Alexandre **Brochu**

Software Developer · Graphics Programmer

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Experience

AMD (Advanced Micro Devices)
Ottawa, ON (Remote)

Sr. Software Development Engineer
Jul. 2022 - Present

- Help drive AMD's technical engagement with EPIC Games
- Create patches and plugins for UE5 targeting the developer community
- Document UE5's computer graphics technologies (DX12, Nanite, Lumen, TSR) for the developer community
- Profile hardware ray tracing workloads in Unreal Engine systems like Lumen
- Learn new hardware and driver features that lead to better performance for UE projects

Behaviour Interactive
Ottawa, ON (Remote)

Graphics Programmer
Jul. 2021 - Jun. 2022

- Optimize code found in graphic pipelines, systems architecture and shader programs
- Gain experience with GPU profiling tools (RenderDoc, Razor, PIX)
- Port a game project with a custom engine and renderer to three separate consoles

Behaviour Interactive
Montreal, QC

Unreal Engine Developer
Nov. 2019 - May 2021

- Write game logic and tools (using both C++ and Blueprints)
- Ship a game project on a newly released platform (Stadia)
- Mentor new employees that join our project for internships

Behaviour Interactive
Montreal, QC

Unity3D Developer
Jun. 2016 - Nov. 2019

- Write game logic for multiple systems (AI, Animation, UI, Backend)
- Ship two game projects on multiple platforms (Android, iOS, Steam)

Personal Projects

GPU Based Ray Tracing Engine in C++ with DirectX 11

- Learning the inner workings of the DirectX 11 graphics API to communicate rendering commands to the GPU
- Practicing writing some C++ logic to transfer data from the main memory to the GPU memory to create dynamic scenes
- Learning about how compute shaders can help getting better performance for the ray tracing process rather than implementing the full algorithm in pixel shader

"Sequence" Boardgame Using Unity3D

- Organize a small team of hobbyists to complete a video game development project
- Implement a client/server architecture for multiplayer gameplay over the network with C#'s socket interface
- Conduct play test sessions to gather feedback on how to improve the game's experience

Skills

Programming	C, C++, HLSL, GLSL, Rust, C#, Odin, Ruby, Racket, Go, JavaScript
Graphics APIs	DirectX 11, DirectX 12, Vulkan, OpenGL
Game Engines	Unreal Engine 4, Unreal Engine 5, Unity3D, Godot, DromEd
Tools	Visual Studio, Neovim, VS Code, RenderDoc, PIX, RazorCPU/GPU, CMake, GDB, Git, Perforce
Languages	French, English

Education

Sherbrooke University
Sherbrooke, QC

B.S. in Computer Science
Sep. 2012 - Aug 2015

- Achieved A+ average GPA in two semesters; overall GPA of 4.06 / 4.30
- Took multiple computer graphics classes to deepen expertise in the domain
- Developed a ray tracing renderer using foundational computer graphics techniques