Injong(Brian) Won

AI Research Engineer — Systems & Security — Large-Scale ML Infrastructure

injongwbrian@gmail.com https://injongwon.github.io/

Experience

RBC Capital Markets Montreal, QC

Performance Engineer (Co-op) *Sep 2023 – Dec 2023*

- Analyzed **high-frequency trading systems** security and performance requirements, documenting potential vulnerabilities and mitigation strategies
- Developed **automated monitoring systems** for trading infrastructure, reducing security incident detection time by 40% through anomaly detection algorithms

IBM Markham, ON

Full stack developer (Co-op) *May 2019 – Aug 2020*

- Developed **Watson AI voice agent** using **Angular/Node.js**, integrating Speech-to-Text and NLU APIs with focus on secure API communication
- Implemented **fault-tolerant systems** with circuit breaker patterns and secure retry logic, achieving 99.9% availability for AI service endpoints
- Created comprehensive **security documentation** for Watson platform APIs, supporting secure integration practices for enterprise clients

Government of Ontario - University of Toronto Engineering Toronto, ON

Full-Stack Research Assistant *Apr 2025 – July 2025*

- Architected and deployed scalable web application using **React.js**, **Node.js/Express.js**, **Prisma ORM**, and **PostgreSQL**, supporting 12000+ concurrent users for provincial educational competitions
- Engineered robust **RESTful APIs** with **JWT authentication**, role-based access control, and automated contest scoring algorithms, reducing manual processing time by 80%
- Implemented enterprise-grade security protocols including **SQL injection prevention**, **XSS protection**, input sanitization, and **rate limiting middleware**, ensuring PIPEDA compliance for student data protection
- Utilized **Git version control**, **CI/CD pipelines**, and **Docker containerization** for streamlined deployment and code collaboration across development team

University of Toronto Toronto, ON

Research Assistant *Jul 2024 – Dec 2024*

- Built complete user-threads **operating system from scratch** in **C**, implementing kernel modules, memory management, process scheduling, and file systems
- Created comprehensive **performance profiling tools** using low-level system calls and kernel debugging techniques for system optimization

Research Projects

Network Interface Implementation 2024

- Implemented complete **network interface layer** in **C++**, handling ARP protocol, Ethernet frame processing, and IP-to-MAC address resolution
- Built **ARP cache management** with automated expiration, request throttling, and broadcast handling for efficient network communication
- Designed **packet queuing system** with timeout mechanisms, demonstrating deep understanding of network protocols and low-level networking concepts

Education

University of Toronto Toronto, ON

B.Sc. in Computer Science — Specialization in ML Systems & Security *Class of 2025*

- Teaching Assistant: Operating Systems, Computer Networks, Database Management Systems
- Relevant Coursework: Distributed Systems, Machine Learning, Operating Systems, Security, Database Systems
- Research Focus: System security, performance optimization, and scalable ML infrastructure

Certifications

Stanford CS229 Machine Learning Certificate