

# Zuhair Khan

+1 (437) 423-1620 | [zuhair.khan@mail.utoronto.ca](mailto:zuhair.khan@mail.utoronto.ca) | [zuhair-mzk](https://zuhair-mzk.com) | [LinkedIn](https://www.linkedin.com/in/zuhairkhanca/) | [zuhairkhan.ca](https://zuhairkhan.ca)

## EDUCATION

<b>University of Toronto Scarborough</b> <i>B.Sc. Computer Science — Software Engineering Specialist</i>	Sep 2022 – Dec 2026 (Expected) Toronto, ON
<ul style="list-style-type: none"><li>• <b>UofT Scholar Award</b> — \$7,500 merit scholarship (<b>top 3%</b>).</li><li>• <b>Key coursework:</b> Quantum Computing, Networks, Cybersecurity, Algorithms Data Structures, OS, Databases.</li></ul>	

## EXPERIENCE

<b>Offline Social Network Inc.</b> <i>iOS Developer Intern</i>	Sep 2025 – Present Toronto, ON
<ul style="list-style-type: none"><li>• Developing iOS features for <b>Offline</b>, a proximity-based social network using <b>Swift (UIKit)</b>, <b>Swift Concurrency</b>, and <b>TypeScript</b>—live on the <a href="#">App Store</a>.</li><li>• Built <b>Bluetooth + geolocation</b> proximity matching and <b>WebSocket</b> chat, supporting <b>1,000+ users</b>, <b>900+ active connections</b>, and <b>600+ chats</b> in the first month.</li><li>• Improved robustness via <b>token handling</b>, validation layers, and optimized reconnection with <b>Node.js/PostgreSQL + AWS-backed</b> services.</li></ul>	
<b>Founder &amp; Technical Lead @ KZ Collections</b> <a href="#">Live site</a>   <a href="#">GitHub (Legacy)</a>	Jul 2024 – Present Toronto, ON
<ul style="list-style-type: none"><li>• Built Shopify e-commerce stack with <b>inventory syncing</b>, <b>email automation</b>, and data pipelines boosting conversion rate on web sales by <b>65%</b>.</li><li>• Developed <b>Node.js</b> order-processing with <b>SendGrid</b>, shipping APIs, and automation to cut delays by <b>40%</b>.</li><li>• Managed infrastructure migration: <b>DNS configuration</b>, secure <b>HTTPS</b> redirection, <b>CDN caching</b>, and Shopify <b>metaobject models</b>.</li></ul>	
<b>Quotis — Real-Time Service Marketplace</b> <i>Software Engineer &amp; Technical Lead</i>	Summer 2024 Toronto, ON
<ul style="list-style-type: none"><li>• Architected a cross-platform <b>React Native + TypeScript</b> platform connecting customers with handymen.</li><li>• Implemented <b>AWS S3</b>, <b>MongoDB</b>, and <b>WebSocket</b> messaging; secured <b>\$4,000</b> in grants with <b>20+ freelancers</b> waitlisted.</li></ul>	

## RESEARCH EXPERIENCE

<b>Quantum-Safe Security: PQC, QKD &amp; Cryptographic Hardening</b>   <a href="#">View Project</a>	Aug. 2025 – Present University of Toronto
<i>Undergraduate Researcher — Supervisor: Prof. Marcelo Ponce</i>	

- 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  $10^3\text{--}10^4$ -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](#) ↗

<b>StockSocial — Portfolio Social Network</b>   <a href="#">GitHub</a>   FastAPI, React, PostgreSQL
<ul style="list-style-type: none"><li>• Developed full-stack app with <b>portfolio tracking</b>, social features, and investment <b>reviews</b>.</li><li>• Designed normalized <b>PostgreSQL</b> schema and async <b>FastAPI</b> valuation APIs; built responsive <b>React</b> dashboards.</li></ul>
<b>Concurrent System Monitoring Tool</b>   <a href="#">GitHub</a>   C, Linux, IPC, Docker
<ul style="list-style-type: none"><li>• Built multi-process <b>Linux monitor</b> using <code>fork()</code>, pipes, shared memory, and POSIX signals for <b>100+ processes</b>.</li><li>• Interfaced with <code>/proc</code> + <b>kernel syscalls</b>; packaged with <b>Makefile/Dockerfile</b>.</li></ul>

**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, Supbase, Prism  
**Other Tools:** Jira, Figma, Agile/Scrum, DNS/HTTPS config, CDN caching, performance profiling