Tarif Khan

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EDUCATION

Northeastern University, Khoury College of Computer Sciences **Boston, MA**
Bachelor of Science in Computer Science *Expected Graduation:* May 2025

TECHNICAL KNOWLEDGE

Programming: Java, Python, C, C++, C#, JavaScript, React, Node.JS, Typescript, MySQL, PlSQL
Technologies: Pytorch, Tensorflow, Pandas, Numpy, Gymnasium, AWS, JDBC, GCP, Kafka, Supabase, Resend, Stripe, EmailJS

WORK EXPERIENCE

AIVantage **New York, NY**
Software Engineer *March 2025 - Present*

- Invented Context Renewal, an industry-first AI feature enabling conversation continuity across all LLM models
- Integrated Gmail with AI features (reply, revise, HTML conversion), driving enterprise adoption in Hong Kong
- Received VC offer of $1,000,000 and over 80,000 views on social media, leading to 275 users and 11 paying customers
- Designed using React, TypeScript, GCP, AWS, Resend, proprietary AI API, Supabase, and the Stripe API
- Integrated Browser Agent, Image Generation, Voice Agent, and Document Writing Agents, boosting productivity

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

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
- Implemented a pipeline using Kafka, Jdbc, Dremio and MySql to store and manage trade history details for 6200 trades

Scotiabank **New York, NY**
Software Engineering Co-op *January 2023 - June 2023*

- Built a platform to recover lost trade files from Goldman Sachs, JP Morgan, Jane Street and 11 other clients
- Located and restored 6800 lost trade files in the first two months of release through the use of Swift reference numbers
- 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

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

Antibodies vs Viruses | Play Here *July 2024 - July 2024*

- Built a multi level strategy game, simulating of antibodies fighting virus nodes for kids using Unity and C#
- Implemented challenging adversarial AI agents using A*, Dijkstra's, and finite state machines

PUBLISHED WORKS

Introducing Mesh Networks to Wicked Free Wi-Fi | Read Here *March 2025*

- Published a white paper with peers, proposing a mesh network to solve the wicked fast wifi dilemma in Fenway Park

The Fall of Tech Giants, Past and Present | Read Here *February 2025*

- Published 3 articles which outline the need for innovation in technology to succeed and the decline of other firms

Python Plagiarism and the Fight Against Cheating | Read Here *December 2024*

- Published a paper which criticizes plagiarism at Northeastern University and the solution for courses taught in Python

Artificial Intelligence in Today's World and the Future | Read Here *April 2024*

- Published a paper on the constructs of LLMs, and their implications, influencing AI policy at Wellington Management
- Implemented guidelines to evaluate AI models from both an ethical, technical, and financial standpoint