

Conor Lavelle

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WORK EXPERIENCE

Software Engineer – Microsoft

May 2018 – Present

- Working in the group responsible for DirectX graphics on the Graphics Interfaces team, focusing on Windows' C++ software rasterizer, WARP
- Improved WARP's performance by 330% on typical DirectX 12 workloads by increasing lock granularity in resource sampling during rasterization
- Implemented Tier 1 of Variable Rate Shading in WARP. Variable Rate Shading is an optimization feature that allows developers to control the shading rate and trade the loss of some visual fidelity for an increase in performance
- Wrote utility scripts in Python and PowerShell, including a script to generate a load balanced test list for running a large test set split across multiple machines and VMs

Graphics Software Engineer Intern – NVIDIA

Jan 2018 – April 2018

- Worked with the Real-Time Rendering Research team on their open source C++ rendering framework, Falcor (<https://github.com/NVIDIAGameWorks/Falcor>)
- Expanded testing framework to support multiple machines and operating systems
- Worked to integrate NVIDIA GameWorks' ShadowLib into Falcor

Teaching Assistant: CS460 – DigiPen Institute of Technology

Sep 2017 – Dec 2017

- Worked as a teaching assistant for CS460/560: Advanced Animation and Modeling
- Helped students with and graded C++ projects including hierarchical animation, motion along a path, inverse kinematics, and physically based animation

Software Engineer Intern – Microsoft

May 2017 – Aug 2017

- Worked with the Enterprise Platforms and Corporate Services Integration team on a Python tool that analyzes Azure Logic Apps to determine their Azure usage

Graphics Software Engineer Intern – NVIDIA

Dec 2016 – May 2017

- Worked with the Real-Time Rendering Research team on the Falcor framework
- Created an automated testing framework for Falcor in python that supports both unit and image comparison tests that run daily and email results to team members
- Added a GPU-based particle system to Falcor, and updated cascaded shadow map and post processing samples

EDUCATION

DigiPen Institute of Technology

Aug 2014 – April 2018

- *BS in Computer Science and Simulation, Minor in Mathematics*

SELECTED STUDENT PROJECTS

Feral – Graphics Programmer

May 2016 – Apr 2017

3D Brawler – Custom Component-Based C++ Engine (6 Programmers, 2 Designers, 3 Artists)

- Implemented a C++ 3D graphics engine using DirectX 11 that included skeletal animation, deferred Blinn shading, shader reflection, GPU-based particles, and glow
- Created a tool using Maya's FBX SDK that converts FBX files to a custom file format
- Wrote a Maya exporter GUI in Python that automates FBX conversion and enables team artists to quickly and easily see their assets in the game's graphics engine

Pogo Pug – Graphics Programmer

Jan 2016 – Apr 2016

2D Platformer – Custom Component-Based C++ Engine (4 Programmers, 2 Designers, 1 Artist)

- Refactored an existing graphics engine to use the OpenGL programmable pipeline
- Designed and implemented a fast and flexible particle system that was used for a variety of different effects in the game

SKILLS

Languages

C++
Python
HLSL/GLSL
PowerShell
C#
C

API

DirectX 11
DirectX 12 (Familiar)
OpenGL 4.5
SDL 2.0
ImGui
Anaconda (Familiar)
Windows (Familiar)

Dev Tools

Visual Studio 13/15/17
Windbg
Pix
Render Doc
GPUView
Maya 2015
Unity
Doxygen
Premake (Familiar)

Math Skills

Linear Algebra
3D Math
Discrete Math

OS

Windows
Ubuntu (Familiar)
Linux Mint (Familiar)

Collaboration

Git
Perforce
Mercurial