AAYUSH MANDHYAN

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Education

Rutgers University, New Brunswick **September 2018 – May 2020**

- **Master of Science** in **Data Science**, CGPA – 3.67/4
- **Relevant Coursework:** Machine Learning, Reinforcement Learning, Introduction to Artificial Intelligence, Data Interaction and Visual Analytics, Massive Data Storage and Retrieval, Probability and Statistical Inference.

SRM University, NCR Campus, Ghaziabad, India **August 2012 – May 2016**

- **Bachelor of technology** in **Computer Science and Engineering,** CGPA – 8/10

Skills

- **Algorithms**: Q-Learning, Neural Networks, LSTM, RNN, CNN, Auto-Encoders, XGBoost, SVM, Random Forest, Decision Trees, Logistic Regression, Lasso Regression, Ridge Regression, KNN, etc.
- **Languages**: Python, R, Java, HTML, JavaScript
- **Libraries**: TensorFlow, Keras, Scikit-learn, XGBoost, NumPy, Pandas, Matplotlib, NLTK, CuPy, Numba, OpenCV, PySpark, Gensim, Flask, R Shiny.
- **Tools**: MySQL, NoSQL, MongoDB, REST API, Linux, Git, Jupyter, AWS, GCP, Openstack, Docker.
- **Technologies**: Deep Learning, Reinforcement Learning, Machine Learning, Computer Vision, Natural Language Processing, Time Series Analytics, Data Mining, Data Analysis, Predictive Modelling.

Work Experience

Exafluence Inc. | Data Scientist Intern **February 2020 – Present**

- Performed EDA on CMS NPI dataset to identify key metrics & hidden patterns in the dataset.
- Working on Anomaly detection in NPI change in the system.

Rutgers University | Research Intern at Data Science in Medicine Lab **May 2019 – September 2019**

- Designed and Built various GPU based modules for ARTML (Adaptive Real Time Machine Learning Platform).
- Vectorized CPU computations for BET module to achieve 90% speed improvement.
- Performed POC to identify CuPy as the fastest library among TensorFlow, Numba (CUDA kernels), CuPy, etc. for ARTML GPU implementation, which gave 50% speed improvement compared to its CPU variant.

Cognizant | Programmer Analyst **August 2016 – May 2018**

- Created a **Time Series Model** using ARIMA to predict future resource requirement of Openstack Cloud, based on 1.5-year usage pattern. Resulting in addition of another 20% compute resource to existing Cloud platform.
- Built **Object detection & Object tracking** system which took an image (object/person) and track their time in a given video. It was used for adult content detection, speech of a prominent speaker at a conference, etc.
- Built a module to reduce count of video frames by 99% using Brute-Force Matching with SIFT Descriptors in OpenCV. Reduced frames were used for further analysis in face detection, vehicle number plate detection, etc.

Academic Projects

Stock Trading Agent using Reinforcement Learning: **September 2019 – December 2019**

- Trained Stock Trading Agent using Reinforcement Learning (Q-Learning) on simulated stock data using GBM to perform profitable trades, which earned average of $5k profit on $10k investment on 100 evaluation runs.
- Implemented various combination of Deep Q-Learning Network (DQN), Double DQN, Actor-Critic DQN, Replay Memory DQN with Deep Neural Network and CNN's (as DQN architecture) to build trading agents.

Bank Transaction Categorizer (Industrial Project-Capstone): **September 2019 – December 2019**

- Built an ensemble classification model based on XGBoost to achieve 90% accuracy on categorizing bank transactions. Built a Python base full-stack web application to provide an interface to the user. Leveraged various **NLP**-techniques to incorporate ~95000 description tokens as 17 feature input to ML models.

Airbnb Visual Analytics System (URL): **January 2019 – May 2019**

- Designed and Developed Geospatial Interactive & Visual Analytical Platform using RShiny, to visualize Airbnb listings in a hierarchical clustered fashion.

Colgate Product Price Prediction (Repo):

- Built XGBoost regressor model to predict unit price based on location, brand and ingredients. Reduce feature set from ~10000 to 50 and achieved 1.38 MAE. Also, used NLP techniques to incorporate 9000 ingredients as 30 feature input to the model.

Certifications & Awards

- Won **Colgate Data Set challenge** at HackRU Fall 2019 (Rutgers Hackathon – devpost) **October 2019**
- **Deep Learning** Specialization on Coursera. **July 2018**
- Rising Star of the year (Top 10 performer in batch of 6000 Cognizant recruits in 2016). **February 2017**