

John Parsaie

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SUMMARY

Graphics programmer with eight years demonstrated experience. Equipped with foundational understanding of the rendering equation, modern GPU architectures, and an obsession for computing the former with the latter.

EXPERIENCE

- **Qualcomm Inc.** New York, NY
Sr. Staff Graphics Engineer *April 2024 - Present*
 - **Drivers:** Root-cause analyze hangs in the D3D11/D3D12/Vulkan user-mode drivers for the Adreno GPU.
 - **Tools:** Develop performance, instrumentation, and debug tools for our driver and shader ISA compiler teams.
 - **Profiling:** Robust CPU/GPU performance bottleneck analysis on pre-market graphics hardware.
 - **DevRel:** Provide open source tools and SDKs for graphics programmers targeting the Adreno GPU.
 - **Industry Adoption:** Lead AAA studios in porting their games from x86 to Arm (Windows).
- **Unity Technologies** New York, NY
Staff Graphics Engineer *July 2023 - April 2024*
 - **High-Performance Parallel Algorithms:** Author of Unity's dedicated hair software rasterizer for fast rendering of hair strands on modern console hardware (PlayStation 5, etc.), with filmic image quality.
 - **Physically-Based Shading:** Author of Unity's physically-based hair shader with advanced multiple scattering.
 - **Utility:** Author of Unity's GPU threading library; platform-agnostic wave intrinsics with emulated fallback.*Senior Graphics Engineer* *May 2020 - July 2023*
 - **Architect:** Designed and implemented the HLSL code-gen system for Unity's node-based Visual Effect Graph.
 - **Initiative:** Identified Unity's lack of support for intermediate volumetric formats (OpenVDB), prototype an import pipeline for VDB assets and rendering support for its GPU accelerated counterpart (NanoVDB).
 - **Technical Leadership:** Lead a small team of artists to assemble a high-stakes demo for SIGGRAPH, unveiling the integration of Wētā Barbershop, ZivaRT, and SpeedTree together with the new hair system in Unity.
 - **Strategic Leadership:** Plan a development road-map for state-of-the-art digital character rendering features.
 - **Collaboration:** Work with artists, designers, & QA to deliver production-ready, cross-platform graphics features.
 - **Independence:** Proficiency in DCC (Houdini FX) allows rapid creation of exotic test data for development.*Graphics Engineer* *May 2017 - May 2020*
 - **Production Experience:** Production-oriented graphics programming work on several real-time short film productions to promote the Unity Engine. Work closely with a diverse cast of lighting artists, character artists, technical artists, riggers, animators, directors, pipeline TDs, producers, show-runners, and fellow programmers.
 - **Production-driven Development:** Implement early iterations of latter-day Unity features such as filmic motion blur, subsurface scattering, hair shading models, cloth shading models; to meet the needs of productions.
- **Unity Technologies** Seattle, WA
Software Engineer Intern *Summer 2016*
- **Warner Bros. Interactive Entertainment** Needham, MA
Software Engineer Intern *Summer 2015*

PROFICIENCIES

- **Language:** C/C++, HLSL (SM 6.0+) **Debugging:** Razor GPU, RenderDoc, WinDbg, NSight, Superluminal
- **API:** D3D11, D3D12, Vulkan, USD, OpenVDB, Alembic **DCC:** Houdini FX, Unity, Blender, Maya, Unreal

CONTRIBUTIONS & ACHIEVEMENTS

- **SIGGRAPH 2022:** *Speaker, Advances in Real-Time Rendering*
- **Technology and Engineering Emmy Award:** *Recipient*
- **SIGGRAPH 2018:** *Speaker, Real-Time Live*
- **GDC 2018:** *Speaker, Unity Sponsored Session*

EDUCATION

- **Champlain College** Burlington, VT
Bachelor of Science in Game Programming *Aug. 2013 - May. 2017*