Nolan Bryson

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Portfolio | LinkedIn | GitHub

Education

Bachelor of Computer Science (3rd year), University of Victoria, BC   Sept 2022 – April 2027

GPA: 7.9/9.0 (A range)

Relevant Courses: Data Structures, Machine Learning, Algorithms, Probability & Statistics, Software Engineering, Database Systems, Computer Architecture, Operating Systems, Graphics

Notable Certificates and Trainings:

- Microsoft Professional Advanced ML/AI Engineer Certification – (5 Combined Separate Certifications)
- Full Stack Engineer Certificate – Free Code Camp

Technical Skills

- **Languages:** Python, Java, C++, C, SQL, Bash, TypeScript
- **Web & DevOps:** HTML/CSS, REST APIs, JSON, WebGPU, Puppeteer, CMake, Jenkins, GitHub Actions
- **Frameworks:** Spring Boot, Flask, React, React Three Fiber
- **Tools & Platforms:** Docker, GitLab/GitHub, Linux, AWS (S3), Azure, Kubernetes (AKS), PostgreSQL, MATLAB, R
- **Concepts:** API Design, OOP Principles, ETL Pipelines, Authorization (JWT/OAuth2), CI/CD, Containerization, Cloud Deployment, Performance Optimization, WebGPU Rendering, Automated Testing, 3D Reconstruction, Logging, RAG

Work Experience

Software Engineer Co-op | CogniaAI & ACIS Lab, Victoria BC   Sept 2025 – Present

- Engineered a high-performance WebGL2 3D Gaussian Splat Viewer (v1) from scratch as sole developer, using React Three Fiber with a full REST API and custom scene editing tools; later led v2 enhancements switching to WebGPU then leveraging Playcanvas's Splat Transform and Engine APIs to polish and extend the viewer's capabilities.
- Optimized React render trees via memoization, virtualization, WebGPU offloading, and UI Portaling, delivering substantial frame-rate improvements across complex multi-million-point scene data.
- Architected an NLP semantic search system for natural-language isolation of 3D scene objects, and a GIS-integrated interface synchronizing reconstructions with real-world geospatial coordinates for digital twin functionality.
- Applied OOP design principles to maintain a clean, bloat-free codebase across the full software stack; currently integrating Depth Estimation Geometric Foundation Models to obtain real-world scaling **without** LiDAR or a metric basis.

VBA Developer and Data Pipeline Engineer | Collins Steel, Edmonton, AB (Remote)   June 2025 – August 2025

- Reduced end-to-end Excel data-processing time from 10 minutes to under one second by developing complex VBA macros to clean, transform, and validate large datasets, and slashed worksheet object count from 77,000 to ~100 with no loss of functionality.
- Designed and built ETL pipelines in Python and SQL to ingest, normalize, and load data from CSV exports, REST APIs, and SQL databases into a centralized analytics repository.

Highlighted Projects

CRM Application | Role: Full Stack Developer   March 2025 – May 2025

- Designed and built a CRM system with Spring Boot backend and React frontend.
- Integrated secure user authentication using Spring Security and JWT tokens. • Connected PostgreSQL via Spring Data JPA for persistent data management.
- Enabled AWS S3 image upload with signed URLs and IAM for access control.

Modor Game Engine (GitHub) | Role: Low Level Developer   Feb 2025 – Present

- Building a custom 3D game engine in C++ using the Vulkan graphics API, implementing shader-based lighting, memory management, multithreading, physics, custom render passes, and much more.
- Managed cross-platform builds and dependencies using CMake and Vcpkg.