

# Chongzhou Fang

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## Higher Education

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- **University of California, Davis** Davis, USA  
*PhD in Computer Engineering* Sep. 2020 - Jun. 2025 (Expected)  
– Advised by Prof. Houman Homayoun
- **Southeast University** Nanjing, China  
*BSc in Information Science* Aug. 2016 - Jun. 2020

## Research Interest

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- System & System Security
  - Cloud Security
  - Side-Channel Attacks
- Serverless Cloud
- LLM for System Security

## Industrial Research Experience

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- **Intel Programmable Solution Group (PSG)**  
*Project: Securing Intel's Heterogeneous Computing Platform.* Jun. 2022 - Sep. 2022
  - Develop new security features for Intel FPGAs.
  - Develop a library that handles secure communication and attestation protocols between CPU and peripheral FPGAs.

## Publications

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| [UsenixSecurity'24a] | <b>Large Language Models for Code Analysis: Do LLMs Really Do Their Job?</b><br><i>Chongzhou Fang, Ning Miao, Shaurya Srivastav, Jialin Liu, Ruoyu Zhang, Ruijie Fang, Asmita Asmita, Ryan Tsang, Najmeh Nazari, Han Wang and Houman Homayoun.</i>     |
| [UsenixSecurity'24b] | <b>Forget and Rewire: Enhancing the Resilience of Transformer-based Models against Bit-Flip Attacks</b><br><i>Najmeh Nazari, Hosein Mohammadi Makrani, Chongzhou Fang, Hossein Sayadi, Setareh Rafatirad, Khaled N. Khasawneh and Houman Homayoun.</i> |
| [UsenixSecurity'24c] | <b>Fuzzing BusyBox: Leveraging LLM and Crash Reuse for Embedded Bug Unearthing</b><br><i>Asmita Asmita, Yaroslav Oliynyk, Michael Scott, Ryan Tsang, Chongzhou Fang and Houman Homayoun.</i>   |

- [ISQED'24] **LLM-FIN: Large Language Models Fingerprinting Attack on Edge Devices**  
*Najmeh Nazari, Furi Xiang, Chongzhou Fang, Hosein Mohammadi Makrani, Aditya Puri, Kartik Patwari, Hossein Sayadi, Setareh Rafatirad, Chen-Nee Chuah and Houman Hodayoun.*
- [ISCAS'24] **Securing On-Chip Learning: Navigating Vulnerabilities and Potential Safeguards in Spiking Neural Network Architectures**  
*Najmeh Nazari, Kevin Immanuel Gubbi, Banafsheh Saber Latibari, Muhtasim Alam Chowdhury, Chongzhou Fang, Avesta Sasan, Setareh Rafatirad, Houman Hodayoun and Soheil Salehi.*
- [DATE'24] **SpecScope: Automating Discovery of Exploitable Spectre Gadgets on Black-Box Microarchitectures**  
*Najmeh Nazari, Behnam Omid, Chongzhou Fang, Hosein Mohammadi Makrani, Setareh Rafatirad, Avesta Sasan, Houman Hodayoun and Khaled N. Khasawneh.*
- [BIBM'23] **Introducing an Open-Source Python Toolkit for Machine Learning Research in Physiological Signal based Affective Computing**  
*Ruijie Fang, Ruoyu Zhang, Elahe Hosseini, Chongzhou Fang, Setareh Rafatirad and Houman Hodayoun.*
- [CCS'23] **Gotcha! I Know What You are Doing on the FPGA Cloud: Fingerprinting Co-Located Cloud FPGA Accelerators via Measuring Communication Links**  
*Chongzhou Fang, Ning Miao, Han Wang, Jiacheng Zhou, Tyler Sheaves, John M Emmert, Avesta Sasan and Houman Hodayoun.*
- (CSAW'24 Finalist) **Side Channel-Assisted Inference Attacks on Machine Learning-Based ECG Classification**  
*Jialin Liu, Houman Hodayoun, Chongzhou Fang, Ning Miao and Han Wang.*
- [UbiComp/ISWC'23 Adj.] **Privee: A Wearable for Real-Time Bladder Monitoring System**  
*Ruoyu Zhang, Ruijie Fang, Chongzhou Fang, Houman Hodayoun and Gozde Goncu Berk.*
- [CODES+ISSS'23] **Special Session: Mitigating Side-channel Attacks through Circuit to Application Layer Approaches**  
*Nima Kavand, Armin Darjani, Jens Trommer, Giulio Galderisi, Thomas Mikolajick, Nicolai Müller, Amir Moradi, Chongzhou Fang, Ning Miao, Han Wang, Sai Manoj Pudukotai Dinakarrao, Houman Hodayoun, Benjamin Hettwer, Luca Parrini and Akash Kumar*
- [DAC'23] **Don't Cross Me! Cross-Layer System Security**  
*Najmeh Nazari, Chongzhou Fang, Sai Manoj PD, Houman Hodayoun.*
- [IEEE Micro] **Adversarial Attacks Against Machine Learning-Based Resource Provisioning Systems**  
*Najmeh Nazari, Hosein Mohammadi Makrani, Chongzhou Fang, Behnam Omid, Setareh Rafatirad, Hossein Sayadi, Khaled N. Khasawneh and Houman Hodayoun.*
- [NDSS'23] **HeteroScore: Evaluating and Mitigating Cloud Security Threats Brought by Heterogeneity**

*Chongzhou Fang, Najmeh Nazari, Behnam Omid, Han Wang, Aditya Puri, Manish Arora, Setareh Rafatirad, Houman Homayoun and Khaled N. Khasawneh.*

[NDSS'22]

**Repttack: Exploiting Cloud Schedulers to Guide Co-Location Attacks**  
*Chongzhou Fang, Han Wang, Najmeh Nazari, Behnam Omid, Avesta Sasan, Khaled N. Khasawneh, Setareh Rafatirad and Houman Homayoun.*

## Teaching and Mentoring

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- **ECS 152A: Computer Networks (~50 Students)** UC Davis  
*Teaching Assistant* Winter 2022 & 2024
  - Deliver a 50-min lecture every week and host office hour Q&A sessions.
- **EEC 170: Computer Architecture (~80 Students)** UC Davis  
*Teaching Assistant* Fall 2023 & 2024
  - Provide lab assignment benchmarks and host office hour Q&A sessions.
- **EEC 172: Embedded Systems (~70 Students)** UC Davis  
*Teaching Assistant* Winter & Spring 2021
  - Teach lab sessions and hosting office hour Q&A sessions.
- **EEC 193B: Internet of Things Project (~20 Students)** UC Davis  
*Teaching Assistant* Spring 2022
  - Design lab projects and teach lab sessions.
- **EEC 001: Introduction To Electrical And Computer Engineering (~280 Students)** UC Davis  
*Teaching Assistant* Fall 2021
  - Teach lab sessions and host office hour Q&A sessions.
- **Graduate Student Mentor for Undergrad Students**
- **Research Mentorship:**
  - Wei Shao, PhD Student at UC Davis, with Prof. Houman Homayoun
  - Ning Miao, PhD Student at UC Davis, with Prof. Houman Homayoun
  - Jialin Liu, PhD Student at Temple University, with Prof. Han Wang
  - Farhad Alemi, MSc Student at UC Davis, with Prof. Houman Homayoun and Prof. Setareh Rafatirad
  - Jiacheng Zhou, MSc Student at UC Davis, with Prof. Houman Homayoun
  - Jiawei Liu, MSc Student at UC Davis, with Prof. Houman Homayoun
  - Wenjun Tu, MSc Student at UC Davis, with Prof. Houman Homayoun
  - Shaurya Srivastav, Undergraduate Student at UC Davis, with Prof. Houman Homayoun
  - Jinsi Guo, Undergraduate Student at UC Davis, with Prof. Houman Homayoun
  - Aditya Puri, High School Student at Foothill High School (Pleasanton, CA), with Prof. Houman Homayoun and Dr. Manish Arora

## Presentations

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- **Large Language Models for Code Analysis: Do LLMs Really Do Their Job?**  
at Usenix Security Symposium, Philadelphia, PA, Aug. 14, 2024.
- **Gotcha! I Know What You are Doing on the FPGA Cloud: Fingerprinting Co-Located Cloud FPGA Accelerators via Measuring Communication Links**  
at ACM Conference on Computer and Communications Security (CCS), Copenhagen, Denmark, Nov. 28, 2023.
- **HeteroScore: Evaluating and Mitigating Cloud Security Threats Brought by Heterogeneity**  
at Network and Distributed System Security Symposium (NDSS), San Diego, CA, Mar. 2, 2023.
- **Reptack: Exploiting Cloud Schedulers to Guide Co-Location Attacks**  
at Network and Distributed System Security Symposium (NDSS), San Diego, CA, Apr. 26, 2022.

## Awards

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- CSAW Applied Research Competition Finalist, 2024.
- ACM CCS Student Travel Grant, 2023.

## Grant Writing Experience

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- *Collaborative Research: Frameworks: Advancing Computer Hardware and Systems' Research Capability, Reproducibility, and Sustainability with the gem5 Simulator Ecosystem*, NSF, 2023.
  - Award Amount: \$2.6M
  - Contributed to proposing security support in gem5.
- Google Cloud Research Credits, 2023.
  - Award Amount: \$10,000
  - Composed a proposal in utilizing Google Cloud for cloud reserach.
- *Collaborative Research: SaTC: CORE: Medium: Targeted Microarchitectural Attacks and Defenses in Cloud Infrastructure*, NSF, 2022
  - Award Amount: \$1.2M
  - Contributed a section regarding cloud co-location attacks.
- *Fingerprinting FPGA Circuits Using Communication Interfaces*, NSF CHEST, 2022.
  - Award Amount: \$100,000
  - Composed a proposal in cloud FPGA fingerprinting attack.