**ALEXANDER KISIL he/him Chicago IL 60610 • alx@gmail.com**

**EXPERIENCE**

**Director, Senior Computer Engineer** Apr 2022 – Present

***Agita Labs*** Remote

* Direct and mentor a team of three engineers in the development of TrustForge, Agita Labs’ secure hardware enclave
* Design and iterate on TrustForge SDK and emulator to allow clients to trial our tech without needing HW access
* Maintain and document a 50,000+ line codebase (C++, SystemVerilog, Assembly, Node.js, Python) in AWS and Azure
* Present our ideas, technical specs, and challenges to investors and potential customers to help secure over $4mil in funding
* Implement performance-critical C++ interfaces between HW and native SW libraries to enable practical adoption

**Computer Engineer** Jan 2019 – Apr 2022

***Agita Labs*** Ann Arbor, MI

* Designed and built TrustForge, an FPGA-powered secure hardware enclave, custom ISA and SW programming framework
* Built hardware performance monitor and ciphertext cache to identify and reduce >70% of our latency at FPGA interfaces
* Created HW-accelerated encryption and data integrity modules, achieving secure computation without performance compromise
* Architect and build novel data hashing, IEEE754 floating point, and exception handling approaches under bit-granularity memory constraints leveraging open source library HardFloat

**Software Engineering Intern** May 2018 – Aug 2018

***Qualcomm*** San Diego, CA

* Implemented OpenVX/OpenCV corollary library to enable efficient data flow between the Computer Vision and VR teams
* Optimized legacy computer vision functions for a 2.5x average speedup to meet Qualcomm’s new VR chips’ specs

**Undergraduate Research Assistant** Dec 2017 – May 2018

***University of Michigan (Computer Security Lab)*** Ann Arbor, MI

* Assessed security profile of novel encryption accelerators via side-channel analysis to identify vulnerabilities before tape-out
* Programmed data tagging for the RocketChip open-source processor to allow for finer-grained encryption

**Student Instructor for EECS 280 (Programming and Data Structures)** Dec 2016 – Dec 2017

***University of Michigan*** Ann Arbor, MI

* Instructed labs on OOP, performed code review in office hours, and designed and tested exam problems for 1000+ students
* Implemented cheat-checking SW to analyze students’ C++ code to provide a fair and opportunistic learning environment

**TECHNICAL SKILLS**

**Languages**: C/C++, C#, SystemVerilog, Python, Javascript, gdscript, Assembly (ARM, RISC-V), Bash

**Tools**: Git, Make, Jenkins, Vivado, Jira, Confluence, AWS, Azure, Microsoft VS & Office, Godot, Unity, Unreal

**PUBLICATIONS & PATENTS**

* *Morpheus II: A RISC-V Security Extension for Protecting Vulnerable Software and Hardware, 2021 IEEE HotChips 33*
* *Patent US11748521: Privacy-Enhanced Computation via Sequestered Encryption*
* *Patent US12105855: Safe Disclosures in Sequestered Encryption Systems*

**PROJECTS**

***Project Lilypad*,Video Game by Yellofinch Games (Godot)** Jun 2023 – present

* Design, architect and implement a 2D roguelite game using industry-standard design patterns in Godot with a partner
* Manage game scope through a game design document, setting deliverable goals aligned with our rapid-iteration philosophy

***Io*, *Dreamwillow,* Video Game by WolverineSoft Studio (Unity, C#)** Sep 2019 – May 2020

* Provided direction and feedback across 30+ members of different disciplines to ensure concept art, music, and gameplay all maintained the vision and tone of the game
* Managed content and scope, strategizing tradeoffs to deliver a polished product for a showcase of over 1200 attendees

**EDUCATION**

**UNIVERSITY OF MICHIGAN COLLEGE OF ENGINEERING           *2015 - 2018***

***B.S.E. Computer Engineering, cum laude***