Gaukas Wang

i@gauk.as | GitHub: @gaukas | Portfolio: gauk.as

Education

University of Colorado Boulder Boulder, CO
Electrical and Computer Engineering

Bachelor of Science (B.Sc.) *summa cum laude* *2018 - 2021*

Master of Science (M.Sc.) *2022 - 2024*

Doctor of Philosophy (Ph.D.) advised by Prof. Eric Wustrow *2022 - 2027 Est.*

Research Area/Interests

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

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
M. Chen, J. Wampler, A. Alaraj, G. Wang, E. Wustrow *FOCI 2024*

Just add WATER: WebAssembly-based Circumvention Transports
E. Chi, G. Wang, J.A. Halderman, E. Wustrow, J. Wampler *FOCI 2024*

MRTOM: Mostly Reliable Totally Ordered Multicast
Z. Liu, D. Grunwald, J. Izraelevitz, G. Wang, S. Ha *ICDCS 2023*

Chasing Shadows: A security analysis of the ShadowTLS proxy
G. Wang, Anonymous, J. Sippe, H. Chi, E. Wustrow *FOCI 2023*

Acuerdo: Fast Atomic Broadcast over RDMA
J. Izraelevitz, G. Wang, R. Hanscom, K. Silvers, T.S. Lehman, G. Chockler, A. Gotsman *ICPP 2022*

Impactful Contributions

WATER: WebAssembly Transport Executable Runtime
Next-generation engine for WebAssembly-based network transport protocols *Since 2023*

- **water**/**water-rs** WATER Runtime library written in Go/Rust, respectively
- **watm** WebAssembly Transport Module builder library written in Go (TinyGo)
- **watermob** `gomobile`-compatible wrapper for running **WATER** on mobile platforms (Android/iOS)

TLS/QUIC Fingerprinting
Fingerprinting TLS and QUIC connections through Deep Packet Inspection (DPI) *Since 2021*

- **clienthellod** TLS ClientHello/QUIC Initial Packet reflection service
- **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 showcase for TLS Client Hello fingerprints collected @ CU Boulder
- **quic.TLSFingerprint.io** Online showcase for QUIC client Initial Packet fingerprints collected @ CU Boulder

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*

Awards & Honors

OTF Information Controls Fellowship Program (ICFP)
Open Technology Fund — *2024-2025*

ECEE University Graduate Program Support Scholarship
University of Colorado Boulder — *Dec 2023*

ECEE Excellence Fellowship
University of Colorado Boulder — *Aug 2022*

ECEE Outstanding Accomplishment Award
University of Colorado Boulder — *May 2021*

Professional Experience

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

Fullstack Software Engineer — C++, Javascript, PHP, Python, SQL
IntelePeer Cloud Communications LLC. — *Aug 2021 - June 2022*

Temporary Researcher — Network, Censorship
University of Colorado Boulder, with Prof. Eric Wustrow and Psiphon, Inc. — *July 2021 - Apr 2022*

Undergraduate Research Assistant (Independent Study) — Network, Censorship
University of Colorado Boulder, with Prof. Eric Wustrow — *Jan 2021 - May 2021*

Undergraduate Research Assistant — Distributed Systems, Network, RDMA
University of Colorado Boulder, with Prof. Joe Izraelevitz — *Apr 2020 - Apr 2021*

Professional Service

Reviewer
Invited reviewer at peer-reviewed venue/proceedings

ICECET 2024: The 4th International Conference on Electrical, Computer and Energy Technologies — *2024*

Teaching

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*