Nolan Stelter

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EDUCATION

University of Illinois at Urbana-Champaign *Urbana-Champaign*

B.S. in Computer Science and Anthropology *May 2019*

Courses: Linux Systems Programming, Computer Architecture, Virtual Reality *GPA: 3.7/4.00*

WORK EXPERIENCE

Qualcomm *San Diego/Santa Clara, CA*

GPU Software Engineer *June 2019 - Present*

- Developed OpenCL extension for accelerating machine learning calculations on mobile Adreno GPUs.
- Worked on C++/Python codebase used for selection of optimal OpenCL kernels for a given calculation. Expanded logic to support new GPUs, new operations, and new specifications from the extension api.
- Expanded Python codebase used for pre-compiling OpenCL kernels and managing metadata used in kernel selection, utilizing custom json and binary formats.
- Wrote and maintained framework for managing growing set of machine learning models, allowing for developers to easily profile performance, get detailed logging, and use of advanced features of the extension.
- Corrected OpenCL kernel issues involving memory access, precision errors, and performance loss. Debugged machine learning models with errors in layer incorrectness and issues converting data between different GPU optimized memory layouts.

Electronic Theatre Controls *Middleton, WI*

Software Engineer Intern *May 2018 - August 2018*

- Worked on C++ Qt application used for controlling LED lighting in theatrical applications. Fixed bugs related to configuring and managing lights, and added features to allow for easier and more robust management of lighting system.
- Significantly reduced time and difficulty required to configure the settings of wireless lighting fixtures within large scale theater systems.

Virtual Education and Research Laboratory *Urbana, IL*

Research Software Developer *Sept 2017 - May 2019*

- Developed virtual reality simulations of nuclear reactors for operator training and educational uses.
- Created virtual reality experiences with focus on making them comfortable and perform well on multiple VR platforms such as Oculus Rift, Vive, Android, and Gear VR.

PROJECTS

VR Tank Battle! *Unity, C#* *Fall 2017*

- Worked with team to design a virtual reality tank game in Unity engine for the Oculus Rift VR headset.
- Utilized room-scale motion tracking with Oculus Touch controllers and the Virtual Reality Toolkit (VRTK) to create fun and immersive virtual reality experience.

DIY Malloc *C* *Spring 2017*

- Wrote from-scratch implementations of C library calls malloc, calloc, realloc, and free.
- Implemented heap memory allocation using sbrk C system call and linked list structure for maintaining allocated and free nodes.
- Used techniques like allocation splitting/coalescing to prevent fragmented memory, and management schemes (best fit, first fit) to improve speed and footprint.

TECHNOLOGIES

Languages C, C++, Python, OpenCL, Java, C#, Bash scripting, JavaScript, Perl, OCaml, MIPS Assembly

Tools/Programs Git, Jira, Gerrit, GNU/Linux, Android Dev (adb, AOSP), Unity engine, Qt C++