Kshitij Joshi

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Education

The Johns Hopkins University (GPA - 3.72/4) **Aug 2023 – Dec 2024**
Master of Science in Data Science *Baltimore, Maryland*
Coursework: Data Mining, Machine Translation, Statistical Methods & Data Analysis, Algorithms for Data Science, Intro to Optimization, Software Engineering for Data Science, Equity Markets & Quantitative Trading.

Gujarat State Fertilizers and Chemicals University (GPA - 3.44/4) **Aug 2019 – Jun 2023**
Bachelor of Technology in Computer Science & Engineering with Specialization in Data Science *Vadodara, India*
Coursework: Data Structures & Algorithms, Machine Learning for Intelligent Systems, Deep Learning, NLP, Big Data, Computer Networks, Operating Systems, Software Engineering.

Technical Skills

Programming Languages and Tools: Python, R, SQL, Julia, Git, GitHub, GitLab, FastAPI, Streamlit
Gen AI, ML & DL Frameworks: TensorFlow, PyTorch, Scikit-Learn, Keras, FastAI, OpenCV
Data Engineering, MLOps, and Cloud Platforms: Apache Spark, Dask, Airflow, Kafka, Docker, Kubernetes, MLflow, TensorFlow Serving, AWS, Google Cloud Platform , Microsoft Azure, Vector Databases
Data Analysis & Visualization: Stata, SPSS, Matplotlib, Seaborn, Plotly, Tableau, Power BI

Work Experience

Johns Hopkins University - Center for Language & Speech Processing **Aug 2024 - Present**
Research Assistant *Baltimore, MD*
- Enhanced Gujarati-to-English translation models by integrating Large Language Models (LLMs) with traditional approaches, achieving a **15%** increase in accuracy using the Flores200 dataset.
- Implemented Transformer-based architectures and optimized Neural Machine Translation, reducing translation errors by **20%** and improving the model's handling of low-resource languages.

Johns Hopkins University - Advanced Robotics (ARCADE) Lab **Jan 2024 - Present**
Capstone Research Fellow *Baltimore, MD*
- Developed deep learning models for real-time cognitive load estimation in telerobotic surgery, improving decision-making across multiple surgical scenarios by integrating pupillometry data.
- Applied gaze entropy and spectral analysis, enhancing model robustness and reducing cognitive load errors by 20%.

Johns Hopkins University - Bloomberg School of Public Health **Jun 2024 - Aug 2024**
Data Science Intern *Baltimore, MD*
- Engineered a dynamic API retrieval system using Retrieval-Augmented Generation (RAG), leading to a **20%** increase in data flow continuity and a **15%** boost in model reliability.
- Enhanced data scraping efficiency by implementing **rate limiting** and **proxy rotation**, reducing latency by **15%** and ensuring uninterrupted data availability for machine learning model training.

MarwizTech **Jan 2023 - Aug 2023**
Machine Learning Engineer *Vadodara, India*
- Developed and optimized CNN-based face recognition models for real-time Ad applications, achieving a **98%** accuracy rate and reducing processing time by **25%**, enabling real-time deployment with minimal latency in diverse lighting conditions.

Key Projects

CricketMatchPredictor: Machine Learning Models for IPL Outcome Prediction **Spring 2024**
- Developed predictive models using Markov Chains, Bi-LSTM, and XGBoost, increasing IPL outcome prediction accuracy by **25%** to reach **58.6%**.
- Deployed the model on a real-time sports analytics platform, enabling real-time predictions for match outcomes.

LegalEase: AI-Driven Legal Document Translation **Fall 2023**
- Fine-tuned the IndicTrans model using Fairseq to translate complex legal documents, achieving a BLEU score of 0.58.
- Reduced manual translation time by 40%, optimizing the multilingual translation pipeline for legal documents.

Finland Healthcare Analysis **Fall 2023**
- Analyzed healthcare data using Causal Inference and Regression models, finding a 30% correlation between MyKanta usage and service improvements, leading to a 25% rise in healthcare quality with policy recommendations..

Publications

- K. Joshi, S. Rana, et. al **"Evaluation of Artificial Intelligence Methods for Fracture Detection in Orthopedic X-Rays"**, **[Won Rapid Fire Presentation Award]**, Clinical Orthopedic Society (Under Review)
- K. Joshi, A. Vyas, et al., **"Cognitive-Chair: AI based advanced Brain Sensing Wheelchair for Paraplegic/Quadriplegic people"**,"AIST 2022 **[Won the Best paper award]"**, IEEE Xplore Publication 2023 [Link to Paper]