

# Gaukas Wang

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## Education

**University of Colorado Boulder**

Boulder, CO

*Electrical and Computer Engineering*

**Bachelor of Science (B.Sc.)** *summa cum laude*

2018 - 2021

**Doctor of Philosophy (Ph.D.)**, Advisor: Prof. Eric Wustrow

2022 - est. 2027

## Research Area/Interest

**Anti-Censorship:** Measure and analyze new censorship systems, build circumvention systems/solutions.

Priority

**Computer Networking:** Build and improve various network systems.

**Privacy:** Design and implement new Privacy Enhancement Technologies.

**Cybersecurity:** More general topics including Cryptography, Web security, and Software Reverse Engineering

## Selected Publications

**Extended Abstract: Oscur0: One-shot Circumvention without registration**

FOCI 2024

*M. Chen, J. Wampler, A. Alaraj, G. Wang, E. Wustrow*

**Just add WATER: WebAssembly-based Circumvention Transports**

FOCI 2024

*E. Chi, G. Wang, J.A. Halderman, E. Wustrow, J. Wampler*

**MRTOM: Mostly Reliable Totally Ordered Multicast**

ICDCS 2023

*Z Liu, D Grunwald, J Izraelevitz, G Wang, S Ha*

**Chasing Shadows: A security analysis of the ShadowTLS proxy**

FOCI 2023

*G. Wang, Anonymous, J. Sippe, H. Chi, E. Wustrow*

**Acuerdo: Fast Atomic Broadcast over RDMA**

ICPP 2022

*J. Izraelevitz, G. Wang, R. Hanscom, K. Silvers, T.S. Lehman, G. Chockler, A. Gotsman*

## On-going Research

**Leveraging flexibility of WebAssembly in building censorship-resistant pluggable transports**

*Designing a novel network transport with good flexibility/pluggability using WebAssembly*

**Investigating potential censorship on TLS-over-TLS**

*Examining rumors about a certain censorship mechanism targeting TLS handshake in a tunnel*

**Portraying Identifiable Response Ossification**

*Revealing the fundamental characteristics contributed to Active Probing vulnerabilities*

## Selected Projects

**W.A.T.E.R.: WebAssembly Transport Executable Runtime**

Since 2023

*Next-generation engine for WebAssembly-based network transport protocols*

**TLS/QUIC Fingerprinting**

Since 2021

*Fingerprinting TLS and QUIC connections through Deep Packet Inspection (DPI)*

- **clienhellod** A TLS ClientHello and QUIC Initial Packet parser for fingerprinting purposes
- **uTLS** Low-level access TLS ClientHello mimicry library allowing low-level access to TLS Handshake
- **uQUIC** Low-level access QUIC Initial Packet mimicry library allowing low-level access to QUIC Handshake
- **TLSFingerprint.io** Online museum for collected TLS client fingerprints on a network tap at CU Boulder
- **quic.TLSFingerprint.io** Online museum for collected QUIC client fingerprints on a network tap at CU Boulder

**CVE (Common Vulnerabilities and Exposures)**

*Individual contributions to the CVE<sup>®</sup> Program*

- **CVE-2021-36539** Unbound File Access vulnerabilities in Canvas LMS by *Instructure, Inc.*
- **CVE-2021-28681** DTLS Man-in-the-Middle(MITM) risks in pion/webRTC by *Pion*

Copy generated on **January 20, 2024**. Check [gauk.as/cv](https://gauk.as/cv) for possible new versions.

## Professional Experience

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### **Fullstack Software Engineer**

*Intelepeer Cloud Communications LLC*

C++, Javascript, PHP, Python, SQL

*Aug 2021 - June 2022*

## Research Experience

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### **Graduate Student Researcher**

*University of Colorado Boulder*

Censorship, Cybersecurity, Network

*Aug 2022 - Present*

### **Network Research Engineer**

*at Psiphon, Inc. through Refraction Networking*

Network, Censorship

*July 2021 - Apr 2022*

### **Undergraduate Student Researcher**

*University of Colorado Boulder (Mentored Independent Study Program)*

Network, Censorship

*Jan 2021 - May 2021*

### **Undergraduate Research Assistant**

*University of Colorado Boulder*

Distributed Systems, Network, RDMA

*Apr 2020 - Apr 2021*

## Teaching Experience

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### **Teaching Assistant**

*University of Colorado Boulder*

**ECEN 4133/5133:** Fundamentals of Computer Security

*Fall 2023*

**ECEN 4313/5313:** Concurrent Programming

*Fall 2020 / Fall 2022*

**ECEN 1310:** C Programming for ECE

*Spring 2020 / Spring 2021*

## Awards & Other Honors

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**ECEE Outstanding Accomplishment Award**

*May 2021*

**ECEE Excellence Fellowship**

*Aug 2022*