Kevin Liao

kliao@mpi-sws.org ⌝ | www.kevliao.com ⌝

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
<u>Kevin Liao</u> 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 <u>Kevin Liao</u>
Book chapter in *Cybercrime Through an Interdisciplinary Lens* ed. by Thomas J. Holt, Dec. 2016

Experience

University of Porto (FCUP)	Porto, Portugal
Visiting Researcher	Feb. 2020–Present
Advisor: Gilles Barthe, Host: Manuel Barbosa	
Max Planck Institute for Software Systems	Saarbrücken, Germany
Visiting Researcher	Aug. 2019–Dec. 2019
Advisor: Gilles Barthe	
Max Planck Institute for Security & Privacy	Bochum, Germany
Researcher	Aug. 2019–Present
Advisor: Gilles Barthe	
University of Illinois at Urbana-Champaign	Urbana, IL, USA
Research Assistant	Aug. 2017–Aug. 2019
Advisor: Andrew Miller	
Arizona State University	Tempe, AZ, USA
Research Assistant	May 2017–Aug. 2017
Advisor: Adam Doupé	
University of Maryland	College Park, MD, USA
Research Intern	Jun. 2016–Aug. 2016
Advisor: Jonathan Katz	
Arizona State University	Tempe, AZ, USA
Undergraduate Research Assistant	Mar. 2015–May 2017
Advisors: Gail-Joon Ahn, Adam Doupé, Ziming Zhao	

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	Spring 2017
CSE240: Introduction to Programming Languages	Fall 2016
CSE110: Introduction to Programming	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)	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
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   Tempe, AZ, USA
Curriculum developer   Fall 2016