Tejal Rawale

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Education

Master of Science in Artificial Intelligence — Sep 2021-
Northeastern University, Boston, MA — May 2023
Related courses: Foundation of AI, Algorithms, Machine Learning, Programming for Data Science, Data Mining, Natural Language Processing, Linear Algebra & Probability for Data Science, Pattern Recognition & Computer Vision, CHI. — GPA : 3.75/4

Bachelor of Computer Engineering — Jul 2013 -
University of Mumbai, Mumbai, India — May 2017
Related courses: Database Management Systems, Data Structures, Distributed Data, Cloud Computing, Data Warehouse & Mining, Image Processing, Software Engineering, Object Oriented Analysis & Design, Web Tech, Big Data Analytics. — GPA: 8.52/10

Key Projects

Data Analysis Projects

- NYC TLC Data Analytics **:** Conducted data analysis using **Python**, **GCP** Storage, Compute Engine, **BigQuery,** Mage **Data Pipeline** tool. Created interactive visualizations with **LookerStudio** to communicate findings effectively & facilitate data-driven decisions.
- Telco Customer Churn Prediction : Built an robust churn prediction model, surpassing the **baseline by 5%**, through comprehensive data exploration, preprocessing, **feature engineering**, and the application of various machine learning algorithms such as **logistic regression**, **support vector**, **decision tree**, **random forests**, & **gradient boosting**, with hyperparameter tuning to find the best model.

Deep Learning Projects (NLP, Audio, Computer Vision)

- In-depth Movie Review Analysis : Processed textual information using normalization, lemmatization, tokenization and **TF-IDF** vectorization. Performed **Sentiment Analysis** on IMDB reviews dataset using Supervised ML models & neural network **LSTM-RNN**. Implemented Topic Modeling using **NMF** & **LDA** on the movie's meta data that was web scraped using **Selenium** from the IMDB site.
- Audio Mining - Emotion Detection & Sentiment Analysis using SAVEE dataset : Developed a fine-tuned model using **CNN** for Emotion Detection and **BGRU** for sentiment analysis, employing preprocessing techniques like **MFCC**, **chroma features**, & audio signal processing. Utilized Google Transcribe API for audio-to-text transcription & used **Word2Vec** to generate **word embeddings**.
- Real-Time Eye Gaze Tracking using OpenCV : Performed statistical analysis on various classifiers such as **HaarCascade, Dlib**, and **Caffe** to detect faces, eyes. Applied **image processing techniques** to optimize & interpret gaze direction.
- Dog Breed Identification from the Images : Conducted statistical analysis on Classification models and Neural Network to detect the dog's breed. Improved accuracy through scaling, **normalization**, **bounding box annotation**, & **augmentation** techniques.
- Image Caption Generation: Designed an Image captioning system in four architectures - **encoder-decoder, multimodal, encoder-decoder with attention,** & **encoder-decoder with transformers** using the Flickr-8k Dataset. Employed ResNet, Inception, & VGGNet encoders, **greedy** and **beam search** for sentence generation and **Bleu score** for evaluation.

Professional Experience

Northeastern University, Boston, USA
Graduate Teaching Assistant — Sep 22 - May 23

- Aided students in DS 3000 Foundation of **Data Science** course, offering guidance through regular OH on several topics - Python, Data Wrangling, **Statistical Modeling, Hypothesis Testing and Machine Learning Pipeline** & Hyper-parameter tuning.

Graduate Research Assistant — Mar 23 - Apr 23

- Supported research efforts in regenerative AI, scraped & integrated data on jobs from multiple sources to build database.
- Explored & analyzed various existing research on methodologies suitable for **skill extraction** from unstructured text data.

Esports Organization, Mumbai, India
Software Developer — Mar 20 - Jul 21

- Left BNP to prepare & pursue for MS, however I had to defer my admission due to Covid-19, meanwhile I took up this role.
- My role involved understanding the unique needs of varied esports organizations and developing **customized solutions** to streamline their operations, improve efficiency, integration with discord and reduce manual effort.
- Scripted tools using **Javascript** and **Python** to **automate** a range of operations for esports events within their budget.

BNP Paribas, Mumbai, India
Software Engineer, Associate Software Engineer — Jun 17 - Jul 19

- Data Analysis: Derived key insights using **SQL** from extracted data (developed **ETL pipeline**) on distinct data sources.
- Automation: Developed **REST APIs** for a new in-house application that **automates** manual tasks of on-boarding.
- Full Stack Development: Collaborated in all **SDLC phases** of a crucial M&A project based on **Business Intelligence** in an agile team. Consistent leading contributor to team's velocity in all the sprint cycles.
- Maintainability: Focused on reducing **technical debts**, improving code quality & documentation & handled **technical migration** of two critical projects. Conducted knowledge transfer sessions for three new members of the team.
- Awarded '**Champion of the Month**' in 6 months for being a quick learner and performing independent tasks as a fresher.

Brav Conflict Management, San Francisco, USA/ Remote
Software Development Intern — Nov 16 - May 17

- Worked on back-end using **NodeJS** and **MongoDB,** on frontend using **AngularJs** and **Bootstrap** and integrated payment gateway using **Stripe API**. Performed Unit & Integration Testing before every release to deliver **bug-free** products.

Technical Knowledge

Languages & web tech: Python, Java, C, C++, HTML5, Css, Javascript, Nodejs, AngularJS, Agile (Scrum), Google Cloud (GCP), Docker
AI : Machine Learning, Data Science, Deep Learning, Regression, Classification, Clustering, Explainable AI (XAI)
Data Engineering: SQL, NoSQL(MongoDB), ETL, EDA, AB Testing, Kafka, Hadoop, Visualization: Matplotlib, Seaborn, Looker, Tableau
Others : AWS (S3, Athena, Redshift), pytorch, tensorflow, keras, nltk, spacy, scikit-learn, pandas, numpy, flask, HuggingFace's Transformer