

# Licheng Luo

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## Education

**University of Illinois at Urbana-Champaign,** Urbana-Champaign, IL  
**M.S. in Computer Science (With thesis)** Expected Graduation Date: May 2022  
Coursework: Operating System Design, Computer System Organization, Computer Vision, Algorithmic Market  
Microstructure, Machine Learning, Intro to Deep Learning, Advanced Computer Security  
**GPA: 4.00/4.00**

**University of Illinois at Urbana-Champaign,** Urbana-Champaign, IL  
**B.S. in Computer Science** 2016-2020  
Coursework: Data Structures, System Programming, Distributed Systems, Computer Architecture, Programming  
Languages, Database Systems, Algorithms & Models of Computation, Computer Security, Applied Machine Learning,  
Advanced Computer Networks  
**GPA: 3.98/4.00**

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## Work Experience

**Jump Trading | Software Engineer Intern** Chicago, IL  
-Intern Project: An E2E regression testing framework written in Python and C++ for proprietary data feeds. It integrates with Jenkins and can be run either on demand or on a nightly basis. June 2021-August 2021

**Facebook | Software Engineer Intern** Remote  
-Interning at Metrics Consumption team. May 2020-Aug 2020  
-Intern Project: Decentralized always-on third-party reach measurement, a new ad measurement product for eligible advertisers to measure intersection across publishers through Bloom filters. Built a full stack web app to control the measurement scope in React and Redux, and a data pipeline that can process more than 2 billion rows of the upstream table within hours using C++ and Python.

**Google | Software Engineering Intern** Sunnyvale, CA  
-Interning at Data Infrastructure & Analysis, Core Systems May 2019-Aug 2019  
-Intern Project: Apres Playground. Apres is the next-generation change tracking system at Google. A playground for Apres serves as a developer tool to validate configuration changes before uploading them into production. This consists of a C++ CLI and a server.

**DRW Trading Group | Software Developer Intern** Chicago, IL  
-Member of research and infrastructure team. Working on stock market exchange network packet processing, decoding, formatting and normalizing in Java. Aug 2018-Dec 2018  
-Wrote new decoder and normalizer handling market updates from Australian Securities Exchange.

**Veriflow (Acquired by VMWare) | Backend Intern** Urbana-Champaign, IL  
-Rewrote all public and private API with autogenerated interactive documentation feature for both customers and developers using Python (Flask and Flask-Restplus). May 2018-July 2018  
-Improved API with a clearer and consistent workflow and provided better response performance and authorization.  
-Wrote unit tests for new endpoints and rewrote API client.

**Metrology: A Web App for Manufacturing Analysis | Undergraduate Research Assistant** Urbana-Champaign, IL  
-Biweekly report to sponsor Caterpillar with Prof. Ferreira. Fall 2017-Spring 2018  
-Implemented new functionalities for display and comparison, built and improved front-end user interface using JavaScript and React/Redux.  
-Built and improved back-end workflow of alignment and segmentation for CAD model and point cloud data using JavaScript.

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## Publications

1. [USENIX Security '22] Jaron Mink, **Licheng Luo**, Natã M. Barbosa, Olivia Figueira, Yang Wang, and Gang Wang. "DeepPhish: Understanding User Trust Towards Artificially Generated Profiles in Online Social Networks". In Proceedings of *The 31st USENIX Security Symposium (USENIX Security)*, Boston, MA, USA, August 2022.

2. [NDSS '22] Thomas Yurek, **Licheng Luo**, Jaiden Fairoze, Aniket Kate, and Andrew Miller. "hbACSS: How to Robustly Share Many Secrets". In Proceedings of *The Network and Distributed System Security (NDSS) Symposium*, San Diego, February 2022.

3. [CCS '21] Qingying Hao, **Licheng Luo**, Steve TK Jan, and Gang Wang. "It's Not What It Looks Like: Manipulating Perceptual Hashing based Applications". In Proceedings of *The ACM Conference on Computer and Communication Security (CCS)*, Seoul, South Korea, November 2021.

4. [USENIX Security '21] Riccardo Paccagnella, **Licheng Luo**, and Christopher W. Fletcher. "Lord of the Ring(s): Side Channel Attacks on the CPU On-Chip Ring Interconnect Are Practical". In Proceedings of *The 30th USENIX Security Symposium (USENIX Security)*, Vancouver, BC, Canada, August 2021 (Artifact Evaluated).

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## Research and Projects

### Black-box Adversarial Attacks on Perceptual Hashing

-Manipulating perceptual-hashing-based applications using our proposed black-box attacks.  
-Paper "It's Not What It Looks Like: Manipulating Perceptual Hashing based Applications" accepted by *CCS 2021*.

Urbana-Champaign, IL  
Summer 2020-Spring 2021

### FPSG | Microarchitecture Attacks on the Ring Bus

-Discovered practical side-channel attacks on the ring interconnect.  
-Paper "Lord of the Ring(s): Side Channel Attacks on the CPU On-Chip Ring Interconnect Are Practical" accepted by *USENIX Security 2021*.

Urbana-Champaign, IL  
Spring 2020-Now

### Robustly sharing many secrets using hbACSS

-We designed and implemented a new polynomial commitment scheme based on Bulletproofs and extended it to build hbACSS, a suite of complete secret sharing protocols that are (quasi)linear in both computation and communication overhead.  
-Preprint available and paper in submission

Urbana-Champaign, IL  
Fall 2019-Spring 2021

### Network & Security Research Group | Global Analysis of DNS

-Wrote measurement and analysis infrastructure in GO and python. Set up BIND servers.  
-Collected DNS and HTTP requests from over 50000 IPs and conducted analysis.

Urbana-Champaign, IL  
Spring 2019-Summer2019

### RoomUp: A Web App for Roommate Matching

-GitHub Repo: <https://github.com/TastyPeach/RoomUp>  
-Wrote the whole frontend in pure React and Semantic UI and designed MySQL Database schema and the API workflow. Helped build Django API.

Urbana-Champaign, IL  
Spring 2018

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## Teaching Experience

### University of Illinois at Urbana-Champaign | Teaching Assistant

- For CS498DL Introduction to Deep Learning  
- Updating assignments, writing quizzes and holding office hour.

Urbana-Champaign, IL  
Spring 2021

### University of Illinois at Urbana-Champaign | Teaching Assistant

- For CS225 Data Structures (Core CS curriculum)  
- Holding lab sections and holding office hour.

Urbana-Champaign, IL  
Fall 2020, Fall 2021

### University of Illinois at Urbana-Champaign | Undergraduate Course Assistant

- For CS374 Introduction to Algorithms & Models of Computation (Core CS curriculum)  
- Holding discussion sections and grading homework.

Urbana-Champaign, IL  
Fall 2019-Spring 2020

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## Skills

Languages: C++, Python, JavaScript, Hack, Go, Java, C  
Frameworks: React, Redux, Node.js, D3.js, WebGL, MySQL, Flask

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## Awards & Certificates

-University Honors, Bronze Tablet  
-Coursera Certificates: Machine Learning, Financial Markets  
-2018 ITA Tech Challenge TOP50  
-Dean's List every semester