

# 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**

University of Colorado Boulder

GPA: 3.96/4

Boulder, USA

**Bachelor of Engineering in Computer Science & Engineering**

PSG College of Technology

GPA: 8.4/10

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