Deep Vijaykumar Patel

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EDUCATION

Master of Science, Computer Science — *Aug 2021 - Present*
Arizona State University — GPA: 3.67
Bachelor of Engineering, Computer Engineering — *Aug 2017 - Jul 2021*
Vishwakarma Government Engineering College — CPI: 9.16

EXPERIENCE

Arihant Satiate, Student Intern — *Apr 2020 - Jul 2020*
- Worked on the project titled "COVID-19 Detection using X-ray data" where various CNN architectures were tested to forecast the COVID-19 from normal, pneumonia, and COVID-19 chest X-ray images.
- Compared multiple CNN models and tweaked their hyperparameters to achieve the best possible accuracy.
- The Inception-v3 model gave the best training accuracy of 99.22 % whereas the custom CNN gave 96.61%.

Bytes Technolab Pvt Ltd, Student Intern — *Mar 2020 - Jun 2020*
- Trained, validated, and tested various Sequence models and machine learning (ML) classification models to perform Sentiment Analysis on 50k user reviews.
- Used ML algorithms including logistic regression and Naive Bayes, as well as Deep Learning (DL) sequence models like Recurrent Neural Network (RNN), Long short-term memory (*LSTM)*, and Gated recurrent unit (GRU) achieving the best accuracy of 86.78 %.

PROJECTS

Garbage Detection using Advanced Object Detection Techniques
- Devised a system to detect garbage from videos and images, as part of Smart Gujarat for New India Hackathon project, which I led.
- The YOLOv5 outperformed all others with a mAP@0.5 of 0.613 trained on 500 images.

Crop Yield Estimation using Machine Learning
- Tested multiple regression techniques to design a program that estimates crop yield for the five crops grown on the Indian subcontinent.
- Among these techniques, ExtraTreesRegressor obtained a promising R2 score of 99.95.

Ocular Disease Prediction using Retinal Scans
- Created a platform that can classify six different types of diseases based on the patient's retinal scan.
- Convolution Neural Network was trained and fine-tuned on 1705 images, yielding an 84% validation accuracy.

Geospatial Data Analysis Using SparkSQL
- The objective of this project is to use SparkSQL to perform spatial queries on an unstructured database to examine the geographic and real-time location data of a taxi company.
- Identifying hot cell analysis using Apache Spark is a crucial component of the project. Spatial statistics are applied to spatio-temporal Big Data to locate statistically significant hot cells. To conduct Geo-Spatial queries, three Amazon Elastic Cloud Compute (EC2) virtual computers are used as nodes.

PAPERS

- Patel N., Patel D., Shah D., Patel F., Patel V. (2021) Detecting COVID-19 Using Convolution Neural Networks. In: Gunjan V.K., Suganthan P.N., Haase J., Kumar A. (eds) Cybernetics, Cognition and Machine Learning Applications. Algorithms for Intelligent Systems. Springer, Singapore. https://doi.org/10.1007/978-981-33-6691-6_17
- Patel N., Patel D., Patel S., Patel V. (2021) Crop Yield Estimation Using Machine Learning. In: Patel K.K., Garg D., Patel A., Lingras P. (eds) Soft Computing and its Engineering Applications. icSoftComp 2020. Communications in Computer and Information Science, vol 1374. Springer, Singapore. https://doi.org/10.1007/978-981-16-0708-0_27
- D. Patel, F. Patel, S. Patel, N. Patel, D. Shah and V. Patel, "Garbage Detection using Advanced Object Detection Techniques," *2021 International Conference on Artificial Intelligence and Smart Systems (ICAIS)*, 2021, pp. 526-531, doi: 10.1109/ICAIS50930.2021.9395916.

SKILLS

Language: Pyhton, C, C++, JAVA, SQL, HTML, CSS, JavaScript
Deep Learning: Image classification, Object Detection, Machine Translation, Transliteration
Libraries: PyTorch, TensorFlow, Keras, NumPy, Pandas, Scikit-learn, Matplotlib, Seaborn, OpenCV
Technologies: Git, Apache Hadoop, Spark, Google Colab, Latex, Discord, Ubuntu