Kratik Rathi

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EDUCATION

Indiana University - Bloomington **August 2024 – May 2026**
Master of Science in Data Science *Bloomington, Indiana*

Medi-Caps University **August 2019 – July 2023**
Bachelor of Technology in Computer Science and Engineering *Indore, India*

TECHNICAL SKILLS

Languages: Python, C++, R, C#
Databases: SQL, MySQL, PostgreSQL, Microsoft SQL Server, SQLite
Libraries and Frameworks: TensorFlow, Keras, OpenCV, PyTorch, LangChain, Matplotlib, Pandas, Numpy, Pyodbc, Openpyxl, Scikit-learn, Seaborn, Streamlit, Flask Framework, .NET Framework
Machine Learning: CNN, Linear Regression, Logistic Regression, Decision Trees, Random Forest, XGBoost, SVM, Naive Bayes, K-Means, DBSCAN, Gaussian Mixture, Arimax, Sarimax
Tools/Technologies: Tableau, Power BI, Microsoft Office, GitLab, GitHub, Git, Docker, Postman,
Natural Language Processing (NLP): Hugging Face, GroqCloud, Retrieval-Augmented Generation (RAG)

WORK EXPERIENCE

Research Assistant **January 2025 – Present**
Indiana University - Department of Criminology and Criminal Justice *Bloomington, Indiana*

- Developing a database for over **2,000** historical wrongful conviction cases, applying **data mining** techniques to digitize and analyze past requests, improving case selection efficiency and automating categorization processes.
- Implementing **deep learning** to automate case reviews and using **NLP** to analyze letters from applicants to enhance the accuracy of eligibility determination.

Software Engineer Intern **January 2024 – July 2024**
Swastika Investmart Ltd. *Indore, India*

- Automated Digital Marketing reports using **Flask** API and **Python** which analyzed **5 million records** daily of potential clients from different zones and scheduled reports to stakeholders on mail at midnight via **cronjob**.
- Developed an **ASP.NET** API to check the pending status of clients in the MutualFunds database for the past 7 days, update client records on Netcore, and generate logs with push reference numbers for accurate tracking and verification.
- Designed a **Docker-based** universal scheduler to manage and log 25 APIs on a single server, streamlining operations and enabling future API scheduling and log management through a single, scalable system.

Data Analyst Intern **January 2023 – April 2023**
Mahindra and Mahindra Ltd. *Mumbai, India*

- Constructed **ARIMAX** and **SARIMAX** time-series forecasting models using **Python** on 20 years of monthly regression data (2001-2020), achieving **87% accuracy** in predicting financial trends for the next 6 years.
- Created a matrix of **3000+ data** on **MS Excel** to analyze part usage, continuity, and discontinuity across car models.

Student Trainee **June 2022 – August 2022**
Tech Mahindra Ltd. *Pune, India*

- Examined CRM data using MS Excel and enhanced data interpretability by creating **5 interactive dashboards** in **Tableau** enhancing insights for better decision-making.

PROJECTS

DocVerse - ChatBot **January 2025**

- Built a **RAG-based** document processing app using **LangChain** for text chunking and **Hugging Face embeddings**, reducing processing time by **30%** and manual analysis time by **80%**.
- Implemented **FAISS** for fast similarity search and integrated **Llama3-8b-8192** for context-aware responses, enabling structured summarization and persistent chat history. Deployed on **Streamlit** for real-time query handling.

Lung Xray Images Classification **December 2024**

- Performed analysis and clustering on **1,227 X-ray images** using PCA for dimensionality reduction, with **K-Means** and **Gaussian Mixture** for visualizing separately in 2D while retaining **90%** variance.
- Applied a **deep learning model** for classifying COVID-19, Pneumonia, and Normal cases, attaining **98%-99% accuracy** by leveraging **TensorFlow/Keras** for training and optimization.

Time-series forecasting on Air Passengers data **April 2023**

- Programmed a predictive model for monthly air passenger traffic with **97%-98% accuracy** using **ARIMAX** and **SARIMAX**. Analyzed seasonality and continuity through **ACF/PACF**, and optimized model selection with **AutoARIMA** for more accurate forecasting.