Arafat Syed Shah

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Education

University of Toronto Sep. 2019 – Apr 2024

B.A.Sc in Computer Engineering, GPA 3.77 *Toronto, ON*

- Awarded with Edward S Rogers Sr. scholarship, achieved Dean's List for every semester during studies.
- Relevant Courses: Operating Systems, Algorithms & Data Structures, Machine Learning, Database Fundamentals

Experience

Software Engineering Intern May 2022 – Aug 2023

Intel Corporation *Toronto, ON*

- Designed efficient C++ algorithms for Quartus FPGA software as part of the Device Modelling team, encompassing various flows such as synthesis, placement, routing, and timing analysis.
- Decreased max memory usage by 30% in a critical subsystem by introducing a thread-safe cache, fine-tuning data structure growth factors, and optimizing class sizes.
- Spearheaded development of 2 Intellectual Property (IP) modules, delivering robust and dependable IP solutions for customer integration, through C++ modeling, RTL design, and simulations.
- Accelerated the IP deployment time for customers by 90% by automating and abstracting the configuration of complex hardware parameters in C++ for user designs.
- Reduced data processing time by 20% for an internal tool by refactoring 3000+ lines of code and migrating to a newer API within the organization.

Co-founder May, 2023 – Aug 2023

Ask a Stock *Toronto, ON*

- Co-founded "Ask a Stock", an AI-powered finance tool that provides up-to-date insights on stock and company-related inquiries, gaining 400+ users within the first month of launch.
- Enabled real-time delivery of ChatGPT responses for up to 4 concurrent users by implementing an innovative backend in Python, employing Flask microservices for efficient scalability.
- Enhanced ChatGPT responses by adding relevant context through developing an NLP pipeline in Python for user queries, extracting pertinent information from financial documents using vector-based semantic search.

Projects

Artsy | *Javascript, Express, React, MongoDB, GitHub*

- Created a platform for users to compete in weekly art competitions using React and Express.
- Implemented 16 HTTP API routes, covering user authentication, data processing, and admin functions.
- Increased data storage and retrieval efficiency by optimizing MongoDB schemas to reduce redundancy.

FindIt Ai | *Python, PyTorch, NumPy, Google API*

- Achieved a 70% accuracy in geographic origin classification by designing and supervised training of a CNN.
- Generated and labelled a custom dataset of 8000+ Google Street View images using Python and Google API.

Multithreading Library | *C, Git*

- Facilitated parallelism by designing a multi-threading library in C to create and manage user-level threads.
- Enabled efficient thread management and context switching by incorporating a Round Robin scheduling system.
- Established concurrency control with the implementation of blocking locks and condition variables.

Navigational GIS Software | *C++, GitHub*

- Reduced pathfinding runtime by 40% by implementing a multi-threaded AStar algorithm.
- Minimized map loading times by 60% through deploying an API for efficient OpenStreetMaps data handling.

Technical Skills

Programming Languages: C/C++, Python, JavaScript, HTML/CSS
Frameworks: React, Node.js, Flask, Express
Developer Tools: Git, Github, Perforce, Linux/Unix, VS Code, Eclipse, Quartus
Libraries: PyTorch, NumPy, OpenAi