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, Statistical Methods & Data Analysis, Time Series Forecasting, Financial Data Analysis, Algorithms for Data Science, Decision Analytics, Intro to Optimization.

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, Software Engineering, Deep Learning.

Technical Skills

Programming Languages & Tools: Python, R, SQL, Julia, Rust, Git, GitHub, FastAPI
ML & DL Frameworks: TensorFlow, PyTorch, Scikit-Learn, Keras, FastAI
Data Engineering & Cloud Platforms: Apache Spark, AWS, Google Cloud, Azure
Financial Tools: ARIMA, Holt-Winters, Prophet, Value at Risk (VaR), Efficient Frontier, Sharpe Ratio
Data Analysis & Visualization: Tableau, Power BI, Matplotlib, Seaborn, Plotly

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**
Research Assistant *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 **Jun 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

Mean Reversion Trading Strategy for US Equities **Feb 2024**
- Developed a **mean reversion strategy** in Python, identifying overbought and oversold stocks in US markets.
- Integrated real-time data pipelines to trigger trade executions, achieving **8%** higher returns than baseline models.

Strategic Analysis of Volatility Trading in US and Korean Equity Markets **Feb 2024 - May 2024**
- Compared volatility strategies across US S&P 500 and Korean KOSPI 200 markets, identifying a **379.3%** return for US markets via Ladder strategy.
- Conducted impact analysis of COVID-19 on volatility, with improved Sharpe ratios for post-pandemic strategies.

Portfolio Optimization Using Markowitz Model **Aug 2021**
- Applied **Markowitz** portfolio theory to optimize risk and return, achieving optimal allocation with max Sharpe ratio.
- Analyzed risk-to-reward using Treynor Ratio and calculated VaR for investment portfolios.

Option Styles in Derivative Markets **Aug 2021 - Sep 2021**
- Conducted in-depth study on Vanilla, Non-Vanilla, and Exotic options, producing payoff tables and visualizations in Python.
- Modeled profit and risk for these option styles, comparing them across global exchange markets.

Publications

- 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]