QI LING

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RESEARCH INTERESTS

I want to make computer systems more efficient and secure. Currently, my work focuses on computer micro-architecture, but my interest spans many other fields in computer architecture and operating systems.

EDUCATION

- **University of Michigan** **Expected graduation date: 2024**
  Bachelor's Degree in CS **Overall GPA: 3.88/4**
  College of Engineering
- **Shanghai Jiao Tong University** **Expected graduation date: 2024**
  Bachelor's Degree in ECE **Overall GPA: 3.79/4**
  UM-SJTU Joint Institute

AWARDS AND HONORS

- **ACM Student Research Competition 2nd Place Award** **2023**
  Presented a poster and gave a 10min talk at MICRO'23
- **ACM MICRO Student Travel Grant** **2023**
- **Dean's Honor List** **2022, 2023**
- **Jackson and Murial Lum Scholarship** **2022, 2023**
  5 recipients each year
- **SJTU Undergraduate Excellence Scholarship** **2021**

PEER-REVIEWED WORKS

- **Accurate Detection and Assessment of Spectre-PHT Gadget** **August 2023**
  Qi Ling and Yi Ren, Baris Kasikci, Shuwen Deng
  Won 2nd Place at MICRO'23 Student Research Competition
  Submitted to ASPLOS'24
- **Towards Fine-Grained, High-Coverage Internet Monitoring at Scale** **June 2023**
  Hongyu Wu, **Qi Ling**, Penghui Mi, Chaoyang Ji, Yinliang Hu, Yibo Pi
  Accepted by APNet'23

RESEARCH EXPERIENCE

- **EFESLAB, University of Michigan** **January 2023 - August 2023**
  Advisors: Shuwen Deng and Baris Kasikci
  Detecting and evaluating Spectre-PHT gadgets in programs.
  - Improved modelling of Spectre-PHT gadget by accounting for *Windowing Primitive*.
  - Identified limitations of existing Spectre-PHT gadget scanners.
  - Proposed and implemented a new approach, which models *Windowing Primitive* at runtime.
  - Validated our approach and evaluated it against SOTA scanners on 8 programs.

- **Network Measurement and System Lab, SJTU** **August 2021 - August 2022**
  Advisor: Yibo Pi
  Optimizing the accuracy and coverage of large-scale network monitoring.
  - Challenged two root assumptions of conventional network monitoring practice with experiments.
  - Proposed and implemented a greedy end-to-end network monitoring approach.
  - Evaluated the accuracy, coverage and overhead of our approach.

TECHNICAL SKILLS

- **Programming Languages**: C/C++, Rust, Elm, Python, Matlab, Mathematica, Latex, JavaScript, Verilog, Assembly, Bash
- **Software Tools**: LLVM, Honggfuzz, Syzkaller, Linux Perf, Gem5, Git, Docker, Zmap

RELEVANT COURSE WORK

- **Math Courses**
  - Linear Algebra A^+
  - Discrete Mathematics A^+
  - Probabilistic Methods in Engineering A^+
- **Computer Science Courses**
  - Data Structures and Algorithms A^+
  - Introduction to Computer Organization A^+
  - Introduction to Computer Security A^+
  - Introduction to Operating Systems & Advanced Projects A^+
  - Introduction to Cryptography A^-
  - Compiler Construction --
  - Introduction to Machine Learning --