Gaukas Wang

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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, Evasion/Circumvention

Computer Network: Network Measurement, Optimization, Security

Privacy: App 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 Client Connections — Submitted
Investigating potential vulnerabilities on QUIC Client being identified with Deep Packet Inspection

Building Censorship-Resistant Pluggable Transport w/ 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/OTHER CONTRIBUTIONS

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

uTLS
Low-level access TLS ClientHello mimicry library in Go, allowing low-level access to TLS Handshake

uQUIC
Low-level access QUIC Initial Packet mimicry library in Go, allowing low-level access to QUIC Handshake

clienthellod
A TLS ClientHello and QUIC Initial Packet parser for fingerprinting purposes

TLSFingerprint.io/QUIC.TLSFingerprint.io
Online museum for observed TLS/QUIC client fingerprints

CVE-2021-36539
Unbound File Access vulnerabilities in Canvas LMS by Instructure, Inc.

CVE-2021-28681
DTLS Man-in-the-Middle(MITM) vulnerabilities in pion/webrtc by Pion

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