

# Kevin Liao

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## Research Interests

Security & privacy, cryptography, systems, formal verification

## Education

<a href="#">Ph.D. in EECS</a> , Massachusetts Institute of Technology Advisors: Henry Corrigan-Gibbs, Nickolai Zeldovich	Sep. 2020–Present
<a href="#">M.S. in Computer Science</a> , University of Illinois at Urbana-Champaign Advisor: Andrew Miller	Aug. 2017–May 2019
<a href="#">B.S. in Computer Science with Honors</a> , Arizona State University Advisor: Adam Doupé	Aug. 2013–May 2017

## Honors & Awards

<a href="#">DFINITY scholarship</a>	2019
<a href="#">National Science Foundation Graduate Research Fellowship</a>	2017
<a href="#">Outstanding Undergraduate in Computer Science</a> , Arizona State University	2017
<a href="#">Moeur Award</a> , Arizona State University	2017

## Research Funding

<a href="#">SaUCy: Modular Testing and Verification for Distributed Cryptography</a> Facebook, \$50,000 PI: Andrew Miller, Co-PI: <a href="#">Kevin Liao</a>	2018
<a href="#">Inductive Reverse Engineering of Web Applications</a> Fulton Undergraduate Research Initiative, \$3,000 PI: <a href="#">Kevin Liao</a> , Advisor: Adam Doupé	2016

## Publications

\* = alphabetical authorship

### Manuscripts In Submission

#### [High-Assurance Cryptography in the Spectre Era](#)

Gilles Barthe, Sunjay Cauligi, Benjamin Gregoire, Adrien Koutsos, [Kevin Liao](#)\*, Tiago Oliveira, Swarn Priya, Tamara Rezk, Peter Schwabe

### Refereed Conferences

#### [SoK: Computer-Aided Cryptography](#)

Manuel Barbosa, Gilles Barthe, Karthik Bhargavan, Bruno Blanchet, Cas Cremers, [Kevin Liao](#)\*, Bryan Parno  
IEEE Symposium on Security and Privacy (Oakland), May 2021

#### [Logging to the Danger Zone: In-Memory Attacks and Defenses on System Auditing Frameworks](#)

Riccardo Paccagnella, [Kevin Liao](#), Dave (Jing) Tian, Adam Bates  
ACM Conference on Computer and Communications Security (CCS), Nov. 2020

#### [A Probabilistic Separation Logic](#)

Gilles Barthe, Justin Hsu, [Kevin Liao](#)\*  
ACM SIGPLAN Symposium on Principles of Programming Languages (POPL), Jan. 2020

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

[Kevin Liao](#), Matthew A. Hammer, and Andrew Miller  
ACM SIGPLAN 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

APWG 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

[Massachusetts Institute of Technology](#)

Research Assistant

Advisors: Henry Corrigan-Gibbs, Nickolai Zeldovich

Cambridge, MA, USA

Sep. 2020–Present

[University of Porto \(FCUP\)](#)

Visiting Researcher

Advisor: Gilles Barthe, Host: Manuel Barbosa

Porto, Portugal

Feb. 2020–May 2020

[Max Planck Institute for Software Systems](#)

Visiting Researcher

Advisor: Gilles Barthe

Saarbrücken, Germany

Aug. 2019–Dec. 2019

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

Researcher

Advisor: Gilles Barthe

Bochum, Germany

Aug. 2019–Sep. 2020

[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

## Talks

[SoK: Computer-Aided Cryptography](#)

Symposium on Security and Privacy (Oakland) (San Francisco, CA, USA)

May 2021

Real World Cryptography Symposium (Online)	Jan. 2021
<a href="#">High-Assurance Cryptography in the Spectre Era</a> Workshop on Principles of Secure Compilation (Online)	Jan. 2021
<a href="#">A Probabilistic Separation Logic</a> Symposium on Principles of Programming Languages (New Orleans, LA, USA)	Jan. 2020
<a href="#">ILC: A Calculus for Composable, Computational Cryptography</a> Prosecco Seminar at INRIA Paris (Paris, France)	Sep. 2019
Conference on Programming Language Design and Implementation (Phoenix, AZ, USA)	Jun. 2019
Formal Methods Seminar at UIUC (Urbana, IL, USA)	Apr. 2019
<a href="#">Incentivizing Blockchain Forks via Whale Transactions</a> Workshop on Bitcoin and Blockchain Research (Sliema, Malta)	Apr. 2017
<a href="#">Measurement and Analysis of CryptoLocker Ransoms in Bitcoin</a> Symposium on Electronic Crime Research (Toronto, Canada)	Jun. 2016
<b>Service</b>	
<b>External</b>	
<a href="#">Program Committee</a> International Conference on Blockchain and Cryptocurrency (ICBC) 2019, 2020	
<a href="#">Artifact Evaluation Committee</a> USENIX Security Symposium 2021 Symposium on Operating Systems Design and Implementation (OSDI) 2021 Conference on Programming Language Design and Implementation (PLDI) 2020	
<a href="#">External Reviewer</a> Computer Communications 2019 Computers & Security 2019	
<a href="#">Subreviewer</a> USENIX Security Symposium 2019 Future Generation Computer Systems (FGCS) 2018 Conference on Computer and Communications Security (CCS) 2017	
<b>Mentoring &amp; Outreach</b>	
<a href="#">MIT Graduate Application Assistance Program (GAAP)</a> Mentor	Fall 2020
<a href="#">UIUC Promoting Undergraduate Research in Engineering (PURE)</a> Mentor	Fall 2018
<a href="#">First Gen Scientists</a> Curriculum developer	Fall 2016