Rishav Roy

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Education

New York University, Courant Institute of Mathematical Sciences – New York, NY — Sept 2023 - Present
Master of Science, Computer Science
***Coursework**: Algorithms, OS, Computer Vision, Machine Learning* — *GPA 3.89/4.0*

National Institute of Technology, Trichy – Tiruchirappalli, India — July 2016 - June 2020
B. Tech in Computer Science and Engineering | Minor in Management Studies
***Coursework:** Data Structures, Algorithms, ML, NLP, Database systems, Operating systems* — *GPA 8.44/10.0*

Technical Skills

Coding Languages: C++, CSS, HTML, Java, JavaScript, Python, Scala, Scheme, SQL, Typescript, XML
Frameworks/Tools: Angular, Docker, Flask, Git, GraphQL, HuggingFace, LangChain, MongoDB, MySQL, NextJS, Ngrx, NodeJs, NumPy, PyTorch, React, Scikit-learn, Spring Boot, TailwindCSS

Projects and Research

Audio2Image (Python, PyTorch, HuggingFace) — Mar 2024 – May 2024
- Build an ML pipeline to **render an image** from a 10-sec audio clip as part of a 4-membered team
- Utilized audio embedders (HuBERT) and text embedders (CLIP) as a wrapper over the **Stable Diffusion** model
- Compared and contrasted the performance with different embedding models such as Sentence Transformers and Wav2Vec

LLM-Based Recommendation Systems (Python, Llama2, MistralAI, HuggingFace, ChromaDB) — Sept 2023 – Nov 2023
- Investigated the effectiveness of Recommendation Systems built on top of **Large Language Models**
- Utilized the **RAG architecture** using similarity searches on vector databases and prompt engineering on LLMs
- Developed a PoC for the **LENR scientific research** domain for the Predictive Analytics course at NYU - https://github.com/rishavroy97/LENR.ai

Curiosity-driven Reinforcement Learning (Python, Tensorflow) — Jan 2020 – April 2020
- Compared the effects of **Curiosity-driven algorithms** against traditional Reinforcement Learning algorithms.
- Encouraged bots to explore more in **video game simulations** where rewards are sparse.
- Presented to the CS Department at NIT-Trichy as part of my capstone project.

Clinical Depression Detection (Tensorflow, Django, Bootstrap UI) — Jan 2019 – Mar 2019
- Ideated a proof of concept to **diagnose clinical depression** using audio signal processing and **CNN models**.
- Published the findings at the 2019 ICAC3: https://ieeexplore.ieee.org/document/9036838

Sportsfete App (NodeJs, Express.Js, Google Firebase) — Jan 2018 – Feb 2018
- Implemented the Sportsfete portal for handling NIT - Trichy's annual sporting event.
- Added features to support **live score updates and real-time commentary**.
- 1000+ downloads on the **Google Playstore** to track the plethora of sporting events happening simultaneously.

Work Experience

Technology Manager: ***Morgan Stanley*** – Bengaluru, India — Jan 2022 – Aug 2023
- Overhauled and deployed a cloud-ready micro-service-oriented **real-time trading system** to replace the traditional monolith-styled trading system – *Java, Spring Boot, Typescript, Angular, AngularJs, Rxjs*
- Collaborated with intern to develop an **ML-assisted data parser** to parse emails and messages to automate line-item creation on the trading system – *ElasticSearch, Python, NumPy*

Senior | Technology Associate: ***Morgan Stanley*** – Bengaluru, India — Jan 2021 – Dec 2021
- Spearheaded the development of **Azure-cloud-hosted trade-bidding API** service for external clients resulting in a 200% increase in quarterly trading activities – *Spring Boot, Spring Cloud Gateway, Swagger OpenAPI*
- Managed a team of 4 TAP trainees to build a **log tracking and alerting system** which improved outage resolution speeds and helped in bottleneck identification – *Splunk, Spring Boot, Angular*

Positions of Responsibility

Head(Web-dev): ***Spider R&D Club*** — June 2019 – May 2020
- Corresponded with the university administration via emails and phone calls for sustainable task delegations
- Developed multiple projects for the student body and the university