Jinwoo Yom

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Objective: Motivated and team driven software engineer seeking a software development position to apply my computer engineering background to innovate and deliver secure software solutions

Work Experience:

QCT Software Engineer, Qualcomm San Diego, CA *January 2020 – September 2021*

- Developed a test framework for Vulkan ML kernels and features in the CI/CD Pipeline
- Utilized CMake to orchestrate a central build system that supports build targets for Qualcomm's three major Graphics API platforms: OpenGL, Vulkan, and DirectX12
- Developed Vulkan Graphics libraries that include ML features and specialized kernels for enabling ML compute operations including convolutions with various activation functions.

QCT Software Intern, Qualcomm, San Diego, CA *May 2018 – August 2019*

- Architected AWS infrastructure of Qualcomm's python-based Log Analysis Framework (LAF)
- Identified bottleneck code blocks and introduced asynchronous operations to optimize LAF by 16%
- Automated the code coverage tests for build images in the CI/CD pipeline
- Developed a bug crawler that identifies injection points of buggy code in the works trees of perforce server

Cyber Security/DevOps Developer, Virginia Cyber Range, Blacksburg, VA *May 2017 – May 2018*

- Developed Typescript based REST APIs for the AWS image provisioning back-end services
- Implemented factory design pattern for the scalability and platform independence of the core software stack
- Improved the security and efficiency of the services by 98% through architecting and implementing an asynchronous system with error handlers

Education:

M.S. in Computer Engineering, May 2020
College of Engineering, Computer System Security
Virginia Tech
GPA: 3.74/4.0 (Dean's List)

B.S. in Computer Engineering, May 2017
College of Engineering, Computer Science
Virginia Tech
GPA: 3.57/4.0 (Dean's List)

Technical Skills:

Languages: C, C++, Python, Typescript, NodeJS, PHP, Java, JavaScript, C#, HTML5, CSS3. *Databases:* MySQL, NoSQL, MongoDB, Elastic Search, DynamoDB, LowDB. *Tools:* Git, AWS, LLVM, Wireshark, Burp Suite, Hydra, SQL map, Unity 5, Microsoft SSMS

Publications:

HyperSpace: Data-Value Integrity, Blacksburg, VA *April 2018 – January 2020*

- Researched and developed a linux kernel defense policy that enforces the integrity of "data value" to protect security-sensitive control and non-control data from all modern memory corruption and ROP based attacks
- Innovated a method to immobilize the use of corrupted memory by protecting a copy of all sensitive data in a shadow memory region called "Hyperspace" protected by utilizing Intel's Memory Protection Key
- Optimized the Linux kernel and LLVM implementation to only 1.02% runtime and 14.42% memory overhead

Mardu: Efficient and Scalable Code Randomization, Blacksburg, VA *May 2017 – September 2019*

- Developed and published an on-demand system-wide memory re-randomization technique that maintains strong security guarantees while providing better overall performance and being scalable
- Implemented a compiler + kernel solution to defend against code-re-use attacks using LLVM/Clang, Linux kernel modification and Intel's HW Memory Protection Key Extensions (MPK) feature
- Optimized the runtime performance overhead of kernel implementation to 5.5% for SPEC