Gaukas Wang

E-mail: i@gaukas.wang | GitHub: github.com/gaukas | Portfolio: gauk.as

Education

University of Colorado Boulder — Boulder, CO
Electrical and Computer Engineering

Bachelor of Science (B.Sc.) with Latin Honor: **Summa Cum Laude** — *May 2021*

***Doctor of Philosophy (Ph.D.)**, Advisor: Prof. Eric Wustrow* — *(est.) May 2027*

Research Area/Interest

Anti-Censorship: Censorship Measurement, Analysis, Circumvention/Evasion

Computer Network: Network Measurement, Optimization, Security

Privacy: Application/User Fingerprint, Online Privacy Violation

Cybersecurity: Application Security, Cryptography, Malware Analysis

Selected Publications

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, TS Lehman, G Chockler, A Gotsman

On-going Research

Fingerprinting QUIC Clients/Connections
Investigating potential vulnerabilities on QUIC Client being identified with Deep Packet Inspection

Building Censorship-Resistant Pluggable Transport with WebAssembly
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

Selected Projects

W.A.T.E.R.: WebAssembly Transport Executable Runtime — 2023-
Next-generation engine for WebAssembly-based network transport protocols — *Open Source*

TLS/QUIC Fingerprinting — 2021-
Fingerprinting TLS and QUIC connections with Deep Packet Inspection (DPI) — *Open Source*

- **clienthellod** 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

Helios — 2021
Cloud-native remote watchdog for server cluster status monitoring

CVE (Common Vulnerabilities and Exposures)
Individual contributions to the CVE® 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*

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Professional Experience

Fullstack Software Engineer — C++, PHP, Python, MySQL, REST API
Intelepeer Cloud Communications LLC — *Aug 2021 - June 2022*

Research Experience

Graduate Researcher — Censorship, Cybersecurity, Network
University of Colorado Boulder — *Aug 2022 - Present*

Temporary Network Research Engineer — Network, Censorship
Psiphon, Inc., Refraction Networking — *July 2021 - Apr 2022*

Undergraduate Independent Researcher — Network, Censorship
University of Colorado Boulder (Independent Study Program, mentored) — *Jan 2021 - May 2021*

Undergraduate Research Assistant — Distributed Systems, Network, RDMA
University of Colorado Boulder — *Apr 2020 - Apr 2021*

Teaching Experience

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*