

Zarif Khan

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Education

Carleton University

Bachelor of Engineering in Software Engineering

Ottawa ON

Graduating 2025



Technical Skills

Languages: Java (Proficient), Python (Intermediate), C/C++ (Proficient), Scheme (Intermediate), SQL (Proficient), HTML(Proficient), CSS(Proficient), JavaScript (Proficient), Lua (Intermediate)

Databases: PostgreSQL, Hibernate(H2), MongoDB, MySQL

Software Development: Spring Framework, Spring-boot, Software Development Life Cycle (SDLC), Software Design Patterns, Software Architectures, Operating Systems, DBMS, Linux, Computer Networking, Cyber security principles

Developer Tools: Linux, GitHub, Azure Deployment, VS code, IntelliJ, pgAdmin, Docker, Node.js

Libraries: JavaFX, JDBC, Java Network API, jQuery, AJAX, OpenCV, TensorFlow, Keras, Pytouch



Experience:

Researcher and Software Engineer || Python, Linux — Video-Based Action Captioning and for Neonatal Resuscitation

CHEO & Ottawa General Hospital, Ottawa, ON

Fall, 2024

- Wrote a 117-page engineering project proposal, detailing both functional and non-functional requirements.
- Conducted requirements elicitation with stakeholders, including medical professionals, to guide project direction. Fine-tuned the AI model to achieve 75% accuracy by the second milestone (within two months).
- Trouble shooting frequently updated codebase to reconcile model

Lead Software Engineer || Java, HTML, CSS, jQuery, AJAX —Amazin.ca. [web service]

Carleton University, Ottawa, ON

Fall, 2024

- Built a bookstore website using Spring Boot, JDBC, H2, and Thyme leaf; Built with Spring Boot, JDBC, and H2 database for the backend implementation (9000 lines of code added).
- Implemented RESTful operations with jQuery and AJAX, deploying to Azure and Google Cloud Platform.
- Applied Agile methodologies and managed tasks using Kanban and Continuous Integration (CI).

Lead Software Engineer || Java, FXML, JDBC, CSS, JavaScript, SQL — Active Edge [desktop application]

Carleton University, Ottawa, ON

Spring, 2024

- Led the development of a full-stack health and fitness application using JavaFX as the frontend, Java as the middleware and PostgreSQL as the backend (48 commits — 20 000 lines of code added).
- Optimized database interactions from prototype to final product, resulting in a 30% reduction in API response times, achieved by implementing query optimizations.
- Designed and applied the user interface using JavaFX, created the underlying models, and structured the PostgreSQL database utilizing relational database schema design principles, including ER mapping and ER diagrams.

Lead Software Engineer || Java, MVC, Swing — Uno-Flip-Game [desktop application]

Carleton University, Ottawa, ON

Fall, 2023

- Utilized MVC-pattern to create a Java-based implementation of the game Uno-Flip.
- Constructed a comprehensive UML diagram to layout the structure of the codebase to minimize project complexity and increase maintainability.
- Created the 3 core functions of the game (deck, players, and rounds), leveraging knowledge of data structures to reduce time complexity — 181 commits, 34 000 lines of code added.

Software Engineer || C++/C, POSIX Threads, Linux — Multiprocessor Linux CFS Simulation

Carleton University, Ottawa, ON

Fall, 2023

- Designed and implemented a CFS-like scheduler using POSIX threads, simulating multilevel priority queues and dynamic priority adjustments in a multiprocessor environment.
- Ensured thread-safe synchronization using pthread_mutex, improving process scheduling and inter-process communication within a simulated multiprogramming system.
- Optimized system performance by accurately replicating SCHED_FIFO, SCHED_RR, and SCHED_NORMAL scheduling behaviors for efficient resource management.