Udbhav Saxena

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EDUCATION

University at Buffalo, SUNY, Buffalo, New York ***Aug 2021 – Feb 2023 (expected)***
Master's in Engineering Science with Specialization in Machine Learning and Artificial Intelligence

Shiv Nadar University, Greater Noida, India ***July 2017 – July 2021***
Bachelor's in Mechanical Engineering

SKILLS/RELEVANT COURSES

- Python (Tensorflow, Keras, Pytorch, Scipy, Scikit-learn, Matplotlib, Seaborn, Numpy, Pandas, Gensim, NTLK, OpenCV), SQL, MATLAB, R, Power BI, C/C++, Git, Linux, Docker, Flask, REST APIs
- Data Structures and Algorithms, Robotics Algorithms, Computer Vision, Convolutional Neural Networks, Machine Learning, Deep Learning

WORK EXPERIENCE

Volvo Group NA, Greensboro, NC, U.S.A. ***May 2022 - Present***
Intern (Co-op): Artificial Intelligence/Machine Learning

- Implemented and automated a recommendation system for reductions of parts from the master database to clear the database based on a logic diagram provided by the manufacturing engineers, connected the program to a UI for an interactive and intuitive dashboard using Tkinter – the business value being cleaning of the database and reduction of unwanted parts by 20%
- Leveraging classification techniques, predicted the type of packaging using variables like weight, quantity, and demand to optimize floor space, implemented and trained a Neural Network for the same with an accuracy of 80% - B/C ratio of 6 – saving $350,000, implementation cost $54,000
- Predicting the number of trucks that will go into float and that will go into fulltime through using time-series analysis models such as ARIMA/SARIMA, and LSTMs – with a confidence interval of plus or minus 5 trucks everyday which facilitates the manufacturing manager to make educated decisions for labor requirement everyday
- Industrializing UR10e cobot at the gear and shaft area to reduce human effort and maximize efficiency and potentially avoiding any hazards using Computer Vision/Neural Networks – retrieved data for parts and camera using IIoT software ThingWorkx

Honda Cars, Greater Noida, India ***May 2019 – Aug 2019***
Project Intern

- Worked with Honda's Engine Assembly Line. Streamlined different autonomous systems for assembly of the engine
- Led a team of 10 to rectify mechanical shortcomings of the existing robotic manipulator
- Project: Designed an end effector (3DoF) for Honda Civic – Continuous Variable Transmission Engine Block

ACADEMIC PROJECTS

Sign Language Detection using LSTMs ***May 2022***

- Implemented a sign language recognition model using LSTMs, can decipher the action in real time to text
- Vocabulary length for the model was 10 ASL signs, 30 frames were extracted for training the model for each word, used Mediapipe for extracting features from hands – Achieved an accuracy of 97%

Fingertip Segmentation using You Only Look Once (Yolo) ***May 2022***

- Implemented the YOLO algorithm to segment the fingertip from images. Trained the model on 50 images, trained it for about 5.67 hours
- Achieved an accuracy of 71.67% on the test data provided by the professor
- For training data, 50 custom images were used in different orientations and lighting conditions

Image Stitching, Image Processing, Morphology ***November 2021***

- Used SIFT Detector to find key points, used RANSAC to find outliers and inliers to calculate Homography and warp the image and stich them together
- Applied median filter on the image to remove salt and pepper noise, and using convolution operation, detected the edges of the image in different directions

Sentiment Analysis on Zomato reviews ***November 2021***

- Designed and implemented an information retrieval and classification system for sentiment analysis on Zomato
- Crawled reviews on eateries timeline from Zomato API, and extract JSON responses using Requests module
- Cleaned, parsed, and segmented reviews content; counted most frequent words associated with each emotion