

GABRIELLA GERGES

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EDUCATION

Western University

Masters of Engineering Science, Software Engineering (MEsc.)

June 2025

Bachelor of Engineering Science, Software Engineering with Distinction (BESc.)

2023

· Ontario Graduate Scholarship (OGS) (2023)

· Dean's Honor List (2021, 2022, 2023)

· Western Scholarship of Excellence (2019)

Accomplishments: SheHacks V Winner 2021 (Wolfram Alpha Award), TamuHacks Winner 2021 (AA Challenge)

Programming Languages (Expert): JavaScript, Python, Java, Bash, HTML/CSS

Programming Languages (Novice): C#, Ruby, TypeScript, SQL, C++

Frontend & UI: React.js, Next.js, Tailwind CSS, Material UI, Figma

Backend & APIs: Node.js, Ruby on Rails, GraphQL, Firebase, REST APIs, Golang, MongoDB, Neo4J

Cloud & DevOps: Docker, AWS, Git, Unix/Linux, VM Environments

Cybersecurity: Penetration Testing, Network Traffic Analysis, DoS Simulation, IDS Dataset Creation

WORK EXPERIENCE

HyperPad

Summer '21, '22, '23

Software Engineer, Full Stack Developer

London, ON, Canada

- Performed migrations, transactions, and used **GraphQL with Ruby on Rails** to contribute to the backend of a large-scale project. Debugged and implemented features for a bot using Playwright, automating the creation of grants for charities. **Created and implemented tests** using Cypress.js and Cucumber pre-processor to improve software reliability.
- Contributed to building features for consulting projects using **React.js, JavaScript, HTML, CSS**, receiving positive reviews each sprint. Developed and debugged backend features using **Firebase and the Next.js** Framework. Built **Detox e2e tests** to verify app features and developed cross-device groups and audio sync features for app users.

Teaching Assistant, Software Design, Web Technologies

Winter 2024, Fall 2023

Western University, Department of Electrical Engineering

London, ON, Canada

- Efficiently graded and provided constructive feedback on assignments focusing on UML diagrams, JavaFX, and software design principles within tight deadlines of 2-3 days.
- Facilitated in-person lab sessions, offering guidance and support to students in understanding course material and applying practical skills in software development.
- Facilitated labs on **full-stack web development** and **AWS deployment**, aiding students in application creation and cloud hosting.

SELECTED PROJECTS

AI Resume Chatbot

Personal Portfolio Project | *Full Stack Development*

2025

- Built a fully functional AI-powered chatbot that answers questions about my resume using a hybrid retrieval system combining Neo4j graph traversal and OpenAI vector embeddings. Developed the backend in Go, integrating OpenAI's GPT models with intelligent prompt construction and session handling. Modeled resume data in Neo4j as a connected graph with embedding vectors stored in nodes to support semantic search and relationship-based context retrieval. Designed and implemented the responsive front end using React, TailwindCSS, shadcn/ui, and Vite, featuring persistent memory, animated typing, and real-time chat flow management.

Travel Buddy

2021

Hackathon Project | Game Design & Implementation (C#)

- Integrated American Airlines' Flight Engine API into a backend service to dynamically retrieve real-time flight data.

- Contributed to 3D scene navigation and interactive UI development using **Unity and C#**, despite having no prior experience.
- Collaborated in a cross-functional team to prototype an immersive travel planning experience in under 24 hours.

WeGrowth

2021

Hackathon Project | Game Design & Implementation (C++)

- Implemented UI elements and game assets in C++ despite no prior experience with the language or toolchain.
- Integrated custom sprite, background, and icon designs into the game, collaborating closely with the design lead.
- Sourced and implemented ambient sound and game effects to enhance user experience.
- Demonstrated adaptability and rapid learning in a fast-paced team environment.

Val-T

2021

Database Management Systems, Final Project

- Led a group of university students by delegating responsibilities, establishing expectations and tracking progress to successfully manage the project which resulted in a **fully functional and usable web application**.
- Developed a **relational database** for a **Valorant tournament system** that stored data such as tournaments, matches, players, non-players and displayed the information to users from the back-end through **Node.js and MySQL**.
- Designed the user interface using **Figma** and successfully implemented the entire front-end through React.js which resulted in the final product being interactive, user-friendly and functional.

RESEARCH EXPERIENCE

Western University, Department of Electrical and Computer Engineering

2023-2025

- Conducted penetration testing on an open-source EV charging infrastructure, identifying critical vulnerabilities in **MQTT-based network communication**.
- Developed a **virtual testbed** using Docker and VM-based simulation to model smart charging environments and test **multi-threaded DoS attacks** using Python and Bash.
- Used Kali Linux tools (Wireshark, tcpdump, nmap) for traffic sniffing, IP reconnaissance, and vulnerability analysis of simulated charging infrastructure.
- Built and tested ML-based Intrusion Detection Systems (IDS) to detect anomalous network traffic, using custom datasets derived from simulated attack scenarios.
- Analyzed communication protocols (OCPP, ISO 15118, IEC 61850) to uncover vulnerabilities in Charge Point-to-Backend communications.
- Presented findings to technical and non-technical stakeholders; successfully defended thesis during academic and public evaluation.