

RISHIK SARKAR

New York, NY | +1-732-783-8669 | rishiksarkar02@gmail.com | github.com/RishikSarkar | rishiksarkar.com

EDUCATION

Cornell University

Master of Engineering in Computer Science

Aug 2024 – (May 2025)

GPA: 3.9/4.0

Rutgers University-New Brunswick

Bachelor of Science in Computer Science (Honors), Cognitive Science

Sep 2020 – May 2024

GPA: 3.9/4.0

- Honors: Summa Cum Laude, SAS Honors Program, Phi Beta Kappa, Dean's List

EXPERIENCE

Independent Researcher

Cornell XR Collaboratory

Jan 2025 – Present

New York, NY

- Spearheading ML-driven AR/VR research under Prof. Harald Haraldsson, creating novel 3D interaction techniques with **Unity**, **UPM**, and **XR Interaction Toolkit**.
- Harnessing **Ollama (DeepSeek 7B)** LLMs to automate object selection/manipulation and power an automated mindmap system, accelerating XR workflows by reducing manual effort.

ML Full-Stack Developer Intern

Provenir (Fintech)

Jun 2023 – Dec 2023

Parsippany, NJ

- Developed an automated credit risk decisioning system by integrating multiple ML models (Decision Trees, Random Forests, XGBoost, RNNs) with **scikit-learn** and **TensorFlow**, achieving 95% accuracy.
- Enhanced model transparency with **SHAP/LIME**, wrote 100+ unit tests (**MockMvc**), and streamlined **Minikube** deployments, boosting reliability by 20% and reducing time-to-decision by up to 98%.
- Refined API endpoints for artifact generation and log retrieval to enable real-time monitoring, contributing to a 135% increase in conversions.

ML Research Intern

Abraira Lab

May 2022 – Jun 2023

New Brunswick, NJ

- Preprocessed and curated over 10,000 training samples using **Motion Sequencing (MoSeq2)** (Python) for an unsupervised behavioral model in a neuroethology study.
- Rectified anomalous key point detections, improving data quality by 60% and strengthening model performance.

PROJECTS

MiniTorch | Python, PyTorch, CUDA, Numba

Aug 2024 – Dec 2024

- Reimplemented the **Torch API** from scratch, including autodifferentiation, broadcasting, and gradient ops for robust backpropagation.
- Built a custom tensor library enabling multi-dimensional operations, parallelized with **CUDA** and **Numba** for high-performance computing.

Protoclear | Next.js, FastAPI, TF-IDF, NER, Chroma

Aug 2024 – Dec 2024

- Developed a compliance toolkit for IRB regulations, leveraging **TF-IDF** for keyword extraction and rule-based **NER** to flag research-specific terms.
- Implemented a **decision tree wizard** to generate context-aware compliance recommendations from IRB documents.
- Integrated **LlamaIndex** with a **Chroma** vector database, creating a **RAG** workflow for transparent regulatory guidance.

TECHNICAL SKILLS

Languages: Python, Java, C++, JavaScript, C, SQL, C#

Frameworks/Libraries: PyTorch, TensorFlow, scikit-learn, Keras, OpenCV, Pandas, CUDA, Numba, Flask, FastAPI, Next.js, Tailwind CSS, BeautifulSoup, Tkinter, JUnit, MockMvc, MongoDB, MySQL, SQLite, Unity (UPM, XR Interaction Toolkit)

Tools/DevOps: Docker, Kubernetes, Minikube, Amazon AWS, Google Cloud Platform, Jenkins, Git, Jupyter, CI/CD pipelines, Jira

Theory/Concepts: Machine Learning (ML), Deep Learning (DL), Natural Language Processing (NLP), Computer Vision (CV), Retrieval-Augmented Generation (RAG), Data Science, Data Structures & Algorithms (DSA)