

# Alex Yuan

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## EDUCATION

### University of Toronto (Third Year)

St. George Campus

Bachelor of Applied Science, Major in Computer Engineering, Minor in Business & AI

Sept. 2021 – May 2026

- **Academic Achievements:** Ranked #14 out of 411 students in APS105 (Computer Fundamentals)

## TECHNICAL SKILLS

**Languages:** Java, Python, C/C++, Golang, Rust, Ruby, NodeJs, JavaScript, Typescript, PostgreSQL, MySQL, HTML/CSS, C#, System Verilog, ARM Assembly, Bash

**Frameworks:** React, Angular, Vue, FastAPI, TensorFlow, PyTorch, CUDA

**Tools:** Git, Docker, AWS, Jenkins, GitHub Actions, Jira, Confluence, Vivado, Linux/Unix

**Libraries:** Pandas, NumPy, Matplotlib, Scikit-Learn, JavaFX

## EXPERIENCE

### Full Stack Developer Intern

May 6, 2024 – April 25, 2025

AMD (Python, Ruby, SQL, Vue, Javascript, Typescript, Docker, GitHub Actions)

Toronto, ON

- Developed a regression management web application using **Vue3**, **Node.js**, and **PostgreSQL**, improving data visualization for 2,000+ engineers and reducing manual reporting time by 40%
- Designed and implemented a **JWT token-based authentication system** with **RBAC**, reducing unauthorized access incidents by 90%
- Built an automated CI/CD pipeline using **GitHub Actions**, reducing deployment time by 30% and improving code quality

### Silicon Design Engineer Intern

May 1, 2023 – Aug 31, 2023

University of Toronto (Python, Verilog, Vivado, Opal Kelly)

Toronto, ON

- Developed **Verilog** code for FPGA-Python communication, reducing latency by 80% and enabling real-time data processing
- Created comprehensive test benches covering 92% of the source code, ensuring robust functionality
- Implemented **I2C** and **SPI** protocols for peripheral communication, improving data transfer efficiency by 50%

### Software Engineer Intern

Jan 18, 2023 – Aug 25, 2023

Accelbyte Inc. (Python, Golang, Java, C#, AWS, gRPC, Docker, Jenkins)

Toronto, ON

- Expanded cloud services to support **HTTP**, **gRPC**, and **RESTful** endpoints, improving API flexibility and reducing development time by 30%
- Designed a hybrid storage solution using **AWS EC2**, and **S3**, reducing costs by 20% while maintaining performance
- Automated CI/CD pipelines using **Jenkins**, reducing DevOps workload by 2 hours per release

### Data Scientist, Machine Learning Engineer Intern

May 2, 2022 – Aug 31, 2022

F8th Inc. (Python, Sklearn, Tensorflow)

Toronto, ON

- Developed an **active learning model** with 98% accuracy, reducing training time by 80% and securing partnerships for the company
- Presented the model at the 2022 "FinTech" event, leading to increased business opportunities

## PROJECTS

### Tech Headline Summarizer | LLM, Python, APIs, Automation

- Built an automated Python application using **NewsAPI** and **OpenAI GPT-3.5** to fetch, summarize, and deliver tech headlines via email, reducing manual effort by 90%
- Implemented robust error handling and fallback mechanisms, ensuring 99% system uptime and reliability
- Designed unit tests using **unittest** and **mocking**, achieving 95% test coverage

### Pedestrian Detection using Mask R-CNN | PyTorch, Deep Learning

- Trained a **Mask R-CNN** model with **ResNet-50** backbone, achieving 93.3% accuracy in pedestrian detection and segmentation
- Implemented data augmentation techniques, improving model robustness and performance

### Network Communication Systems | *UDP/TCP Protocols, C*

- Developed a **UDP-based** file transfer system with packetization and stop-and-wait protocol, achieving 99% data transmission accuracy
- Engineered a multi-party text conferencing app using **TCP/IP** sockets, creating a client-server architecture to manage user sessions and broadcast real-time messages across multiple nodes

### Geographic Information System (GIS) | *C++*

- Implemented pathfinding using **A\* Algorithm**, achieving sub-0.1 second execution times for large graphs
- Utilized **multi-threading** to optimize parallel computation, improving performance by 40%

### Social Media Full Stack App | *React, Node.js, MongoDB*

- Built a **RESTful** server for managing user authentication, authorization, and data storage, designed to handle large-scale traffic and potential user growth
- **Collaborated** with peers to refine architecture and ensure key security practices, making the system production-ready

### Blockchain | *Rust*

- Designed and developed a blockchain prototype with Solidity smart contracts for secure data storage and user authentication
- Implemented transaction management features designed to scale, simulating high transaction volumes for performance testing