

# RAUNAK AGRAWAL

(415) 672-0386 | [raunak.agrawal@columbia.edu](mailto:raunak.agrawal@columbia.edu) | GitHub: ragrawal123

## EDUCATION

**Columbia University**, Fu Foundation School of Engineering and Applied Science, New York, NY Expected 2026  
*Major: B.S. Computer Science, Minor: Operations Research: Financial Engineering, GPA: 3.9*  
*Relevant Coursework:* Data Structures and Algorithms, Probability for Engineers, Programming in C, Object-Oriented Programming, Discrete Math, Linear Algebra, Artificial Intelligence, Databases, Stochastic Models

## EXPERIENCE

**Teacher Assistant, Columbia University**, New York, NY September 2024 – Present

- Assisting for COMS4701: Artificial Intelligence.

**Machine Learning Research Intern, Mobile X Lab**, New York, NY May 2024 – Present

- Developing a system to protect against audio deepfake attacks, supplementing our existing system that combats visual deepfake attacks to increase its robustness against attacks that target minor visual and audio modifications.
- Evaluating OpenAI's whisper under an audio dataset to see if it is robust enough to support our system to be more sensitive to deepfake attacks in realistic environments.
- Collecting our own dataset, taking visual and audio recording in six different angles/distances of people speaking, and processing it through our visual deepfake pipeline and augmenting our audio data to create adversarial perturbations.
- Building, training, and evaluating a contrastive learning-based model that generates embeddings based on the content and acoustic attributes in audio to identify adversarial attacks within recordings of the same event.

**Software Intern, Quantsapp**, Remote June 2021 – August 2021

- Designed and engineered software to store user information in the backend Quantsapp database from AWS S3 Cloud using Boto3 S3, ultimately to conduct statistical analysis on Quantsapp users using Python and R.
- Contributed to Quantsapp by working remotely with a team leader in India to create data mining software.
- Learned how Quantsapp's fintech SaaS product enables retail investors to trade using analytics and algorithms.

**Software Intern, Blackstone Technology Group**, San Francisco, CA June 2019 – August 2019

- Learned about Trellis' B2B SaaS natural gas technology and improved service by implementing new storage mechanisms for their user data.
- Tested the compatibility and efficiency of multiple object-oriented data structures in Java in storing Trellis' data.
- Performed research on various open-source computer programming technologies and methodologies.

## PROJECTS

**Semantic Search Engine:** (Python, Hugging Face, Pinecone)

- Developed a semantic search engine that accurately matches user queries with similar ML paper abstracts, aiding in user's research by providing contextual, meaningful results based on semantic content rather than keywords.
- Prepared a Hugging Face dataset using Python to format data into a structured format ready to be vectorized.
- Utilized a Hugging Face text-embedding model to vectorize ML papers and integrated Pinecone's vector database infrastructure to efficiently store and retrieve vector embeddings to then processed and readable output.

**Rock Marketplace Application:** (Java, Figma)

- Developed a marketplace platform, incorporating seller and customer interfaces, and network communication protocols.
- Implemented a user-centric GUI, supporting tasks like product listing, search, cart management, and data export.
- Leveraged Client-Server networking architecture, multithreading, and synchronized methods to strengthen real-time data handling and transaction processes in our program.

## EXTRACURRICULARS

**Columbia Venture Partners** October 2023 – Present

- Participating in 10-week academy to learn the fundamentals of venture capital investing and evaluating startups.
- Sourcing startups with partner funds, conducting site visits to VC ecosystems, and participating in VC competitions.

**Columbia Quant Group** January 2024 – Present

- Participating in educational lessons to learn more about the quantitative finance industry.

## SKILLS

**Technical:** Python, C, Java, Linux, PyTorch, Pandas, SQL, LaTeX, HTML, CSS, R

**Interests:** Reading, Weight Training, Golf, Tennis, Hands-On Building, LEGOs, Poker, Music, Investing, Math