Rachit Chadha

240-554-7989 rchadha33@gatech.edu rachitchadha rchadha33 rachit-chadha.github.io

Education

Georgia Institute of Technology **Dec. 2024**
Master of Science in Computer Science (GPA 3.9/4.0) *Atlanta, Georgia*

University of Maryland **May 2020**
Bachelor of Science in Information Science *College Park, Maryland*

Relevant Coursework

- Algorithms
- Big Data Systems
- Database Systems
- Machine Learning
- Data Science
- Cloud Computing
- Systems for ML
- Data Visualization
- Computer Vision
- NLP

Technical Skills

Languages: Python, R, JavaScript, MS-SQL, Oracle SQL, Spark, Hadoop, HTML/CSS
Dev Tools: Git, AWS, Azure, GCP, Docker, PowerBI, Tableau, Excel, Jupyter, Snowflake, MongoDB, MapReduce
Frameworks: TensorFlow, PyTorch, Scikit-Learn, Pandas, NumPy, Plotly, Seaborn, Time-Series, HuggingFace

Experience

Data Science Consultant **May 2024 – Present**
Turner & Townsend *New York City, NY*
- Utilized Python modeling (Prophet, XGBoost, SVM) to auto-detect financial risk resulting in 25% accuracy increase.
- Developed stored procedures using PL-SQL to facilitate efficient database migration reducing query load time by 15%.
- Lead development of end-to-end PowerBI dynamic dashboards utilizing DAX modeling to present cost & emissions KPIs.

Graduate Teaching Assistant **Aug. 2024 – Dec. 2024**
Georgia Institute of Technology *Atlanta, GA*
- Graduate TA for 200+ students in CSE 6242 Data & Visual Analytics co-leading the campus operations.
- Lead development of PyTorch, SQL, and Azure assignments, and tested edge cases while conducting weekly office hours.

Data Analyst II **Apr. 2022 – Jun. 2023**
AMCL *New York City, NY*
- Engineered a ETL pipeline & dynamic dashboards, enhancing asset management, impacting over 116K NYC residents.
- Utilized Python EDA, T-SQL, and PowerBI to design statistical models (Monte Carlo) for live monitoring of revenue.
- Automated real-time climate data extraction using BS4, sk-learn, ARIMA & seasonal decomposition to predict impact.

Analytics Engineer **Aug. 2020 – Mar. 2022**
Aegis Project Controls *Washington, DC*
- Utilized PowerBI, SQL, and CPM software to analyze project data, build dashboards, and provide real-time insights on carbon footprint, vendor orders, resource utilization, and timelines via time-impact, Monte Carlo and risk analysis.
- Drove data-driven strategies & cross-collaboration by utilizing A/B testing and causal inference across multiple sectors.

Projects

Calibration-Driven Sparse Attention Fine-Tuning in LLMs | *PyTorch, LoRA, LLaMA-3, Mistral, GPU Optimization*
- Co-authored a research paper introducing C-SAF, a novel method for parameter-efficient fine-tuning (PEFT) of LLMs.
- Developed a fine-tuning framework that reduces LoRA adapter sizes by **75%**, achieving a **23% speedup** in inference.
- Engineered a selective fine-tuning pipeline that calibrates attention layers to optimize memory, reducing GPU usage 20%.

Project Tidal: Real-Time Geo-spatial Analytics Web-App | *JavaScript, Python, MongoDB, Node.js, PySpark, AWS*
- Real time cost identification tool: Awarded overall winner at Georgia Tech Hackathon amongst 1100+ participants.
- Utilized geospatial analytics & modeling to forecast tidal power as a key to curbing rising energy costs and emissions.

Multimodal Sketch to Image Generation | *PyTorch, ManiGAN, TediGAN, TextCLIP, ControlNET*
- Generated high-fidelity apparel images using generative models from sketches and text, improving FID scores by 15%.
- Integrated visual and textual inputs with a one-shot model, producing realistic apparel images with a 90% accuracy.

Fine-tuning LLMs for C Programming Challenges | *PyTorch, LLaMA-2, LoRA, QLoRA, CFG*
- Fine-tuned transformer models using a custom dataset of LeetCode C challenges, implementing quantization and CFG.
- Improved syntax accuracy, reduced compilation errors by 21%, achieving a 83% success rate with GPU optimization.

Product Growth Study: Payouts and Forecasting | *Time-series Prophet model, Pandas, NumPy, Seaborn*
- Developed a comprehensive analysis and forecasting model for Stripe Connect payouts using Python and Prophet model.
- Employed time-series and wrangling techniques to predict payouts, providing strategic insights into platform growth.