

# Kevin Liao

[kevliao@mit.edu](mailto:kevliao@mit.edu) | [www.kevliao.com](http://www.kevliao.com)

## 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

### Refereed Conferences

#### [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  
IEEE Symposium on Security and Privacy (Oakland), May 2021

#### [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](#), Massachusetts Institute of Technology

6.858: Computer Systems Security

Spring 2022

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

CS498: Applied Cryptography

Fall 2018

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

CSE220: Programming for Computer Engineering

Spring 2017

CSE240: Introduction to Programming Languages

Fall 2016

CSE110: Introduction to Programming

Fall 2014

## Talks

High-Assurance Cryptography in the Spectre Era	
IEEE Symposium on Security and Privacy (Online)	May 2021
Workshop on Principles of Secure Compilation (Online)	Jan. 2021
SoK: Computer-Aided Cryptography	
IEEE Symposium on Security and Privacy (Online)	May 2021
Real World Cryptography Symposium (Online)	Jan. 2021
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)	Sep. 2019
Conference on Programming Language Design and Implementation (Phoenix, AZ, USA)	Jun. 2019
Formal Methods Seminar at UIUC (Urbana, IL, USA)	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

Privacy Enhancing Technologies Symposium (PETS) 2021

USENIX Security Symposium 2021

Symposium on Operating Systems Design and Implementation (OSDI) 2021

Conference on Programming Language Design and Implementation (PLDI) 2020

#### External Reviewer

Computer Communications 2019

Computers & Security 2019

#### Subreviewer

USENIX Security Symposium 2019

Future Generation Computer Systems (FGCS) 2018

Conference on Computer and Communications Security (CCS) 2017

## Mentoring, Outreach, & Activities

Veronika Kitsul (St. Mark's School)	Fall 2021–Present
Research mentor	
MIT Graduate Christian Fellowship (GCF)	Fall 2021–Present
Co-president	
MIT Graduate Application Assistance Program (GAAP)	Spring 2021
Executive team	
MIT Graduate Application Assistance Program (GAAP)	Fall 2020
Mentor	
UIUC Promoting Undergraduate Research in Engineering (PURE)	Fall 2018
Research mentor	
First Gen Scientists	Fall 2016
Curriculum developer	