

# Luke Hsiao

Backend Development · Systems & Networking · Consulting

Remote · No visa sponsorship required to work in the US

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## Skills

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**Programming** Python, Rust, C

**Areas** backend, systems, tools, open source, networking, infrastructure, cloud

## Industry experience

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**Member of Technical Staff**

Maritime Stealth Startup

Salt Lake City, UT  
2026-02-present

**Staff Software Engineer**

Alation

Salt Lake City, UT  
2025-05-2026-01

- Built the technology stack and foundations of Alation's AI platform.
- Maintained technical standards: security, reliability, scalability.
- Defined and refined team processes (testing, documentation, tooling, etc.) for efficiency.
- Mentored other engineers to accelerate career-growth and skill development.

**Principal Engineer**

Numbers Station

Salt Lake City, UT  
2021-11-2025-05

- Helped build company from day 1 through acquisition by Alation.
- Led infrastructure: CI/CD, IaC, k8s, security, compliance (SOC-2), VPC deploys, bare-metal servers.
- Designed and implemented fundamental system architecture and engineering processes.
- Created and maintained internal developer tooling and technical documentation.

**Software Engineer**

Google

Sunnyvale, CA  
2021-06-2021-11

- Led the TCP rebase effort for Project Icebreaker to help Google move towards the mainline Linux kernel.

**Software Engineer Intern**

Google

Sunnyvale, CA  
2020-06-2020-09

- Added support for TCP tx zero-copy (txQcp) using `io_uring` in the Linux kernel.
- Profiled and optimized benchmarks to demonstrate an 18% improvement in CPU efficiency for txQcp via `io_uring`.

**Research Intern**

Google

New York City, NY  
2019-06-2019-09

- Tuned BBRv2 on many-to-one datacenter traffic; experiments showed > 30% latency and >80% retransmit reductions.
- Open-sourced Transperf, a transport protocol performance tool for testing TCP over emulated network scenarios.

**Software Engineering Intern**

NVIDIA

Santa Clara, CA  
2017-06-2017-09

- Worked with the drivers team to develop a new system-level Windows driver for gaming laptops.
- Designed and implemented secure APIs in kernel-space C code.

## Education

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2015-2021 **Ph.D. in Electrical Engineering**, Stanford University

Stanford, CA

2015-2017 **M.S. in Electrical Engineering**, Stanford University

Stanford, CA

2010-2015 **B.S. in Computer Engineering**, Brigham Young University · *Summa Cum Laude*

Provo, UT

## Research experience

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### Ph.D. Research Assistant

Stanford University, Advisors: Phil Levis and Keith Winstein

Stanford, CA

2015-09-2021-06

- Area: Systems and Networking
- Saved 80% network bandwidth by lowering latency to <15 ms for foveated video compression.
- Generated hardware component knowledge bases using training data generation and multitask learning.

### Undergraduate Research Assistant

Brigham Young University, Advisor: Mike Wirthlin

Provo, UT

2014-04-2015-06

- Area: Embedded Systems, FPGA Reliability, Fault Injection
- Assisted in validation and development of Xilinx V5QV fault injection infrastructure.
- Designed and optimized VHDL components for use in FPGA reliability experiments.
- Developed standalone JTAG fault injection system for radiation testing using C/C++.

## Teaching experience

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W2019 **Graduate CA**, Introduction to Computer Networking (CS 144), Stanford University

Stanford, CA

W2016 **Graduate Grader**, Program Analysis and Optimizations (CS 243), Stanford University

Stanford, CA

W2014 **Undergraduate TA**, Data Structures and Algorithms (CS 235), Brigham Young University

Provo, UT

## Publications

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2022 **Towards Retina-Quality VR Video Streaming: 15ms Could Save You 80% of Your Bandwidth**

ACM CCR

**L. Hsiao**, B. Krajancich, P. Levis, G. Wetzstein, and K. Winstein

 [cs.stanford.edu/keithw/sigcomm-ccr-paper523.pdf](http://cs.stanford.edu/keithw/sigcomm-ccr-paper523.pdf) ·  [github.com/lukehsiao/fvideo](https://github.com/lukehsiao/fvideo)

2020 **Creating Hardware Component Knowledge Bases with Training Data Generation and Multi-task Learning**

ACM TECS

**L. Hsiao**, S. Wu, N. Chiang, C. Ré, and P. Levis

 [sing.stanford.edu/site/assets/publications/tecs20hack.pdf](http://sing.stanford.edu/site/assets/publications/tecs20hack.pdf) ·  [github.com/lukehsiao/tecs-hardware-kbc](https://github.com/lukehsiao/tecs-hardware-kbc)

2019 **Automating the Generation of Hardware Component Knowledge Bases**

LCTES

**L. Hsiao**, S. Wu, N. Chiang, C. Ré, and P. Levis

 [sing.stanford.edu/site/assets/publications/hack-lctes19.pdf](http://sing.stanford.edu/site/assets/publications/hack-lctes19.pdf) ·  [github.com/lukehsiao/lctes-p27](https://github.com/lukehsiao/lctes-p27)

2018 **Smart Contracts for Machine-to-Machine Communication: Possibilities and Limitations**

IOTAIS

Y. Hanada, **L. Hsiao**, and P. Levis

 [arxiv.org/abs/1806.00555](https://arxiv.org/abs/1806.00555)

2018 **Fonduer: Knowledge Base Construction from Richly Formatted Data**

SIGMOD

S. Wu, **L. Hsiao**, X. Cheng, B. Hancock, T. Rekatsinas, P. Levis, and C. Ré

 [sing.stanford.edu/site/assets/publications/fonduer-sigmod18.pdf](http://sing.stanford.edu/site/assets/publications/fonduer-sigmod18.pdf) ·  [github.com/HazyResearch/fonduer](https://github.com/HazyResearch/fonduer)

2015 **Estimating Soft Processor Soft Error Sensitivity through Fault Injection**

FCCM

N. Harward, M. Gardiner, **L. Hsiao**, and M. Wirthlin

 [ieeexplore.ieee.org/document/7160058](https://ieeexplore.ieee.org/document/7160058)

2014 **A Fault Injection System for Measuring Soft Processor Design Sensitivity on Virtex-5 FPGAs**

FASA

N. Harward, M. Gardiner, **L. Hsiao**, and M. Wirthlin

 [link.springer.com/chapter/10.1007%2F978-3-319-14352-1\\_5](https://link.springer.com/chapter/10.1007%2F978-3-319-14352-1_5)