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