

Education

- Class 2025 **B.Sc in Computer Science - Specialization in ML Systems & Security**, *University of Toronto*, Toronto, ON, Honours.
- Teaching Assistant: Operating Systems, Computer Networks, Database Management Systems, Software Engineering
 - Relevant Coursework: Machine Learning, Deep Learning, Distributed Systems, Cloud Computing, Cybersecurity, Data Structures, Algorithms, Software Architecture
 - Research Focus: AI/ML Systems, Performance Optimization, Scalable Infrastructure, Security Engineering

Technical Skills

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| Programming | Python, C/C++, Java, JavaScript, TypeScript, SQL, Rust, Shell Scripting, Object-Oriented Programming, Functional Programming |
| Databases & Data | PostgreSQL, MongoDB, Redis, MySQL, ETL Pipelines, Data Analysis, Apache Kafka, Big Data, Data Warehousing, NoSQL |
| Web & Frameworks | React.js, Node.js, Express.js, Next.js, Angular, REST APIs, GraphQL, Microservices, Full-Stack Development |
| Systems & Security | Linux/Unix, Network Security, Penetration Testing, Vulnerability Assessment, OWASP, SSL/TLS, Authentication, Authorization |

Professional Experience

- Apr 2025 – July 2025 **Research Engineer**, *Government of Ontario - University of Toronto Engineering*, Toronto, ON.
- Architected and deployed enterprise-grade web application using React.js, Node.js, Express.js, Prisma ORM, and PostgreSQL, scaling to support 12,000+ concurrent users with 99.9% uptime
 - Implemented comprehensive security protocols including SQL injection prevention, XSS protection, CSRF protection, input validation, rate limiting, and PIPEDA compliance for data protection
 - Deployed containerized applications using Docker and Kubernetes with CI/CD pipelines, Git version control, and Infrastructure as Code for automated scaling and monitoring
- Jul 2024 – Dec 2024 **Research Engineer**, *University of Toronto / Vector Institute*, Toronto, ON.
- Developed complete operating system from scratch in C/C++, implementing kernel modules, memory management, process scheduling, thread synchronization, and distributed file systems
 - Created advanced performance profiling and monitoring tools using system calls, kernel debugging, and low-level optimization techniques, improving system performance by 35%
- Sep 2023 – Dec 2023 **Performance Engineer**, *RBC Capital Markets*, Montreal, QC.
- Analyzed high-frequency trading systems for security vulnerabilities and performance bottlenecks, conducting threat modeling and risk assessments for mission-critical infrastructure
 - Implemented real-time data processing pipelines and anomaly detection systems for financial transaction monitoring and compliance reporting
- May 2019 – Aug 2020 **Full-Stack Engineer**, *IBM Watson / Commerce insight*, Markham, ON.
- Produced API docs and integration SDKs for enterprise clients; led Angular migration (v6 to v8) improving app performance by 25%.

Selected projects

- 2024 **Network Security & Anomaly Detection**, *Machine Learning / Network Security*.
- Built intelligent ARP cache management with machine learning-based anomaly detection, automated threat response, and real-time network monitoring
 - Designed high-performance packet processing system with multi-threading, memory optimization, and sub-microsecond latency for enterprise network infrastructure

Certifications & Awards

- Stanford CS229 Machine Learning Certificate | Advanced Algorithms Specialization