Rohit Amarnath

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Education

Rutgers University — New Brunswick, NJ
B.S. in Computer Science and Mathematics ***(GPA: 3.98/4.0)*** — *September 2021 – May 2025*

- Coursework: Data Structures/Algorithms (graduate), Operating Systems, Machine Learning, Deep Learning, Artificial Intelligence, Networking, Randomized Algorithms, Databases, Software Methodology, Linear Algebra

Experience

Software Engineering Intern — June 2024 – August 2024
Capital One — *New York City, NY*

- Built an API with **Python** and **AWS Lambda** that turns S3 datasets into **Databricks Unity Catalog** tables
- Executed **SQL** statements through **Databricks Statement API** and polled to confirm statement completion

Software Engineer Intern — June 2023 – August 2023
Capital One — *Richmond, VA*

- Built a **Go** API to reroute **10000+** requests from a legacy TSYS data model to a modern **DynamoDB** system
- Implemented **CI/CD** pipelines with **Jenkins** to ensure proper unit testing and deployment to **AWS Fargate**
- Designed **Splunk dashboards** to monitor API performance using charts and alerts to surface operational insights

Undergraduate Researcher — February 2023 – December 2024
Rutgers Deep Learning Lab — *New Brunswick, NJ*

- Designed a bayesian recommender system capable of zero-shot prediction of user perferences across domains
- Implemented several models in **PyTorch** such as matrix factorization, domain adversarial neural networks and deep collaborative filtering to benchmark performance
- Improved recall by **10%** on a cross-market products dataset (XMRec) and **5%** on a movies dataset (Movielens)

Software Engineer Intern — June 2022 – August 2022
Verizon — *Branchburg, NJ*

- Spearheaded a web application in **Node.js** that aggregates **20** employee metrics used by the infrastructure team
- Created a **Python Slack** bot that managed **100+** daily tickets and notified developers with realtime ticket details

Undergraduate Research Assistant — September 2021 – August 2022
Rutgers Cardiac Neuroscience Laboratory — *New Brunswick, NJ*

- Created a **React/Node.js** app to collect bodily sensation data from **230** participants post-alcohol consumption
- Implemented a daily health check using **Python** and **Cron** jobs to prevent server-side errors

Projects

Mapreduce: Implemented MapReduce in Python using asyncio and gRPC to simulate distributed processing tasks

Simplegrad: Developed an automatic differentiation engine similar to PyTorch's autograd with NumPy

Sentiment Analysis: Fine-tuned Qwen2-0.5B and GPT2 on SST-2 dataset and achieved 91% validation accuracy

Hex with MCTS AI: Built a web app with Python that implements the game of Hex and an intelligent AI player

VAE Variants: Implemented standard VAE, Gumbel-Softmax VAE, and VQ-VAE and tested on MNIST and CIFAR10

Predict Car Brands: Achieved 82% test accuracy on noisy Stanford cars dataset with a convolutional autoencoder

Technical Skills

Languages: Python, C++, JavaScript, Go, HTML/CSS, SQL, Java
Technologies: PyTorch, Node, React, MongoDB, AWS (EC2, Lambda, DynamoDB)

Achievements

Placed 8th in the ICPC Greater New York Region Contest in 2024