PARTH CHATURVEDI

9873101642 | parthcv0101@gmail.com | LinkedIn | GitHub

SKILLS

- Languages - C++, C#, Java, Python, C, JavaScript, Swift
- Frameworks - ReactJS, Laravel, ExpresseJS, Android and Flutter
- Graphics and Engines - Unity, Unreal, OpenGL, Vulkan
- AI/ML - PyTorch, TensorFlow, Keras, YOLO, GNNs, LLM pipelines, RL feedback systems
- Databases - SQL, Firebase, MongoDB
- Tools & Infra - Git, Jenkins, Perforce, Docker, Linux

WORK EXPERIENCE

Software Engineer, Graphics | Huawei Canada

Sept 2024 - Mar 2026

- Built an automated shader optimization platform in Python targeting top mobile games, delivering **5.5% GPU performance** improvement and **12% reduction in per-frame instruction segments** at **0.999 SSIM** shipped live in **Honkai: Star Rail**.
- Engineered a CLI automation tool in Python and Bash that reduced per-capture performance testing from **30 minutes to 9 minutes**, enabling overnight batch runs with automatic result logging and visual comparison output.
- Developed a custom GLSL parser using tree-sitter (JavaScript) to generate ASTs from a shader, enabling automated pattern detection and code optimization at scale
- Built a custom GNN using PyTorch Geometric for algorithm classification across a large shader codebase, achieving **98.57% validation accuracy,** integrated with an LLM pipeline to surface optimization strategies from detected patterns
- Designed an LLM driven evaluation pipeline that analyzed automated performance and visual quality metrics (artifacts, clarity, interactions) as feedback signal for iterative shader optimization decisions
- Developed tooling in C++/Python for graphics API analysis across OpenGL and Vulkan pipelines to support performance profiling and bottleneck identification
- Researched and prototyped optimization strategies for lighting, compute, and post-process shaders. Conducted ongoing research into emerging graphics and AI techniques including Gaussian Splatting, NeRFs, ReSTIR, and Neural rendering for mobile GPU applicability
- Onboarded and mentored 2 new hires; led technical delivery across a 3 person team

Software Developer Intern | Precisely

Jun - Aug 2022

- Built a Python tool to parse GML and JSON files containing 3D city data and convert them into renderable 3D city models integrated directly into MapInfo Pro, the company's GIS software
- Developed the UI in PyQt and 3D rendering pipeline using VTK, capable of handling large cities with thousands of buildings at multiple levels of detail
- Delivered the tool as a standalone feature within the existing MapInfo Pro workflow using Mapbasic.

PROJECTS & HACKATHONS

DuckHunt3D | 3D Engine | C++ OpenGL

Sep - Dec 2025

- Designed and built a 3D game engine from scratch in C++ with a full ECS architecture supporting scalable rendering and physics integration.
- Implemented a deferred rendering pipeline, scene graph, and engine systems across a team of 6, led all graphics and engine programming
- Shipped Duck Hunt as the engine's flagship game demonstrating full engine capability end to end.

YVR Hackathon | Won Best Technical Implementation (4th place)

Apr 2024

- Built a real-time data pipeline on Raspberry Pi using live camera feeds with sensor data via FTP server for airport monitoring.
- Trained a custom YOLOv7 object classification model on airport camera data to detect people, unattended bags, and hazards.
- Automated sensor logging via MQTT with structured log file output for analysis.

PintOS | C / Operating Systems

Jan - Apr 2024

- Implemented a multi-level feedback queue scheduler in C replacing a basic round-robin scheduler, dynamic task prioritization
- Modified synchronization primitives to support changing process priorities, ensuring highest priority processes efficiently access shared resources

EDUCATION

British Columbia Institute of Technology | Burnaby

Bachelors of Science in Applied Computer Science, Games Development (with Co-op) - GPA 88% — Sep 2023 - Apr 2026

Computer System Technology Diploma, Predictive Analytics - GPA 86 % — Jan 2021 - Dec 2022