

Elisa Tsai (Wentao Cai)

Ph.D. Student
Computer Science and Engineering
University of Michigan
eltsai@umich.edu | Github: github.com/eltsai

EDUCATION

University of Science and Technology of China (USTC)

B.S. in Computer Science and Technology

Hefei, PRC

June 2020

University of Michigan

Ph.D. candidate in Computer Science and Engineering, advised by Prof. Atul Prakash

Ann Arbor, US

2020.9 - present

RESEARCH INTERESTS

A big challenge in today's Internet is protecting users from malicious actors — ISPs that surveil and tamper with user traffic, scammers that leverage social engineering tricks to gain unfair financial profit, etc. My goal is to improve user privacy, anonymity, online security, and user awareness in hostile network environments. The techniques I am using include Internet measurement and techniques such as machine learning and natural language processing. My current research lies in the intersection of network security and machine learning.

PEER-REVIEWED PUBLICATION

1. **Elisa Tsai**, Ram Sundara Raman, Atul Prakash, Roya Ensafi, Modeling and Detecting Internet Censorship Events. Proceedings on Network and Distributed System Security (**NDSS**) Symposium 2024, Feb - Mar 2024.
2. **Elisa Tsai**, Deepak Kumar, Ram Sundara Raman, Gavin Li, Yael Eiger, Roya Ensafi, CERTainty: Detecting DNS Manipulation using TLS Certificates. Proceedings on Privacy Enhancing Technologies Symposium (**PETS**), July 2023.
3. Kevin Loughlin, Ian Neal, Jiacheng Ma, **Elisa Tsai**, Ofir Weisse, Satish Narayanasamy, and Baris Kasikci. "DOLMA: Securing Speculation with the Principle of Transient Non-Observability." **USENIX** Security Symposium, August 2021.

WORK EXPERIENCE

Google Summer of Code - Honeynet RiotPot

Contributor

2023.6 - 2023.8

- **Description:** I contributed to Riotpot, an IoT and OT honeypot, with more protocols for emulation to increase the honeypot's relevance to real-world scenarios. The project is approved by GSoC and Honeynet Organization.

SELECTED PROJECTS

Social Engineering Scam Detection

Lead student

On-going

- **Description:** We analyze a dataset of scam and benign websites' terms and conditions. By comparing the discrepancies between the original website and the terms and conditions of using an LLM-based assistant, we identify the hidden services in the scamming terms and conditions. This project is funded by OpenAI.

TEACHING EXPERIENCE

Computer & Network Security [EECS 588](#)

Graduate Student Instructor (GSI)

Ann Arbor, USA

2024.1 - 2024.4

- **Class Description:** This is a seminar-based course with an extensive reading list on various computer and network security topics.

Secure and Trustworthy Machine Learning [EECS 598-012](#)

Graduate Student Instructor (GSI)

Ann Arbor, USA

2023.1 - 2023.4

- **Class Description:** This class discusses different types of adversarial machine learning attacks and their corresponding defenses, as well as model stealing, poisoning, fairness, and privacy.

Data Structures and Algorithms [EECS 281](#)

Graduate Student Instructor (GSI)

Ann Arbor, USA

2023.9 - present

Operating Systems

Teaching Assistant

Hefei, China

2019.2 - 2019.7

COMMUNITY BUILDING

SECRT (SECurity Reading Is Terrific) Reading Group Host

Organizing the bi-weekly security paper reading group at University of Michigan since 2021.

Ann Arbor, MI, USA

2021.5 - present

CSEG Social Co-Chair

Organizing social events for CSE graduate students

Ann Arbor, MI, USA

2022.5 - 2023.4

CSEG Outreach Chair

Organizing outreach events and workshops for different groups of children interested in CS.

Ann Arbor, MI, USA

2022.5 - 2023.4

OTHER EXPERIENCE

International Genetically Engineered competition (Gold Medal)

USTC Team

2017.5 - 2017.11

- **Python/Front-end:** A web application for synthetic biology community, with a powerful Biobricks search engine and a forum for biological ideas sharing, constructed on the basis of iGEM's official database.

SKILLS

- **Programming:** x86 Assembly, Verilog, C, C++, Bash, Python, Golang.
- **Software Engineering:** Git Workflow, Software Testing and Debugging Tools.
- **Language:** English (fluent), Chinese (native).