI)

May 2017 - July 2017

- Designed a wearable to control the cursor of a computer via eye movements for ALS patients; executed blink-controlled clicks
- Accomplished tracking and extraction of one's pupil via a camera, by implementing computer vision

SKILLS

Programming Languages: Python, Basic of SQLite, C, C++

Frameworks/Libraries: Pytorch, Pandas, ScikitLearn, Keras, Matplotlib, Tensorflow, Opencv

Web Technologies: Basics of Javascript, MongoDB, HTML, CSS