

Williams Zhang Cen

✉ wzhangc1@binghamton.edu |  linkedin.com/in/wzhangc1 |  wzhangc1.github.io

Education

Binghamton University, State University of New York

PhD in Computer Science

Present

MS in Computer Science

Dec 2022

BS in Computer Science

May 2020

Broome Community College, State University of New York

AS in Computer Science

May 2018

Coursework: Algorithms, Architecture, Artificial Intelligence, Compiler Design, Computer Security, Database System, Hardware & Security Systems, Operating Systems, Programming Languages, Systems Programming

Research Interest

Compilers, Covert & Side Channels, Hardware Security, Program Augmentation, Program Verification

Publications

Peer-Reviewed

- K. Arikan, H. Tang, **W. Zhang-Cen**, Y. D. Liu, N. Abu-Ghazaleh, D. Ponomarev. "Secure Caches for Compartmentalized Software." **USENIX Security 2025**.
- K. Arikan, A. Farrell, **W. Zhang-Cen**, J. McMahon, B. Williams, Y. D. Liu, N. Abu-Ghazaleh, and D. Ponomarev. "TEE-SHirT: Scalable Leakage-Free Cache Hierarchies for TEEs." **NDSS Symposium 2024**.

Under Review

- Monitoring Isolated Programs Through Side Channels.
- Exploring New Covert and Side Channel in NVIDIA Tensor Cores.
- Program Verification on FPGAs Using Ring Oscillators.

Experience

Research Assistant | Binghamton University | Binghamton, NY

Jan 2022–Present

- Contributed to academic research on computer security and side-channel attacks.
- Assisted in providing benchmarks, running experiments, and analyzing results.

Teaching Assistant | Binghamton University | Binghamton, NY

Jan 2021–May 2023

- *OOP & Data Structures* and *Computer Architecture* - Led weekly lab sessions.
- Provided teaching support by grading assignments and holding office hours.

Computer Science Tutor | Broome Community College | Binghamton, NY

Jan 2017–May 2018

- Proctored daily an open computer science lab of up to 30 students.
- Supported students in introductory-level computer science concepts.

Spanish Tutor | Broome Community College | Binghamton, NY

Jan 2017–May 2018

- Reinforced students' fluency in Spanish through individual meetings.
- Cultivated new vocabulary by emulating oral and written interactions.

Skills

C, C++, CUDA, LLVM, perf, Python

Additional: Arduino, C#, CSS, Git, Haskell, HTML, Java, JavaScript, Prolog, R, Raspberry Pi, Rust, SQL

Projects

Microelectronics Security Education | binghamton.edu/computer-science/research/secedu.html

2025–Present

- Introduced young students to microelectronics through hands-on projects.
- Created website and YouTube channel to guide students through easy-to-follow videos.

LLVM Transformation Passes on SPEC Benchmarks

2024

- Automated IR generation and compilation of C/C++ based on SPEC benchmarks.
- Used LLVM to apply transformation passes to arbitrarily insert custom instructions into programs.