NIKOLETT TOTH

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EDUCATION

University of Guelph — Guelph, Ontario
Bachelor of Computing Honours — Sep 2023 - Dec 2025
Bachelor of Environmental Sciences Honours — Sep 2018 - Apr 2023
Awards: J.D. MacLachlan Scholarship, Robert Harcourt Scholarship, Dean's Scholarship

SKILLS

Languages: Python, SQL, Java, C, JavaScript, R
Libraries, Frameworks, & Tools: Git, Docker, Flask, JUnit, Gradle, SQLite, LaTeX, tidyr, ggplot2

EXPERIENCE

Undergraduate Research Assistantship

University of Guelph - School of Computer Science — Apr 2024 - Present

- Applied machine learning techniques (i.e. association rule mining) to identify key metadata variables influencing high aquatic eDNA concentrations under Drs. Daniel Gillis, Jarrett Phillips, and Robert Hanner.
- Developed the RulesTools R package for data preprocessing, analysis, and visualization in association rule mining.
- Collaborated with interdisciplinary teams of computer scientists and biodiversity researchers, effectively communicating complex topics through presentations, papers, and outreach articles.

Teaching Assistant

University of Guelph - Structure and Application of Microcomputers — Sep 2024 - Dec 2024
University of Guelph - Introduction to Programming — Sep 2023 - Dec 2023

- Taught foundational computer architecture concepts, including data representation, instruction-set architecture, and assembly language programming.
- Explained programming concepts such as control flow, data structures, algorithm design, modular programming, and memory management in C.
- Supported over 200 students through weekly labs, grading, and office hours, providing guidance on problem-solving, debugging, and computer science fundamentals.

Student Researcher

University of Guelph - School of Environmental Sciences — May 2023 - Oct 2023

- Aided in the development of a novel approach for modelling pedestrian heat exposure in cities to improve climate change projections and guide urban planning decisions under Dr. Scott Krayenhoff.
- Ran programs on Supercomputer Cedar and wrote coordinate conversion programs in C to process land use data, preparing the WRF climate model for simulations on end-of-century heat stress in Miami.

PROJECTS

Pool Game

- A full-stack billiards game that combines C for efficient and accurate physics calculations, Python for managing complex backend logic, SQL databases to track game states, and JavaScript with SVG to deliver engaging, real-time visualizations directly in a web browser.

Mancala

- A text-based Java implementation of the board game Mancala, leveraging object-oriented principles to create modular and maintainable code.
- Utilized Java serialization for saving and loading game states, JUnit for comprehensive testing, Gradle for build automation and dependency management, and Git for version control.