

# RIVAN JARJES

Brampton, ON

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## Education

### Toronto Metropolitan University

Expected May 2029

Hon. B.Sc. in Computer Science

Toronto, ON

GPA: 4.13 / 4.33, Dean's List, Top Entrance Scholarship

### Relevant Coursework

- Introduction to Programming
- Object-Oriented Programming
- Data Structures & Algorithms
- Computer Organization
- Discrete Mathematics
- Principles of Software Development
- Circuit Design
- Assembly
- Unix Operating Systems

## Volunteer Experience

### Inspire Curiosity STEM Instruction

Jan 2022 – June 2024

Ontario Chapter Lead

Remote

- Directed interactive programming workshops in Scratch, teaching foundational coding concepts and fostering computational thinking in young learners.
- Designed and delivered inclusive curriculum tailored to diverse student needs, promoting creativity and problem-solving in STEM.
- Mentored and motivated 15 underserved youth, encouraging exploration of STEM careers and tracking progress to optimize learning outcomes.
- Collaborated with a small team of volunteer instructors to plan workshop sessions and refine curriculum based on participant feedback.

### TMU Game Makers Union Club

Sep 2024 – Current

Programmer

Toronto, ON

- Collaborated on large-scale game development projects, programming gameplay mechanics and systems in C++ for Unreal Engine.
- Developed and optimized key game mechanics using C++ in Unreal Engine, contributing to smoother gameplay and more immersive user experiences.
- Coordinated with cross-functional teams, aligning technical implementation with creative vision and project objectives.

## Projects

### Lateral Pulldown Analyzer | Python, NumPy, OpenCV, MediaPipe, TensorFlow

- Developed a real-time machine learning pipeline that processes live video streams to analyze lat pulldown form.
- Achieved 90%+ accuracy in real-time pose detection with OpenCV & MediaPipe.
- Engineered a TensorFlow model achieving high accuracy in classifying exercise form, incorporating techniques such as data augmentation and cross-validation to improve model robustness.
- Designed an interactive overlay system that visualizes key joint angles and movement trajectories, providing immediate, actionable feedback for technique improvement.

### New York Times Style Mini Crossword Generator | Python, Java, Spring Boot, React, OpenAI API, Tailwind CSS

- Engineered a full-stack web application automating the generation of themed mini crossword puzzles using an LLM trained on historical NYT data.
- Implemented a custom Python-based constraint solver to validate grid layouts and letter intersections, ensuring that generated puzzles are both coherent and challenging.
- Integrated a React frontend with Spring Boot REST APIs and AWS backend services, resulting in the generation of over 200 puzzles and engagement from 100+ users.

### Multiplayer Chess Game | C#, XNA/MonoGame, .NET Networking, Peer-to-peer Architecture

- Developed a fully-featured chess game with complete chess rule implementation using the MonoGame/XNA framework, ensuring robust move validation and game logic.
- Integrated both local multiplayer and online peer-to-peer gameplay through a custom networking protocol, delivering seamless connectivity and competitive play.
- Designed an interactive game UI featuring move highlighting and intuitive controls to enhance user engagement and overall gameplay experience.

## Technical Skills

**Languages:** Java, Python, JavaScript / TypeScript, HTML / CSS, SQL, C++, C, C#, Objective C, Node.js, Swift

**Developer Tools:** VSCode, Visual Studio, IntelliJ, Xcode, Eclipse, Git, GitHub Actions, Maven, JUnit

**Technologies & Frameworks:** Azure, AWS, .NET, Next.js, React.js, Spring Boot, Tailwind CSS, DynamoDB, MongoDB