

Zuhair Khan

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EDUCATION

University of Toronto Scarborough

B.Sc. Computer Science — Software Engineering Specialist

Sep 2022 – Dec 2026 (Expected)

Toronto, ON

- **UofT Scholar Award** — \$7,500 merit scholarship (**top 3%**).
- **Key coursework:** Quantum Computing, Networks, Cybersecurity, Algorithms Data Structures, OS, Databases.

EXPERIENCE

Offline Social Network Inc.

iOS Developer Intern

Sep 2025 – Present

Toronto, ON

- Developing iOS features for **Offline**, a proximity-based social network using **Swift (UIKit)**, **Swift Concurrency**, and **TypeScript**—live on the [App Store](#).
- Built **Bluetooth + geolocation** proximity matching and **WebSocket** chat, supporting **1,000+ users**, **900+ active connections**, and **600+ chats** in the first month.
- Improved robustness via **token handling**, validation layers, and optimized reconnection with **Node.js/PostgreSQL + AWS-backed** services.

Founder & Technical Lead @ KZ Collections

[Live site](#) | [GitHub \(Legacy\)](#)

Jul 2024 – Present

Toronto, ON

- Built Shopify e-commerce stack with **inventory syncing**, **email automation**, and data pipelines boosting conversion rate on web sales by **65%**.
- Developed **Node.js** order-processing with **SendGrid**, shipping APIs, and automation to cut delays by **40%**.
- Managed infrastructure migration: **DNS configuration**, secure **HTTPS** redirection, **CDN caching**, and Shopify **metaobject models**.

Quotis — Real-Time Service Marketplace

Software Engineer & Technical Lead

Summer 2024

Toronto, ON

- Architected a cross-platform **React Native + TypeScript** platform connecting customers with handymen.
- Implemented **AWS S3**, **MongoDB**, and **WebSocket** messaging; secured **\$4,000** in grants with **20+ freelancers** waitlisted.

RESEARCH EXPERIENCE

Quantum-Safe Security: PQC, QKD & Cryptographic Hardening | [View Project](#)

Undergraduate Researcher — Supervisor: Prof. Marcelo Ponce

Aug. 2025 – Present

University of Toronto

- Analyzing **QKD protocols** (BB84, E91) vs. **lattice-based PQC KEMs** in simulated **TLS-like networks**; benchmarking **key rates**, **QBER thresholds**, and noise tolerance.
- Developed **Python/Qiskit/PennyLane** simulation pipelines; automated 10^3 – 10^4 -**shot** parameter sweeps over loss, depolarization, and dark counts; implemented **intercept-resend** and **PNS** attacks.
- **Winner**, 2025 **CMS Undergraduate Research Symposium**; leading a **first-author manuscript** on hybrid **PQC/QKD** migration strategies for near-term infrastructures.

SOFTWARE ENGINEERING PROJECTS | [VIEW ALL](#) [↗](#)

StockSocial — Portfolio Social Network | [GitHub](#) | FastAPI, React, PostgreSQL

- Developed full-stack app with **portfolio tracking**, social features, and investment **reviews**.
- Designed normalized **PostgreSQL** schema and async **FastAPI** valuation APIs; built responsive **React** dashboards.

Concurrent System Monitoring Tool | [GitHub](#) | C, Linux, IPC, Docker

- Built multi-process **Linux monitor** using `fork()`, pipes, shared memory, and POSIX signals for **100+ processes**.
- Interfaced with `/proc` + **kernel syscalls**; packaged with **Makefile/Dockerfile**.

UTSC MSA Website | [Live](#) | [GitHub](#) | React, Node.js, MongoDB

- Built a platform for a **1,000+ member** student group with event listings and community pages.
- Implemented **React/Express/MongoDB** stack; deployed on **Vercel CI/CD**.

TECHNICAL SKILLS

Languages: Python, C/C++, Java, TypeScript/JavaScript, Swift, SQL, Bash, HTML/CSS, R, PHP, MIPS Assembly
Web/Mobile: React, React Native, Next.js, FastAPI, Node.js/Express, Tailwind CSS, Flask, Swift (UIKit/Xcode), Expo
Systems/DevOps: Linux, Docker, Git/GitHub Actions, Mininet, Wireshark, CI/CD (Vercel), SDN/OpenFlow, POX Controller
Databases: PostgreSQL, MongoDB, SQLite, Firebase, Supabase, Prisma
Other Tools: Jira, Figma, Agile/Scrum, DNS/HTTPS config, CDN caching, performance profiling