

Kartik Choudhary

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SKILLS

Programming Languages: Python, R, C++, SQL, Java, Bash
Big Data: Spark, Hadoop, Hive, Azure, Airflow, Tableau, MongoDB

Tools: SciPy, Matplotlib, Scikit-learn, Jupyter, Git, Linux
Data Science: PyTorch, TensorFlow, Jax, AWS, GCP

EDUCATION

University of Massachusetts Amherst, Amherst, MA
MS in Computer Science

Expected May 2024
GPA: 4.00/4

Indian Institute of Technology Delhi, New Delhi, India
B.Tech in Electrical Engineering

Jun 2019
GPA: 3.30/4

Coursework: Machine Learning, Adv. NLP, Data Structures & Algos, Probability, Reinforcement Learning, Distributed Systems

RESEARCH EXPERIENCE

Graduate Student Researcher

Sep 2022 - Present

Autonomous Learning Laboratory, UMass Amherst

- Developed off-policy evaluation and learning algorithms to provide real-time personalized treatment for sepsis patients.
- Built a sepsis simulator using historical data from over 17K ICU patients and evaluated data efficiency of learning algorithms.

Natural Language Processing Group, UMass Amherst

- Evaluated the zero-shot ability of vision-language models like CLIP to associate correct comparative adjectives to images.
- Created a novel dataset to evaluate comparative reasoning capabilities of vision-enabled large language models like GPT-4.

Undergraduate Student Researcher

May 2017 - Jun 2019

Centre for Biomedical Engineering, IIT Delhi

Summer design research grant. Adapting the equipment on trains to measure vibration data and detect faults in railway tracks.

Computer Technology Group, IIT Delhi

Bachelor's Thesis. Predicting occupancy in commercial spaces to automate the HVAC system using *Hidden Markov Models*.

Centre for Applied Research in Electronics, IIT Delhi

Research grant by Voxomos Systems. Trained an *LSTM recurrent neural network* based chatbot for customer care services.

PROFESSIONAL EXPERIENCE

Machine Learning Engineer, Reliance Jio Infocomm Ltd.

Jul 2021 - Jul 2022

Led the initiative to develop cost-effective solutions for improving the 4G experience for customers and providing network insights.

- Attained a *15%* improvement in network throughput predictions by implementing an explainable *Mixture of Experts* model.
- Overhauled the *root cause analysis* pipeline for call drops and mutes by computing *SHAP scores* of the input features.

Data Scientist, Reliance Jio Infocomm Ltd.

Jul 2019 - Jun 2021

Used statistical and machine learning methods to gain actionable insights into customer behavior and refine retention strategies.

- Curated *over 1100* features for customer profiling on a *high-performance computing cluster* using *Apache Spark*.
- Developed a distributed model using *TensorFlow* and *Apache Airflow* to perform churn prediction for *400M+* daily customers.

Intern, Claym Media and Tech Pvt. Ltd.

Summer 2018

Developed an automated solution for analyzing financial reports and detecting fraudulent transactions in mobile advertising.

- Created a low-latency pipeline in *Java* for the *AI-driven* framework to flag potentially fraudulent transactions in real time.

PROJECTS

Reinforcement learning algorithms for continuous-state MDPs

2022

Trained reinforcement learning agents using eligibility traces on simulations of continuous-state environments from *OpenAI Gym*.

Translation of medical prescriptions from German to English

2022

Implementation of an *encoder-decoder transformer model* using *PyTorch* and *spaCy* for translating doctors' prescription notes.

Efficient GANs for generating high-quality artificial images

2021

Trained a sparse Generative Adversarial Network in *TensorFlow* to generate high-resolution RGB images on a single GPU.

Adversarial examples for computer vision tasks

2021

Used the *Fast Gradient Sign* method to demonstrate adversarial attacks on various image classification CNNs using *TensorFlow*.

LEADERSHIP AND AWARDS

- Highest annual performance feedback rating (A*) for 3 years in a row, Reliance Jio 2020-22
- Outstanding Technical Project, AI CoE, Reliance Jio 2019
- Secretary, Electrical Engineering Society, IIT Delhi 2017-18
- KVPY Fellow - Awarded scholarship by Indian Institute of Science under the KVPY program 2014