Siyuan Liu

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EDUCATION

The University of California, Davis — Davis, CA
Master of Science in Computer Science; GPA: 3.91 September 2021 - Present (Expected to graduate in December, 2024)

The University of Auckland — Auckland, New Zealand
Bachelor of Science (Honours) in Computer Science; GPA: 3.7 (7.2/9.0) March 2015 - June 2020

SKILLS SUMMARY

- **Languages**: C#, C++, JavaScript, Python, C, Java, SQL
- **Frameworks/Platforms/Databases**: LLVM, Unicorn/QEMU, Kubernetes, Docker, Azure Cloud Services, Azure DevOps, .NET Core / .NET Framework, Node.js, React, Git, PostgreSQL, MongoDB, Datadog, New Relic, Postman, xUnit testing tools

EXPERIENCE

Amazon Web Services, Inc. (AWS) — Seattle, WA
Software Development Engineer Internship June 2024 - Present
- Develop APIs for improve user unit testing experience with AppSync GraphQL Service

University of California, Davis — Davis, CA
Research Assistant July 2023 - Present
- Research topic: Enhancing compilers with fuzzing tests and CPU emulations.
- Contribute to LLVM backend by Identifying and fixing previously undiscovered bugs.

University of California, Davis — Davis, CA
Teaching Assistant January 2023 - June 2023
- Participated in the teaching of ECS 154A: Computer Architecture

Plexure Group Limited — Auckland, New Zealand
Intermediate Software Engineer February 2022 - September 2022
- Developed single sign-on features of the customer engagement platform of McDonald's Japan, employing .NET Core Web API hosted on Azure App Service.
- Implemented automated API testing via Postman and orchestrated the configuration of build pipelines within Azure DevOps, accelerating and building more confidence in product delivery.

EROAD Limited — Auckland, New Zealand
Software Engineer, Integration October 2020 - February 2022
- Designed and implemented the Coretex Integration Platform, an instrumental system facilitating seamless administration of services within the integration domain, deployed on Azure Kubernetes Services.
- Designed and implemented of .NET Core services that harmonize EROAD's fleet management functionalities with TruckMate's trucking management software, enabling administrators to manage a fleet exceeding 2000 trucks under the Old Dominion Freight Line. These services are orchestrated through Coretex Integration Platform, hosted on Azure Kubernetes Services, and interconnect using Azure Service Bus and REST API.
- Improved Azure Function serverless apps in the integration domain, sustaining operations for Old Dominion Freight Line's expansive fleet of over 10,000 trucks.

Verizon Connect — Christchurch, New Zealand
Software Engineer August 2017 - February 2019
- Developed and maintained web services with Node.js, analyzing collected data to determine optimal service recommendations and target audiences, and further integrated functionalities for automated post-service surveys.
- Developed an internal web application utilizing React and TypeScript, empowering administrators with tools to oversee and modify the report generation infrastructure, effectively enhancing operational efficiency

PROJECTS

- **IRFuzzer**: Contributed code in C++ and Python to the IRFuzzer project, a specialized LLVM backend fuzzing test framework that has found more than 70 bugs causing LLVM crashes. Involved in codebase enhancements, conducted experiments to evaluate SelectionDAG and GlobalISel instruction selection frameworks.

- **SemPy**: A differential testing application that finds bugs and prevents regressions in compilers with random code generation and emulation on different architectures. This project is developed in Python and C++ based on Unicorn Engine, CSmith and IRFuzzer project.