

# Zachary Djerdjouri

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## EDUCATION

### **B.S. in Computer Science and Mathematics (CO-OP)**

University of Ottawa

Ottawa, ON

Expected Graduation, May 2027

- **CGPA:** 9.9/10.0
- **Relevant Coursework:** Computing in Python and Java, Databases, Computer Architecture, Data Structures and Algorithms, Honours Linear Algebra, Statistics, Probability, Discrete Structures, Programming Paradigms

## EXPERIENCE

### **Software Engineer**

National Institute of Scientific Research (INRS)

Québec, QC

May 2024 – Aug 2024

- Worked on image processing with **Python's OpenCV** for permafrost erosion experiments and other research projects
- Created dashboards utilizing **Python's Dash, Plotly, Matplotlib, Pandas and NumPy** modules to compute wave equations, plot wave signals and generate binary files for experiments in wave flumes
- Recipient of the National Sciences and Engineering Research Council of Canada's **Undergraduate Research Award**
- Redeveloped data acquisition system using LabView and Python for the Environmental Hydraulic Laboratory

### **Mathematics and Programming Tutor**

Tutorax

Gatineau, QC

May 2024 – Present

- Delivered personalized online tutoring sessions in Discrete Mathematics for college-level students (Dawson College), simplifying complex topics like logic, set theory, and combinatorics.
- Assisted students with problem-solving techniques for programming assignments in Python, improving their academic performance.

## PERSONAL PROJECTS

### **AI Web Scraper Application**

[Project GitHub](#)

**Python, Selenium, BeautifulSoup, Streamlit, Ollama 3.1, LangChain**

- Extracted and structured raw HTML data using **BeautifulSoup, lxml, and html5lib** for efficient web scraping
- Integrated **Ollama 3.1** LLM via **LangChain** for advanced AI-driven data parsing and analysis, generating intelligent insights from unstructured data based on user prompts.
- Built a user-friendly interface with Streamlit for easy interaction and real-time data visualization

### **Social Media Web Application**

[Website](#)

**Python, Flask, HTML, CSS, SQL Lite**

- Developed a social media web application resembling Twitter using Python's Flask module, HTML and CSS.
- Key features include account creation, log in, log out, likes, and comments, with data securely stored in a backend database and shared among logged-in users.

### **Movie Recommendation Search Engine**

[Project GitHub](#)

**Python, NumPy, Pandas, Sklearn, Jupyter Notebooks**

- Cleaned data set of over 160,000 users with Python Pandas and NumPy
- Implemented an algorithm to recommend movies based on similar user interests, leveraging the over 25,000,000 ratings in the data set

### **Portfolio Website**

[Website](#)

**Python, JavaScript, Django, HTML, CSS, SQL Lite**

## SKILLS

- **Programming:** Python, JavaScript, Java, HTML, CSS, SQLite, SQL, R, Flask, Python Pandas, NumPy, Matplotlib, Plotly, Dash, Django, Streamlit, Selenium, BeautifulSoup, langchain, Spring Boot, ReactJS, Pytorch

- **Tools:** Visual Studio Code, IntelliJ, PyCharm, VS Code, Jupyter Notebooks, Git, Bootstrap, GitHub, GitLab, LaTeX, Tableau, MacOS, Linux, Windows
- **Communication:** Fluent in French and English, Microsoft Suite, Word, Outlook, Microsoft Excel, PowerPoint
- **Mathematical and Logical Reasoning:** Distinctions at Fermat Mathematics Competition of the University of Waterloo.

## LEADERSHIP ROLES/EXTRACURRICULARS

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### Computer Science Student Association

University of Ottawa, Ottawa, ON

*Vice-President of Communications*

*Oct 2023 – May 2024*

- Crafted monthly newsletters in French and English for over 1,100 students using HTML and CSS.
- Organized Frost Week activities led fundraising campaigns, and managed social media accounts.

### UOrover Rover Team

University of Ottawa, Ottawa, ON

*Team Member (Guidance, Navigation and Control sub-team)*

*Nov 2023 – Present*

- Refactored GPS node code to be more modular using ROS2 and Python on Ubuntu Virtual Machine.
- Tested GPS code for migration towards a new version of ROS, contributing to automation of the rover's driving.

### Computer Science Student Association

University of Ottawa, Ottawa, ON

*Frosh Week Guide*

*Aug 2024 – Sept 2024*

- Facilitated the integration of first-year students by organizing and leading orientation activities.
- Coordinated icebreaker events and campus tours to help new students familiarize themselves with the university environment.