John Parsaie

https://parsaiej.github.io/

Email : parsaiej@gmail.com
Mobile : +1-978-337-2292

Summary

Graphics programmer with eight years demonstrated experience. Equipped with foundational understanding of the rendering equation, modern GPU execution models, and experience collaborating with world-class art teams.

Experience

- **Unity Technologies** — New York, NY
  Staff Graphics Engineer — *July 2023 - Present*
  - **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.
- **Unity Technologies** — New York, NY
  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.
- **Unity Technologies** — Montreal, QC
  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.
  - **Hands-on**: General infrastructural maintenance & development for production-grade rendering systems (camera, mesh, material, shader, vfx).
- **Unity Technologies** — Seattle, WA
  Software Engineer Intern — *Summer 2016*
- **Warner Bros. Interactive Entertainment** — Needham, MA
  Software Engineer Intern — *Summer 2015*

Proficiencies

- **Language**: HLSL (SM 6.0+), C/C++, CMake, Python
- **Debugging**: Razor GPU, RenderDoc, NSight, PIX
- **API**: DirectX12, Vulkan, USD, OpenVDB, Alembic
- **DCC**: Houdini FX, Unity, Blender, Maya, Unreal

Contributions & Achievements

- **NVIDIA Render Interface (NRI)**: *Open Source, Add MacOS Support*
- **SIGGRAPH 2022**: *Speaker, Advances in Real-Time Rendering*
- **Technology and Engineering Emmy Award**: *Recipient*
- **SIGGRAPH 2019**: *Speaker, Unity Sponsored Session*
- **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*