Contact

www.linkedin.com/in/karthik-rao-126755129 (LinkedIn)

Top Skills

Python
Java
Web Development

Certifications

IBM Blockchain Essentials

Honors-Awards

ACM/CSTA Cutler Bell Award in Computing (Top 4 in the country)
Siemens Regional Finalist (Top 60 in country)
ISWEEP Bronze Medalist
Westchester Science and Engineering Fair Grand Prize Winner
ISWEEEP Bronze Medalist

Karthik Rao

Machine Learning Engineer
New York City Metropolitan Area

Summary

New grad from Harvard with a focus on the intersection of big data systems and machine learning. Skilled in machine learning, product development, systems research. A young entrepreneur looking to use my technical skills to create applications to solve different societal, industrial and research problems. Very passionate about designing and building novel solutions and software.

Experience

Arthur
Machine Learning Engineer
July 2021 - Present (1 year 10 months)
New York, United States

- Worked on the Machine Learning team for a machine learning monitoring and explainability startup
- Implemented, scaled, and productionized a novel counterfactual explanation algorithm using RLLib (Ray) and OpenAI Gym
- Worked on a research project with Stanford FinRegLab to evaluate and implement explainability and bias techniques for credit risk data

Harvard University
1 year 4 months

Teaching Fellow - CS181 (Machine Learning)
January 2021 - May 2021 (5 months)
Cambridge, Massachusetts, United States

- Designed and led section and office hours for every unit in the Machine Learning Curriculum
- Worked on designing and creating a practical assignment where students are given a dataset and need to create a model with the highest accuracy (under the supervision of Professor Finale Doshi-Velez and Professor David Parkes)

Researcher - Data Systems Lab (DAS Lab)
February 2020 - May 2021 (1 year 4 months)
Cambridge, Massachusetts, United States

- Mathematically modeled and tested various compression techniques on customized workloads to develop novel LSM Tree optimized for reads; authored research paper using the results. Supervised by Professor Stratos Idreos
- Designed an optimized LSM storage engine that minimizes disk space while maintaining strong read and write costs
- Used data sketching and machine learning techniques to incorporate compression schemes into a full- fledged NoSQL System

Newspark
Co-Founder & CTO
January 2020 - September 2020 (9 months)
New York, New York, United States

- Architected and developed an online donation platform that matches charities with online readers using NLP
- Utilized techniques in full-stack development to create a charity web interface, publisher web interface, and an embeddable widget
- Designed a distributed system to handle loads of 1000+ concurrent users using Python, AWS, SQL, and Redis
- Led client calls to sign several newspapers (Indiana, Emory, MIT) and supervised a seven-person team
- Harvard iLab Summer Program and Venture Incubation Program

IMC Trading
Quantitative Developer
June 2020 - August 2020 (3 months)
Chicago, Illinois, United States

- Worked on the Equity Options Desk (EOO) on the order routing platform to route customer flow orders to exchanges
- Made updates and optimizations in Java to for new order routing strategies to optimize PnL
- Learned new trading strategies and managed over 1 million order request per day for the order routing platform

IBM
Machine Learning Research Intern
June 2019 - August 2019 (3 months)
Zürich Area, Switzerland

- Worked on the Cognitive Discovery team

- Applied machine learning techniques to automate data extraction from generic PDF tables
- Designed and implemented a machine learning pipeline to re-create logical table structures-
- Used models including Random Forest and convolutional neural networks (ResNet-50)

TUDOR INVESTMENT CORPORATION
Quantitative Analyst Intern
June 2018 - August 2018 (3 months)
Greater New York City Area

- Worked on the Global Macro Trading strategies team
- Built a system to provision analyst consensus data for machine learning
- Constructed a data pipeline using Apache Airflow
- Used Amazon Athena and Amazon S3 to setup an ETL pipeline
- Architected an Amazon Redshift data warehouse solution
- Learned equity research techniques

CareerPeer.com
Chief Technology Officer, Co-Founder
August 2016 - June 2018 (1 year 11 months)
Greater New York City Area

CareerPeer is a social network that matches undergraduate students with their peers for career advice and interview preparation.

As the head technology officer, I set up the entire backend system and lead of team of different front-end engineers to help design and create our front-end system. The technologies I used were:
-Backend: Python/Flask, MongoDB, Redis, SQL, Celery, Heroku, AWS
-Frontend: Javascript, JQuery, React, HTML, CSS

We have seed funding and have been live for over four months.

IBM
Summer Research Project Intern
May 2015 - August 2015 (4 months)
Greater New York City Area

Worked on designing flight paths that optimized fuel consumption under Dr. Daniel Connors. Using publicly available flight data and weather data from the Federal Aviation Administration, I was able to design flight paths that were

more fuel-efficient than the currently flown paths. I used techniques in graph theory (shortest-path, network-flow), spatial statistics (Gaussian Process) and optimization.

Delta Air Lines
Summer Research Project Intern
May 2014 - August 2014 (4 months)
Greater Atlanta Area

Worked on a project to design optimal post-merger airline networks under Dr. David Steadman. This project utilizes data publicly available from the Department of Transportation to create an efficient and sustainable post-merger airline network after two major carriers merge. I used techniques in machine learning (logistic regression), linear programming, and graph theory (network-flow).

Education

Harvard University
Bachelor's degree, Major: Computer Science Honors, Minor: Mathematical Sciences · (2017 - 2021)

Briarcliff High School
· (2012 - 2016)