

Benjamin Kaiser

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EDUCATION

Ph.D., Computer Science
Princeton University, Princeton, NJ
Advisor: Professor Jonathan Mayer
GPA 3.93

September 2018 – Present

M.S., Computer Science
Rensselaer Polytechnic Institute, Troy, NY
Advisor: Professor Ana Milanova
GPA 3.67
Activities: Group and private tutor, TA, secretary of RPISEC security group

September 2013 – May 2015

B.S., Computer Science
Rensselaer Polytechnic Institute, Troy, NY
GPA 3.67

September 2011 – May 2015

A.S., Computer Information Systems
State University of New York at Cobleskill, Cobleskill, NY
GPA 3.59

September 2009 – May 2011

EXPERIENCE

Graduate Research Assistant, Center for Information Technology Policy
Princeton University, Princeton, NJ

September 2018 – Present

- Conducting interdisciplinary research into online disinformation with researchers in Sociology and Politics. Project details provided below under *Ongoing Projects*.
- Leading research implementation for a project funded by the Project X Innovation Fund and the Facebook Online Safety Benchmark Fund.
- Developing tool to scrape websites, replay their content for fully offline browsing, and facilitate annotation of those websites. The tool is to be used in HCI and UX studies and released publicly.
- Presented security research results to stakeholders at FCC, Senate offices, and an industry association to spur policy action on telecom security.
- Mentoring undergraduate (Jiayang Li) and Master's (Jerry Wei) researchers.
- Organizing weekly Work-in-Progress talk series.

Associate Technical Staff, Secure Resilient Systems and Technologies Group
MIT Lincoln Laboratory, Lexington, MA

June 2015 – August 2018

- As principal investigator, led a project to design and implement a formally verified, correct-by-construction secure software update tool for satellites. Delivered prototype tool to Air Force sponsor.
- Designed and implemented a decentralized cryptographic access control scheme to be used for cloud data security in the Department of Defense.
- Participated in a massive multi-stakeholder process developing an architecture design and requirements for a holistic security architecture to be deployed to 400+ Federal agencies.
- Surveyed over 100 analysis and research papers to systematize viable applications of blockchain technology for the Department of Defense.

- Developed a formal framework for reasoning about binary protection and program analysis. Proved impossibility of perfect binary obfuscation against program analysts. Published two conference papers.

PROJECTS

Peer Reviewed

- **B. Kaiser**, J. Wei, E. Lucherini, K. Lee, J.N. Matias, and J. Mayer. (2021). Adapting Security Warnings to Counter Online Disinformation. *USENIX Security (USENIX SEC 2021)*, Proceedings.
- K. Lee, **B. Kaiser**, A. Narayanan, and J. Mayer. (2020). An Empirical Study of Wireless Carrier Authentication for SIM Swaps. *16th Symposium on Usable Privacy and Security (SOUPS 2020)*, Proceedings.
- A. Hounsel, J. Holland, **B. Kaiser**, K. Borgolte, N. Feamster, and J. Mayer (2020). Identifying Disinformation Websites Using Infrastructure Features. *10th USENIX Workshop on Free and Open Communications on the Internet (FOCI 20)*, Proceedings.
- S. Ruoti, **B. Kaiser**, A. Yerukhimovich, J. Clark, and R. Cunningham (2019). Blockchain Technology: What Is It Good for? *ACM Queue*, Volume 17 Issue 5, December 2019, Journal.
- J. Blackthorne, **B. Kaiser**, and B. Yener (2016). A Formal Framework for Environmentally Sensitive Malware. In *Research in Attacks, Intrusions, and Defenses, RAID 2016*. *Lecture Notes in Computer Science*, vol 9854.
- J. Blackthorne, **B. Kaiser**, B. Fuller, and B. Yener (2017). Environmental Authentication in Malware. *6th International Conference on Cryptology and Information Security in Latin America*, Proceedings.
- J. Blackthorne, **B. Kaiser**, and B. Yener (2016). A Formal Framework for Environmentally Sensitive Malware. In *Research in Attacks, Intrusions, and Defenses, RAID 2016*. *Lecture Notes in Computer Science*, vol 9854.
- V. Gadepally, B. Hancock, **B. Kaiser**, J. Kepner, P. Michaleas, M. Varia, and A. Yerukhimovich, Computing on Masked Data to improve the security of big data, *2015 IEEE International Symposium on Technologies for Homeland Security (HST)*.

Other Published Work

- **B. Kaiser**, M. Jurado, and A. Ledger (2018). The looming threat of China: An analysis of Chinese influence on Bitcoin. *arXiv preprint arXiv:1810.02466*.
- G. Itkis, **B. Kaiser**, J. Coll, W. Smith, and R. Cunningham, Charting a Security Landscape in the Clouds: Data Protection and Collaboration in Cloud Storage, *Technical Report 1210*, MIT Lincoln Laboratory, Lexington, MA, July 2016.
- **B. Kaiser** (2015). A context-sensitive security type system for Java (Master's Thesis). Available from ProQuest Dissertations and Theses database. (UMI No. 1590111)

PRESENTATIONS

- Analyzing China's Influence over Bitcoin, *Cryptoeconomics Security Conference (CESC) 2018*.
Slides available at <https://goo.gl/1Jt8uN>
- A Formal Framework for Environmentally Sensitive Malware, *International Symposium on Research in Attacks, Intrusions and Defenses (RAID) 2016*.
Slides available at <https://goo.gl/sgw1VC>

VOLUNTEER

- Co-founded CodeCreative, a free summer program teaching basic computer science skills to students from underserved schools in Boston. Developed a curriculum from scratch, led weekly lessons, and mentored students through two 8-week sessions.
- Taught topics in theoretical cryptography to gifted high school students at LLCipher, a summer program coordinated by MIT Lincoln Laboratory.
- Taught information security fundamentals to the STEM club at Emma Willard, a private high school for girls in Troy, NY.