

# Tarif Khan

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## EDUCATION

### Northeastern University, Khoury College of Computer Sciences

Boston, MA

Candidate for BS in Computer Science | Concentration: Artificial Intelligence | GPA: 3.6

May 2025

**Relevant Coursework:** Artificial Intelligence, Software Engineering, Machine Learning 1 & 2, Web Development

## WORK EXPERIENCE

### Wellington Management

Boston, MA

Quantitative Researcher Co-op

December 2023 - July 2024

- Developed pre-trade cost models for Municipal Bonds, Securitized Products, Derivatives, and Futures in Python
- Built a project leveraging Python to process Citi and Morgan Stanley BWIC files daily into two data lakes
- Engineered a notebook to scrape a general inbox of trade insights and summarize everything with the GPT-4 API
- Published an internal paper on Artificial Intelligence outlining the constructs of LLMs and transformers
- Implemented a system to scrape HIIVE, William Blair and Citi IOI emails and process the data into data lakes
- Deployed an internal API for scraping and processing Outlook emails used by 30 users across 128 daily jobs

### Khoury College of Computer Sciences at Northeastern University

Boston, MA

Teaching Assistant: Algorithms and Data Structures

April 2024 - June 2024

- Assisted 110 students by holding office hours, and instructing recitations
- Graded weekly homework assignments, midterm exam, and the final exam alongside professors

Career Peer Ambassador

September 2023 - April 2024

- Mentored 328 freshmen from the class of 2027 with regards to class programming and career planning
- Connected 43 freshmen from low income minority backgrounds to summer internships in computer science

Teaching Assistant: Discrete Structures

August 2022 - December 2022

- Administered weekly office hours and facilitated discussion through Piazza threads for 755 students
- Graded weekly homework assignments, midterm exam, and the final exam alongside professors

### Quantum Technologies

New York, NY

Quantitative Software Engineer Summer Intern

June 2023 - September 2023

- Collaborated with quantitative researchers to implement a proprietary trading strategy for XAUUSD using Python
- Enhanced the performance of traders through trade cost analysis (TCA) up to a 15% increase in alpha per trade
- Created a SQL-based database to store and manage trade history details for 6200 trades

### Scotiabank

New York, NY

Software Engineering Co-op

January 2023 - June 2023

- Released a platform to recover lost single as well as grouped trade files sent from Goldman Sachs, JP Morgan, Omgeo, Jane Street and 11 other clients through input of a Swift Reference or Message ID
- Integrated SQL queries extracted from XML property files using JavaSQL to match input to a trade file
- Searched through 6 servers using JSCH to search for, display contents, and present file paths for matching files
- Leveraged Java Swing prioritizing a Multiple Document Interface and JTables for the GUI
- Located and restored 6800 lost trade files in the first two months of release

## PROJECTS

### Python Plagiarism Detector | [Repository](#)

September 2024 - December 2024

- Developed a Python-based plagiarism detection tool leveraging different algorithms and a built in Google LLM
- Implemented advanced text similarity techniques using cosine similarity, Jaccard index, and bag-of-words models
- Optimized performance and accuracy by implementing N-gram modeling, LLM checking, and AST Tree comparisons
- Proposed project to the Khoury College of Computer Sciences for adoption of this tool for all courses that use Python

### Zombies For Life | [Play Here](#)

July 2024 - August 2024

- Created a multi level zombie survival game from scratch using Unity and C#
- Published the game on Unity online with over 190 plays as the player takes part in the solo story to save the world
- Implemented challenging adversarial AI agents with perceptrons as zombies using A\* and finite state machines

### MakeMoney Stock Tracking Tool | [MakeMoney](#)

September 2023 - December 2023

- Engineered the backend using Node.js, Express, and MongoDB and the front end with React, JavaScript, and Redux
- Wielded the Yahoo Finance API to fetch and store real-time stock data

## TECHNICAL KNOWLEDGE

**Programming Languages:** Java, Python, C, C++, JavaScript, React, Node.JS, Typescript, HTML, CSS, Assembly, C#

**Environment Knowledge:** Visual Studio Code, IntelliJ Idea Ultimate, Github, Terminal, Jupyter Notebook, Linux, Unity