

# Gaukas Wang

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## Education

<b>University of Colorado Boulder</b> <i>Electrical and Computer Engineering</i>	Boulder, CO
<b>Bachelor of Science (B.Sc.)</b> <i>summa cum laude</i>	2018 - 2021
<b>Doctor of Philosophy (Ph.D.)</b> , Advisor: Prof. Eric Wustrow	2022 - est. 2027

## Research Area/Interest

<b>Anti-Censorship:</b> Measure and analyze new censorship systems, build circumvention systems/solutions.	Priority
<b>Computer Networking:</b> Build and improve various network systems.	
<b>Privacy:</b> Design and implement new Privacy Enhancement Technologies.	
<b>Cybersecurity:</b> More general topics including Cryptography, Web security, and Software Reverse Engineering	

## Selected Publications

<b>Just add WATER: WebAssembly-based Circumvention Transports</b> <i>Erik Chi, G Wang, J. Alex Halderman, Eric Wustrow, Jack Wampler</i>	arXiv, submitted to FOCI 2024
<b>MRTOM: Mostly Reliable Totally Ordered Multicast</b> <i>Z Liu, D Grunwald, J Izraelevitz, G Wang, S Ha</i>	ICDCS 2023
<b>Chasing Shadows: A security analysis of the ShadowTLS proxy</b> <i>G Wang, Anonymous, J Sippe, H Chi, E Wustrow</i>	FOCI 2023
<b>Acuerdo: Fast Atomic Broadcast over RDMA</b> <i>J Izraelevitz, G Wang, R Hanscom, K Silvers, TS Lehman, G Chockler, A Gotsman</i>	ICPP 2022

## On-going Research

<b>Leveraging flexibility of WebAssembly in building censorship-resistant pluggable transports</b> <i>Designing a novel network transport with good flexibility/pluggability using WebAssembly</i>
<b>Investigating potential censorship on TLS-over-TLS</b> <i>Examining rumors about a certain censorship mechanism targeting TLS handshake in a tunnel</i>
<b>Portraying Identifiable Response Ossification</b> <i>Revealing the fundamental characteristics contributed to Active Probing vulnerabilities</i>

## Selected Projects

<b>W.A.T.E.R.: WebAssembly Transport Executable Runtime</b> <i>Next-generation engine for WebAssembly-based network transport protocols</i>	Since 2023
<b>TLS/QUIC Fingerprinting</b> <i>Fingerprinting TLS and QUIC connections through Deep Packet Inspection (DPI)</i> <ul style="list-style-type: none"><li><b>clienthellod</b> A TLS ClientHello and QUIC Initial Packet parser for fingerprinting purposes</li><li><b>uTLS</b> Low-level access TLS ClientHello mimicry library allowing low-level access to TLS Handshake</li><li><b>uQUIC</b> Low-level access QUIC Initial Packet mimicry library allowing low-level access to QUIC Handshake</li><li><b>TLSFingerprint.io</b> Online museum for collected TLS client fingerprints on a network tap at CU Boulder</li><li><b>quic.TLSFingerprint.io</b> Online museum for collected QUIC client fingerprints on a network tap at CU Boulder</li></ul>	Since 2021
<b>CVE (Common Vulnerabilities and Exposures)</b> <i>Individual contributions to the CVE® Program</i> <ul style="list-style-type: none"><li><b>CVE-2021-36539</b> Unbound File Access vulnerabilities in Canvas LMS by <i>Instructure, Inc.</i></li><li><b>CVE-2021-28681</b> DTLS Man-in-the-Middle(MITM) risks in pion/webrtc by <i>Pion</i></li></ul>	

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## 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*