Brendan Gorchinsky

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Education

Western University **2021 – 2025 (Expected)**
Bachelor of Engineering Science, Software Engineering

Professional Experience

General Laborer, Golf Operations **June 2024 – August 2024**
City of Hamilton

- Operated ride-on equipment to maintain tee decks, greens, approaches, and aprons.
- Maintained sand bunkers by raking, trimming edges, and pumping out water on rainy days.
- Applied soil and seed to tee decks to support turf regeneration and repair.
- Trimmed grass and weeds around the course, clubhouse, and parking areas.

Estimating Student (Co-op) **May 2022 – August 2022**
PCL Construction

- Performed quantity takeoffs using On-Screen-Takeoff (OST), Bluebeam Revu, and Microsoft Excel.
- Communicated scopes of work, specifications, and deadlines with sub-trades for various construction projects.
- Assisted in closing the tendering stage for two separate divisions- miscellaneous metals, and demolition for a special project.

Youth Soccer Coach **May 2021 – August 2021**
Soccer World

- Coached U6 and U8 teams with weekly practices and games.
- Planned unique and engaging drills and activities to develop fundamental soccer skills each week.
- Set up and took down field equipment before and after games/practices.
- Supported game-day operations and encouraged team spirit and sportsmanship.

Crew Member **May 2021 – August 2021**
Harvey's

- Grilled and fried menu items in accordance with food safety and health regulations.
- Assisted with nightly cleanup to maintain a clean and safe kitchen environment.
- Prepared and stocked food stations to ensure readiness for the next day's operations.

Projects

Easy Metrics
C++ | Individual

- Created a program for monitoring real-time AMD GPU and CPU performance metrics through a customizable screen overlay for Windows.
- Used SFML with ImGUI for window and overlay creation, and ADLX for interfacing with AMD hardware and gathering hardware performance metrics.
- Designed a simple user interface for selecting metrics to be displayed and customizing the style and colors of the overlay and text.

Animal Image Clustering Model
Python | Group

- Worked in a team setting to build an unsupervised image clustering system to group images of five animal species using K-Means clustering.
- Preprocessed and extracted features from raw image data for clustering and visualization.
- Used the elbow method and silhouette scores to determine optimal cluster count and evaluate performance.
- Applied feature extraction techniques to improve clustering quality and explored integration with transfer learning.
- Demonstrated ability to analyze high-dimensional data and apply machine learning in a real-world, unlabelled image context.

Rustborn: A 2D Sandbox Game
C#, Unity | Group

- Voted as one of the top 5 capstone projects in my 4th year software engineering capstone course.
- Collaborated in a 3-member Agile team to design and develop a 2D sandbox game featuring mining, crafting, building, and combat mechanics in a procedurally generated world.
- Developed a procedural world generation system using random binary maps and the marching squares algorithm, with cave and ore structures generated via a random walk algorithm.
- Engineered dynamic terrain interaction mechanics (mining and placing) with real-time chunk updates driven by the marching squares algorithm, optimizing for responsiveness and visual coherence.
- Created and modified 2D sprites using Aseprite, integrating them into Unity to support gameplay mechanics and aesthetic consistency.

Mesh Generation and Rendering using Marching Cubes
C++, OpenGL | Individual

- Implemented the marching cubes algorithm to extract triangle meshes from scalar fields.

- Created a Phong lighting model using custom GLSL vertex and fragment shaders to visualize the algorithm's output.
- Designed a camera system using spherical coordinates for interactive 3D scene rotation.
- Developed a utility function for exporting the meshes to PLY file format.

Education Storage
Java, JavaFX | Individual

- Developed an academic grade management system using Java and Apache Derby for persistent storage of inputted course grades.
- Designed a custom UI for simple and efficient navigation through the application.
- Built to provide an efficient way of keeping track of grades and calculating GPAs with specific parameters used by fellow students.

Google Web Scraper
Java, JavaFX | Individual

- Designed and implemented a web scraper application with Java and the jsoup library that further refines, and filters google searches.
- Initially created to assist a security specialist track and identify threats to public service employees and saved hours in each investigation.
- Further adjusted the application UI to be used by many of my peers.

Investment Analysis
Python | Group

- Worked in a development team to design and develop a predictive AI model for the stock market using python.
- Used the AlphaVantage API to pull real-time and historical stock market data for analysis.
- Utilized an LSTM network to predict the next day's closing price of individual stocks.

Face Space: 2D Bullet Hell
C#, Unity | Individual

- Developed a simple 2D bullet hell game with fast-paced combat and score tracking.
- Designed and programmed a player controller with dashing and a unique special ability.
- Implemented 5 enemy types, each with distinct attack patterns and behaviors.
- Created a scoring system and persistent leaderboard using PlayerPrefs, encouraging replay potential and competition.

Technical Skills

Programming Languages: C++, C#, Python, JavaScript, Java

Tools: GitHub, Unity Version Control

Graphics and Game Development: OpenGL, Unity, Shader Programming

Foundational Knowledge: Computer Graphics, Deep Learning, Object-Oriented Programming, Assembly Language, Reinforcement Learning, Data Structures, Cloud Computing

Community Involvement and Extracurriculars

Western AI **2022 – 2024**
Western University

Conference Delegate Selection Committee **2022**
Western University's Undergraduate Engineering Society (UES)

Basketball Referee **2018 – 2020**
CYO of Hamilton

Basketball Scorekeeper **2019**
Grimsby Basketball Association (GBA)

Awards and Scholarships

Dean's Honor List **2022, 2023, 2024**
Western University, Faculty of Engineering

- Awarded for earning a year average of over 80% with no failed courses.

Lorraine Ivey Shuttleworth Continuing Award **2022, 2023, 2024**
Western University

- Awarded one of six awards for high academic standing and demonstration of financial need.

Western Scholarship of Distinction **September 2021**
Western University

- Awarded to students with a minimum 92.5% admission average into university.

Award for Academic Excellence **June 2021**
St. John Henry Newman Catholic Secondary School

- Awarded for having one of the top academic averages of the 2021 graduating class.

St. John Henry Newman Chemistry Award **June 2021**
St. John Henry Newman Catholic Secondary School

- Awarded for having the highest 4U chemistry average of the 2021 graduating class.

Certifications

Implement DevOps Workflows in Google Cloud Skill Badge **Issued 2025**
Google Cloud Skills Boost, GCP

Deploy Kubernetes Applications on Google Cloud Skill Badge **Issued 2025**
Google Cloud Skills Boost, GCP