Rahul Mohan Kumar

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Education

University of Colorado Boulder Aug 2021 – May 2023
Master of Science in Computer Science — GPA: 3.941/4 *Boulder, CO*

PSG College of Technology July 2016 – Sep 2020
Bachelor of Engineering in Computer Science and Engineering *Coimbatore, India*

Skills

Languages: Python, C/C++, Java, R, MatLab, SQL (MySQL), JavaScript, HTML/CSS
Frameworks: Django, PyTorch, React, Spark, Hadoop, HDFS, WordPress
Developer Tools: Git, Docker, Google Cloud Platform, BigQuery, Kubernetes, Redis, VS Code, Visual Studio
Libraries: Tensorflow, Keras, Theano, NLTK, Scikit-Learn, pandas, NumPy, OpenCV Matplotlib, Seaborn

Experience

Graduate Research Assistant Jan 2022 – Present
University of Colorado Boulder *Boulder, CO*

- Researching on interpreting deep learning architectures using representation learning and transfer learning as a part of the Social Neuroscience and Games Lab (SNaG)
- Implemented lambda masking layers after each hidden layer in AlexNet, VGG16, MobileNetV2 and Resnet101 to identify functionally specific neurons and selectively ablate them from a deep neural network architecture to improve training time by 80% without affecting accuracy.
- Authored the paper "Much Easier Said Than Done: Falsifying the Causal Relevance of Decoding Methods" that was accepted at *ICBINB@NeurIPS 2022*

Graduate Teaching Assistant Aug 2021 – Present
University of Colorado Boulder *Boulder, CO*

- Facilitating learning of Psychological Statistics using R for 50+ students through crafting & delivering engaging lectures and creating weekly assignments (Spring 2023)
- Taught fundamental C++ concepts to a class of 50+ students, created weekly assignments, and held regular office hours for extra support (Spring 2022)
- Facilitated as a teaching assistant for Cognitive Science. Graded weekly assignments and gave regular feedback for a class of 100+ students. Held regular office hours to provide extra support (Fall 2021)

Data Science Intern May 2022 – Aug 2022
LiveRamp *San Francisco, CA*

- Experimented on XGBoost to replace existing binary ridge regression model, improving training time by 93% without affecting accuracy
- Data transformation and modeling using Scikit-learn to improve training time by 95%
- Analyzed experiments in BigQuery for sample size and feature selection, reducing number of features required to train on by 97.5%

Software Development Engineer Intern Apr 2019 – June 2019
Nuclear Power Corporation of India Limited *Kalpakkam, India*

- Developed a Surface Anomaly Detection and Profiling tool using Computer Vision, surface phase detection and 3D imaging/processing for Nuclear Power Plants to detect defects with 95% accuracy
- Optimized safety-critical software for fast breeder reactors, to improve performance by approximately 15% within a span of 30 days

Projects

Patronizing and Condescending Language Classifier Aug 2021 – Dec 2021

- Engineered a solution to classify patronizing and condescending language using a Bert sequence classifier for SemEval 2022, achieving an F1 score of 90.662%
- Demonstrated expertise in *Python, hugging face transformer, Cuda, AdamW optimizer*

End-to-End Speech Synthesis for Tamil Jan 2020 – May 2020

- Successfully modeled a state of art Seq2Seq architecture to generate a raw spectrogram for input Tamil text, resulting in the Best Project Award for Senior year Thesis of 2020 batch
- Implemented a Fast GLA vocoder to convert raw spectrogram into a waveform, demonstrating expertise in *Python-NLTK, Tensorflow, falcon, JavaScript-jQuery, PHP, HTML, CSS*