

# 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, Flask, LangChain, NextJS, NumPy, NodeJs, PyTorch, ReactJs, Scikit-learn, Spring Boot

## 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