Jas Singh

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Skills

Programming Languages: Golang, C++, Swift, Java, JavaScript, C, OCAML, Haskell, Elixir, Erlang, SQL, Python
Frameworks: Android, Node.js, Express.js, SceneKit, SpriteKit, Unity
Tools: Git, JUnit, Linux Shell Scripting

Game Development Projects

Vulkan Renderer (Major Project Capstone, BCIT) *Sep - Apr 2025*

- Developed a Vulkan rendering engine with C++, supporting Blinn-Phong lighting and PBR materials
- Integrated tinyobjloader library to render meshes with an .obj file extension
- Created code to generate mipmaps by utilizing VkSampler objects for different LoDs

AE86 - C++ 3D Rigidbody Physics Engine (Advanced Game Programming, BCIT) *Sep - Dec 2024*

- Developed and integrated 3D rigidbody physics into a custom ECS game engine made over the course of a four month semester
- Implemented a math library for vectors, matrices, and quaternions to support linear and angular motion
- Built a scene graph to facilitate parenting of entities and local and world space coordinate systems
- Solved race conditions for physics, rendering, and gameplay threads of the engine accessing the scene graph
- Utilized the physics engine to implement a car demo, supporting steering, acceleration, and traction simulation

Gouken - 3D Fighting Game (Game Architecture, BCIT) *Jan - Apr 2024*

- Led team of six developers to make a mobile-performant Street Fighter clone on iOS with Swift and SceneKit
- Architected Entity Component System (ECS) and flow of control for events within the core update loop
- Implemented Environmental Scripting functionalities for easier stage VFX additions
- Added Input Buffering solution to allow for fighting game motion inputs (such as Hadoukens)
- Created dynamic hitbox and hurtbox system tied to animation frame-rate (a necessity for traditional fighting games)

Row - 2.5D PvP Browser Game (BC Global Game Jam) *Jan 2024*

- Developed a wacky, two-player physics-based browser game to match the jam's theme of "make me laugh"
- Implemented Bennett Foddy-inspired physics allowing oars with momentum and ragdolling boats
- Created the gameplay loop FSM, alongside losing and winning conditions and game resets
- Expanded physics gameplay to include a stun mechanic with affordances - camera LERPing and freeze frames
- Integrated as a +1 into an already-formed team, adapting to existing dynamics and scheduling constraints

Relevant Work Experience

Dirk Interactive Inc. - Engineering Team *Vancouver, BC*
Programmer *Aug 2025 - Present*

Calabrio - Data Engine Team *Burnaby, BC*
Haskell Engineer *Aug 2021 - Jan 2023*

Fortinet - Release QA Team *Burnaby, BC*
Software Release QA Specialist *Feb - Aug 2021*

Education

British Columbia Institute of Technology *Burnaby, BC*
Bachelors of Science in Applied Computer Science - 94% CGPA *Sep 2023 - Apr 2025*
Diploma in Computer Systems Technology - 90% CGPA (w/ honours) *Dec 2020*