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, SQL, Typescript, XML
Frameworks/Tools: Angular, Docker, Flask, Git, GraphQL, HuggingFace, LangChain, MongoDB, MySQL,
                               NextJS, NodeJs, NumPy, PostgreSQL, PyTorch, React, Scikit-learn, Spring Boot, TailwindCSS

WORK EXPERIENCE

Technology Manager: *Morgan Stanley* – Bengaluru, India   Jan 2023 – 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 2022
- 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*

PROJECTS AND RESEARCH

Image-Finder (React.Js, Next.Js, Java, Spring Boot, PostgreSQL, GraphQL, Docker)   May 2024 – June 2024
- Conceptualized a **multi-threaded web crawler** that extracts all the images from a given website.
- Leveraged the **BFS technique** and robots.txt for a fair and responsible extraction strategy
- Developed a Web server with caching facility reducing the average extraction time to 500 ms (https://github.com/rishavroy97/imagefinder)

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.

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