Dion Barja

204-583-4578 | barjad@myumanitoba.ca | [LinkedIn](#) | [GitHub](#)

EDUCATION

Bachelor of Computer Science Honours (Co-op Option)　　　　　　　Sept. 2022 – Present
University of Mantioba　　　　　　　　　　　　　　　　　　　　　　　*Winnipeg, MB*
- Cumulative GPA: 4.48/4.5

EXPERIENCE

Undergraduate Research Fellow　　　　　　　　　　　　　　　Jan. 2025 – Aug. 2025
Cheriton School of Computer Science, University of Waterloo　　　　　　　　　*Waterloo, ON*
- Created a gesture-controlled multi-user visualization application for data-driven collaboration using React, TypeScript, and D3.js.
- Developed augmented reality interaction techniques utilizing continuous hand-tracking machine learning models.
- Designed and conducted a user study with 16 participants to evaluate the effectiveness of a gesture-controlled collaboration experience.
- Utilized quantitative and qualitative methods to analyze collected data and report on key findings.

Research Assistant　　　　　　　　　　　　　　　　　　　　　May 2024 – Aug. 2024
Human-Computer Interaction Lab, University of Manitoba　　　　　　　　　　*Winnipeg, MB*
- Built force feedback haptic gloves with precise soldering, wiring, and 3D modeling/printing.
- Programmed haptic gloves using an ESP32 microcontroller and the Arduino IDE to enable the gloves to capture and control finger movements.
- Created experiences in Unity to compare various controllers and implementations for throwing in virtual reality, analyzing their accuracy and precision.
- Designed an experiment, in collaboration with a graduate student, to evaluate the viability of throwing in virtual reality using optical hand tracking.

Teaching Assistant (Computer Science Help Center)　　　　　　Sept. 2023 – Dec. 2024
Department of Computer Science, University of Manitoba　　　　　　　　　　*Winnipeg, MB*
- Conducted weekly tutoring sessions for approximately 15 students, with an emphasis on Java and Python.
- Communicated student progress and challenges to instructors efficiently, providing feedback on assignments.

TECHNICAL SKILLS

Languages: Java, Python, C, C++, C#, JavaScript, R, HTML/CSS
Frameworks/Libraries: Arduino, Vue, React, Node.js, D3.js, Yjs, WebRTC
Developer Tools: Git, Firebase, Unity

AWARDS

Undergraduate Research Fellowship, University of Waterloo	2025
NSERC Undergraduate Student Research Award, University of Waterloo	2025
NSERC Undergraduate Student Research Award, University of Manitoba	2024
Isbister Scholarship in Science, University of Manitoba	2024
U of M Retention Scholarship, University of Manitoba	2023-2024
President's Scholarship, University of Manitoba	2022-2025
UM Queen Elizabeth II Entrance Scholarship, University of Manitoba	2022

PROJECTS

PoliKat | *React, TypeScript, Python, FastAPI*
- Developed a full-stack web application for Canadian election forecasting.
- Utilized FastAPI to serve a REST API and Python to statistically model electoral projections.
- Created interactive visualizations within a React frontend for calculated forecasts using D3.js.