RAHUL MOHAN KUMAR

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SKILLS

Programming Languages: Python, C++, HTML, CSS, JavaScript, Java, R, MatLab
Cloud Technologies: Google Cloud Platform, Amazon Web Services
Software & Tools: Git, Docker, Kubernetes, Airflow, React.js, Node.js, Django Spark, Jira, Bokeh, Neo4j
Database Management Systems: MySQL, Postgres, Redis. MongoDB
Libraries: Pandas, NumPy, TensorFlow, PyTorch, Matplotlib

EXPERIENCE

Research Data Scientist | SNaG Lab - University of Colorado Boulder Aug 2021 – Present

- Researched and implemented pruning methods for pre-trained transformer models, achieving an **80% reduction** in model size while maintaining performance
- Devised an end-to-end workflow to analyze neuron activation patterns and assess performance deficits with the ablation of specific neuron groups
- Created interactive graphs using **React.js**, **Spark**, and **Amazon Web Services (AWS)**, showcasing the activation space atlas for **500000+** neurons across each layer in each pre-trained model

Data Science Intern | LiveRamp Holdings Inc. May 2022 – Aug 2022

- Revamped LiveRamp's lookalike modeling using dimensionality reduction techniques
- Conducted impactful research on **XGBoost** and **BigQuery ML**, translating findings into analytical data products
- Implemented a robust data pipeline, achieving a **10x increase** in application throughput and optimizing overall data quality
- Introduced a **Neo4J Bloom** dashboard for intuitive visualization of application usage metadata in **GCP Firestore**, facilitating insightful data exploration for internal stakeholders

Graduate Teaching and Course Assistant | University of Colorado Boulder Aug 2021 – May 2023

- Managed and helped develop curriculum for large classes, including "Intro to C++ (CSCI 1300)", "Cognitive Science (CSCI 3702)" and "Psychological Statistics using R (PSYC 2111)"
- Hosted recitations and office hours, providing dedicated assistance to over **300**, **85**, and **100 students**, respectively
- Graded assignments and developed projects, contributing to **improved** student learning outcomes and **increased** enrollment in the courses

Software Engineer Intern | NPCIL - India Apr 2019 – Jun 2019

- Developed a Surface Anomaly Detection tool for Nuclear Power Plants, utilizing **Computer Vision** and **Image Processing**
- Integrated robotic manipulators and sensors for autonomous surface inspection, enhancing plant safety
- Performed **rigorous testing** in simulated nuclear plant environments, ensuring reliable defect detection with **96% accuracy**

EDUCATION

Master of Science in Computer Science GPA: 3.96/4
University of Colorado Boulder Boulder, USA

Bachelor of Engineering in Computer Science & Engineering GPA: 8.4/10
PSG College of Technology Coimbatore, India

PROJECTS

Content Recommendation Engine | React.js, MySQL, Flask

- **Enhanced** user engagement by **50%** through personalized recommendations with **collaborative filtering** and **XGBoost**
- Optimized **Django** backend for **60% faster** response time and seamless performance during peak usage

E-Commerce Analytics Dashboard | React.js, AWS, Flask, Snowflake

- Built an analytics dashboard using **React.js**, **boosting** user engagement by **30%** and **reducing** data processing time by **40%**
- Utilized **Flask** for backend optimization, resulting in faster data retrieval and improved user experience

Real-time Ad Performance Tracker | React.js, AWS, Node.js

- **Increased** ad conversion rates by **20%** through real-time insights into campaign performance
- Integrated with Google Ads and Facebook Ads APIs, **tracking 100,000+** ad engagements daily

PUBLICATIONS

Hayne, L., Suresh, A., Jain, H., Kumar, R., & Carter, R. M. (2022). Much Easier Said Than Done: Falsifying the Causal Relevance of Linear Decoding Methods. arXiv preprint arXiv:2211.04367