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 Enhancement Technologies: Design and implement novel technologies protecting computer and online privacy.

... plus other general topics including cryptography, application/binary 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

Open Technology Fund Information Controls Fellowship Program
Open Technology Fund   *2024-2025*

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

Information Controls Fellow   **WATER**
University of Colorado Boulder   *Sept 2024 - Aug 2025*

Graduate Student Researcher   Anti-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 by organizers of peer-reviewed venues
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*