

Kevin Liao

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Research Interests

Cryptography, system security, programming languages, formal verification

Education

[M.S. in Computer Science](#), University of Illinois at Urbana-Champaign Aug. 2017–May 2019
Advisor: Andrew Miller

[B.S. in Computer Science with Honors](#), Arizona State University Aug. 2013–May 2017
Advisor: Adam Doupé

Honors & Awards

[High Assurance Cryptography Software \(HACS\) workshop invitee](#) 2020

[DFINITY scholarship](#) 2019

[National Science Foundation Graduate Research Fellowship](#) 2017

[Outstanding Undergraduate in Computer Science](#), Arizona State University 2017

[Moeur Award](#), Arizona State University 2017

Research Funding

[SaUCy: Modular Testing and Verification for Distributed Cryptography](#) 2018
Facebook, \$50,000
PI: Andrew Miller, Co-PI: [Kevin Liao](#)

[Inductive Reverse Engineering of Web Applications](#) 2016
Fulton Undergraduate Research Initiative, \$3,000
PI: [Kevin Liao](#), Advisor: Adam Doupé

Publications

* = alphabetical authorship

Manuscripts In Submission

[SoK: Computer-Aided Cryptography](#)
Manuel Barbosa, Gilles Barthe, Karthik Bhargavan, Bruno Blanchet, Cas Cremers, [Kevin Liao](#)*, Bryan Parno

[Logging to the Danger Zone: In-Memory Attacks and Defenses on System Auditing Frameworks](#)
Riccardo Paccagnella, [Kevin Liao](#), Adam Bates, Dave (Jing) Tian

[Black-Box Web Vulnerability Analysis Using White-Box Techniques](#)
[Kevin Liao](#), Connor Nelson, Zackary Crosley, and Adam Doupé

Refereed Conferences

[A Probabilistic Separation Logic](#)
Gilles Barthe, Justin Hsu, [Kevin Liao](#)*
Symposium on Principles of Programming Languages (POPL), Jan. 2020

[ILC: A Calculus for Composable, Computational Cryptography](#)
[Kevin Liao](#), Matthew A. Hammer, and Andrew Miller
Conference on Programming Language Design and Implementation (PLDI), Jun. 2019

[Behind Closed Doors: Measurement and Analysis of CryptoLocker Ransoms in Bitcoin](#)
[Kevin Liao](#), Ziming Zhao, Adam Doupé, and Gail-Joon Ahn
Symposium on Electronic Crime Research (eCrime), Jun. 2016

Refereed Workshops

[Incentivizing Blockchain Forks via Whale Transactions](#)

[Kevin Liao](#) and Jonathan Katz

Workshop on Bitcoin and Blockchain Research (BITCOIN), Apr. 2017

Books & Chapters

[Ransomware and Cryptocurrency: Partners in Crime](#)

Gail-Joon Ahn, Adam Doupé, Ziming Zhao, and [Kevin Liao](#)

Book chapter in *Cybercrime Through an Interdisciplinary Lens* ed. by Thomas J. Holt, Dec. 2016

Experience

[Max Planck Institute for Security & Privacy](#)

Researcher

Advisor: Gilles Barthe

Bochum, Germany

Aug. 2019–Present

[Max Planck Institute for Software Systems](#)

Visiting Researcher

Advisor: Gilles Barthe

Saarbrücken, Germany

Aug. 2019–Dec. 2019

[University of Illinois at Urbana-Champaign](#)

Research Assistant

Advisor: Andrew Miller

Urbana, IL, USA

Aug. 2017–Aug. 2019

[Arizona State University](#)

Research Assistant

Advisor: Adam Doupé

Tempe, AZ, USA

May 2017–Aug. 2017

[University of Maryland](#)

Research Intern

Advisor: Jonathan Katz

College Park, MD, USA

Jun. 2016–Aug. 2016

[Arizona State University](#)

Undergraduate Research Assistant

Advisors: Gail-Joon Ahn, Adam Doupé, Ziming Zhao

Tempe, AZ, USA

Mar. 2015–May 2017

Teaching

[Teaching Assistant](#), University of Illinois at Urbana-Champaign

CS498: Applied Cryptography

Fall 2018

[Undergraduate Teaching Assistant](#), Arizona State University

CSE220: Programming for Computer Engineering

CSE240: Introduction to Programming Languages

CSE110: Introduction to Programming

Spring 2017

Fall 2016

Fall 2014

Advising & Mentoring

Dhruv Bohra, Eunice Zhou (UIUC)

Fall 2018

Talks

[A Probabilistic Separation Logic](#)

Symposium on Principles of Programming Languages (New Orleans, LA, USA)

Jan. 2020

[ILC: A Calculus for Composable, Computational Cryptography](#)

Prosecco Seminar at INRIA Paris (Paris, France)

Conference on Programming Language Design and Implementation (Phoenix, AZ, USA)

Formal Methods Seminar at UIUC (Urbana, IL, USA)

Sep. 2019

Jun. 2019

Apr. 2019

[Incentivizing Blockchain Forks via Whale Transactions](#)

Workshop on Bitcoin and Blockchain Research (Sliema, Malta)

Apr. 2017

Measurement and Analysis of CryptoLocker Ransoms in Bitcoin
Symposium on Electronic Crime Research (Toronto, Canada)

Jun. 2016

Service

External

Program Committee

International Conference on Blockchain and Cryptocurrency (ICBC) 2019, 2020

Artifact Evaluation Committee

Programming Language Design and Implementation (PLDI) 2020

External Reviewer

Computer Communications 2019

Computers & Security 2019

Subreviewer

USENIX Security Symposium (USENIX) 2019

Future Generation Computer Systems (FGCS) 2018

Conference on Computer and Communications Security (CCS) 2017

Community

First Gen Scientists

Curriculum developer

Tempe, AZ, USA
Fall 2016