

Dave Levin

Contact Info

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Academic Appointment

University of Maryland, College Park, MD USA

Assistant Professor

2017 – present

My research focus is on systems and network security. I am also Chair of the Computer Science Undergraduate Honors program. I am affiliated with UMIACS, MC2, and the Maryland-Max-Planck PhD Program.

Education

University of Maryland, College Park, Maryland USA

Ph.D., Computer Science, September 2010

- Dissertation: Systems-compatible Incentives
- Advisors: Bobby Bhattacharjee, Neil Spring, and Aravind Srinivasan

B.S., Computer Science, May 2002

B.S., Mathematics, May 2002

University of Notre Dame, Notre Dame, Indiana USA

Attended August 1997 – May 1999

Honors and Awards

- Facebook/USENIX Internet Defense Prize (3rd place), for *Weaponizing Middleboxes for TCP Reflected Amplification*, 2021
 - Distinguished paper award, USENIX Security 2021, for *Weaponizing Middleboxes for TCP Reflected Amplification*
 - IRTF Applied Networking Research Prize (ANRP) for *Come as You Are: Helping Unmodified Clients Bypass Censorship with Server-side Evasion*, 2021
 - NCWIT (National Center for Women & Information Technology) Undergraduate Research Mentoring Award, 2020
 - NSF CAREER Award, 2020
 - IRTF Applied Networking Research Prize (ANRP) for *Understanding the Role of Registrars in DNSSEC Deployment*, 2019
 - Dean's Award for Excellence in Teaching, College of Computer, Mathematical, and Natural Sciences, 2018
 - IEEE Cybersecurity Award for Innovation 2017, for *CRLite: A Scalable System for Pushing All TLS Revocations to All Browsers*
 - Distinguished paper award, USENIX Security 2017, for *A Longitudinal, End-to-End View of the DNSSEC Ecosystem*
 - Reviewer award, SIGCOMM 2012
 - Best paper, USENIX NSDI 2009, for *TrInc: Small Trusted Hardware for Large Distributed Systems*
 - Best presentation, Computer Science track of UMD Graduate Research Interaction Day, 2009
 - Microsoft Live Labs fellowship, awarded 2008
 - Dean's fellowship for excellence in research, Computer Science Dept., Univ. of Maryland, 2006
 - Outstanding undergraduate computer science teaching assistant award, Univ. of Maryland, 2002
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Refereed Publications

1. **Sound Methodology for Downloading Webpages**
Soumya Indela, Dave Levin
TMA 2021 (Network Traffic Measurement and Analysis Conference)
 2. **Even Censors Have a Backup: Examining the GFWs Double HTTPS Censorship System**
Kevin Bock, Gabriel Naval, Kyle Reese, Dave Levin
FOCI 2021 (ACM Workshop on Free and Open Communications on the Internet)
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3. **Bento: Safely Bringing Network Function Virtualization to Tor**
Michael Reininger, Arushi Arora, Stephen Herwig, Nicholas Francino, Jayson Hurst, Christina Garman, Dave Levin
ACM SIGCOMM 2021
4. **The Ties that un-Bind: Decoupling IP from web services and sockets for robust addressing agility at CDN-scale**
Marwan Fayed, Vasileios Giotsas, Lorenz Bauer, Sami Kerola, Marek Majkowski, Pavel Odintsov, Jakub Sitnicki, Taejoong Chung, Dave Levin, Alan Mislove, Nick Sullivan, Chris Wood
ACM SIGCOMM 2021
5. **Your Censor is My Censor: Weaponizing Censorship Infrastructure for Availability Attacks**
Kevin Bock, Pranav Bharadwaj, Jasraj Singh, Dave Levin
WOOT 2021 (IEEE Workshop on Offensive Technologies)
6. **Measurement and Analysis of Automated Certificate Reissuance**
Olamide Omolola, Richard Roberts, Ishtiaq Ashiq, Taejoong Chung, Dave Levin, Alan Mislove
PAM 2021 (Passive and Active Measurement Conference)
7. **Under the Hood of the Ethereum Gossip Protocol**
Lucianna Kiffer, Asad Salman, Dave Levin, Alan Mislove, Cristina Nita-Rotaru
FC 2021 (Financial Cryptography and Data Security)
8. **Weaponizing Middleboxes for TCP Reflected Amplification**
Kevin Bock, Abdulrahman Alaraj, Yair Fax, Kyle Hurley, Eric Wustrow, Dave Levin
USENIX Security 2021
9. **Detecting and Evading Censorship-in-Depth: A Case Study of Iran's Protocol Whitelister**
Kevin Bock, Yair Fax, Kyle Reese, Jasraj Singh, Dave Levin
FOCI 2020 (USENIX Workshop on Free and Open Communications on the Internet)
10. **Assertion-Carrying Certificates**
Waqar Aqeel, Zachary Hanif, James Larisch, Olamide Omolola, Taejoong Chung, Dave Levin, Bruce Maggs, Alan Mislove, Bryan Parno, Christo Wilson
FCS 2020 (Workshop on Foundations of Computer Security)
11. **Come as You Are: Helping Unmodified Clients Bypass Censorship with Server-side Evasion**
Kevin Bock, George Hughey, Louis-Henri Merino, Tania Arya, Daniel Liscinsky, Regina Pogolian, Dave Levin
ACM SIGCOMM 2020
12. **.how .you .spot .whoswho .online .sucks: Deceiving Users with Generic Top-Level Domains**
Richard Roberts, Rachel Walter, Daniela Lulli, Dave Levin
ConPro 2020 (Workshop on Technology and Consumer Protection) Accepted Talk
13. **A Deeper Look at Web Content Availability and Consistency over HTTP/S**
Muhammad Talha Paracha, Balakrishnan Chandrasekara, David Choffnes, Dave Levin
TMA 2020 (Network Traffic Measurement and Analysis Conference)
14. **Build It, Break It, Fix It: Contesting Secure Development**
James Parker, Michael Hicks, Andrew Ruef, Michelle L. Mazurek, Dave Levin, Daniel Votipka, Piotr Mardziel, Kelsey R. Fulton
ACM TOPS March 2020 (Transactions on Privacy and Security)
15. **Achieving Keyless CDNs with Conclaves**
Stephen Herwig, Christina Garman, Dave Levin
USENIX Security 2020

16. **Geneva: Evolving Censorship Evasion Strategies**
Kevin Bock, George Hughey, Dave Levin
ACM CCS 2019 (Conference on Computer and Communications Security)
17. **You Are Who You Appear to Be: A Longitudinal Study of Domain Impersonation in TLS Certificates**
Richard Roberts, Yaelle Goldschlag, Rachel Walter, Taejoong Chung, Alan Mislove, Dave Levin
ACM CCS 2019 (Conference on Computer and Communications Security)
18. **When Certificate Transparency Is Too Transparent: Analyzing Information Leakage in HTTPS Domain Names**
Richard Roberts, Dave Levin
WPES 2019 (Workshop on Privacy in the Electronic Society) Short paper
19. **RPKI is Coming of Age: A Longitudinal Study of RPKI Deployment and Invalid Route Origins**
Taejoong Chung, Emile Aben, Tim Bruijnzeels, Balakrishnan Chandrasekaran, David Choffnes, Dave Levin, Bruce M. Maggs, Alan Mislove, Roland van Rijswijk-Deij, John P. Rula, Nick Sullivan
ACM IMC 2019 (Internet Measurement Conference) Long paper
20. **Measuring TLS key exchange with post-quantum KEM**
Krzysztof Kwiatkowski, Nick Sullivan, Adam Langley, Dave Levin, Alan Mislove
NIST Second PQC Standardization Conference 2019
21. **Residential Links Under the Weather**
Ramakrishna Padmanabhan, Aaron Schulman, Dave Levin, Neil Spring
ACM SIGCOMM 2019
22. **Automatically Learning How to Evade Censorship**
Dave Levin
USENIX ScAI Net 2019 (Security and AI Networking Conference)
23. **How to find correlated Internet failures**
Ramakrishna Padmanabhan, Aaron Schulman, Alberto Dainotti, Dave Levin, Neil Spring
PAM 2019 (Passive and Active Measurement Conference)
24. **Measurement and Analysis of Hajime, a Peer-to-peer IoT Botnet**
Stephen Herwig, Katura Harvey, George Hughey, Richard Roberts, Dave Levin
NDSS 2019 (Network and Distributed System Security Symposium)
25. **Is the Web Ready for OCSP Must Staple?**
Taejoong Chung, Jay Lok, Balakrishnan Chandrasekaran, David Choffnes, Dave Levin, Bruce Maggs, Alan Mislove, John Rula, Nick Sullivan, Christo Wilson
ACM IMC 2018 (Internet Measurement Conference) Long paper
26. **Analyzing Ethereum's Contract Topology**
Lucianna Kiffer, Dave Levin, Alan Mislove
ACM IMC 2018 (Internet Measurement Conference) Short paper
27. **King of the Hill: A Novel Cybersecurity Competition for Teaching Penetration Testing**
Kevin Bock, George Hughey, Dave Levin
USENIX ASE 2018 (Workshop on Advances in Security Education)
28. **Internet Anycast: Performance, Problems, and Potential**
Zhihao Li, Dave Levin, Neil Spring, Bobby Bhattacharjee
ACM SIGCOMM 2018
29. **Analysis of SSL Certificate Reissues and Revocations in the Wake of Heartbleed**
Liang Zhang, David Choffnes, Tudor Dumitras, Dave Levin, Alan Mislove, Aaron Schulman, Christo Wilson
Communications of the ACM Research Highlights, March 2018 (Vol. 61, No. 3)

30. **An End-to-End View of DNSSEC Ecosystem Management**
Taejoong Chung, Roland van Rijswijk-Deij, Balakrishnan Chandrasekaran, David Choffnes, Dave Levin, Bruce M. Maggs, Alan Mislove, Christo Wilson
USENIX ;login: Winter 2017 (Vol. 42, No. 4)
31. **Stick a fork in it: Analyzing the Ethereum network partition**
Lucianna Kiffer, Dave Levin, Alan Mislove
HotNets 2017 (ACM Workshop on Hot Topics in Networking)
32. **Understanding the Role of Registrars in DNSSEC Deployment**
Taejoong Chung, Roland van Rijswijk-Deij, David Choffnes, Alan Mislove, Christo Wilson, Dave Levin, Bruce M. Maggs
ACM IMC 2017 (Internet Measurement Conference) Long paper
33. **unCaptcha: A Low-Resource Defeat of reCaptcha's Audio Challenge**
Kevin Bock, Daven Patel, George Hughey, Dave Levin
USENIX WOOT 2017 (Workshop on Offensive Technologies)
34. **DeTor: Provably Avoiding Geographic Regions in Tor**
Zhihao Li, Stephen Herwig, Dave Levin
USENIX Security 2017
35. **A Longitudinal, End-to-End View of the DNSSEC Ecosystem**
Taejoong Chung, Roland van Rijswijk-Deij, Balakrishnan Chandrasekaran, David Choffnes, Dave Levin, Bruce M. Maggs, Alan Mislove, Christo Wilson
USENIX Security 2017
36. **CRLite: A Scalable System for Pushing All TLS Revocations to All Browsers**
James Larisch, David Choffnes, Dave Levin, Bruce M. Maggs, Alan Mislove, Christo Wilson
Oakland 2017 (IEEE Symposium on Security and Privacy)
37. **Measuring and Applying Invalid SSL Certificates: The Silent Majority**
Taejoong Chung, Yabing Liu, David Choffnes, Dave Levin, Bruce M. Maggs, Alan Mislove, Christo Wilson
ACM IMC 2016 (Internet Measurement Conference) Long paper
38. **Measurement and Analysis of Private Key Sharing in the HTTPS Ecosystem**
Frank Cangialosi, Taejoong Chung, David Choffnes, Dave Levin, Bruce M. Maggs, Alan Mislove, Christo Wilson
ACM CCS 2016 (Conference on Computer and Communications Security)
39. **Build It, Break It, Fix It: Contesting Secure Development**
Andrew Ruef, Michael Hicks, James Parker, Dave Levin, Michelle Mazurek, Piotr Mardziel
ACM CCS 2016 (Conference on Computer and Communications Security)
40. **Picocenter: Supporting long-lived, mostly-idle applications in cloud environments**
Liang Zhang, James Litton, Frank Cangialosi, Theophilus Benson, Dave Levin, Alan Mislove
EuroSys 2016 (European Conference on Computer Systems)
41. **Anomaly Detection on D-root**
Zhihao Li, Dave Levin, Bobby Bhattacharjee, Neil Spring
DINR Workshop 2016 (DNS and Internet Naming Research Directions)
42. **DNSql: Processing Massive DNS Collections**
Stephen Herwig, Dave Levin, Bobby Bhattacharjee, Neil Spring
DINR Workshop 2016 (DNS and Internet Naming Research Directions)
43. **Ting: Measuring and Exploiting Latencies Between All Tor Nodes**
Frank Cangialosi, Dave Levin, Neil Spring
ACM IMC 2015 (Internet Measurement Conference) Long paper

44. **An End-to-End Measurement of Certificate Revocation in the Web's PKI**
Yabing Liu, Will Tome, Liang Zhang, David Choffnes, Dave Levin, Bruce Maggs, Alan Mislove, Aaron Schulman, Christo Wilson
ACM IMC 2015 (Internet Measurement Conference) Long paper
45. **Alibi Routing**
Dave Levin, Youndo Lee, Luke Valenta, Zhihao Li, Victoria Lai, Cristian Lumezanu, Neil Spring, Bobby Bhattacharjee
ACM SIGCOMM 2015
46. **Build It Break It: Measuring and Comparing Development Security**
Andrew Ruef, Michael Hicks, James Parker, Dave Levin, Atif Memon, Jan Plane, Piotr Mardziel
CSET 2015 (Workshop on Cyber Security Experimentation and Test)
47. **Programming Slick Network Functions**
Bilal Anwer, Theophilus Benson, Nick Feamster, Dave Levin
SOSR 2015 (Symposium on SDN Research)
48. **UAv6: Alias Resolution in IPv6 Using Unused Addresses**
Ramakrishna Padmanabhan, Zhihao Li, Dave Levin, Neil Spring
PAM 2015 (Passive and Active Measurement Conference)
49. **RevCast: Fast, Private Certificate Revocation over FM Radio**
Aaron Schulman, Dave Levin, Neil Spring
ACM CCS 2014 (Conference on Computer and Communications Security)
50. **Analysis of SSL Certificate Reissues and Revocations in the Wake of Heartbleed**
Liang Zhang, Dave Choffnes, Tudor Dumitras, Dave Levin, Alan Mislove, Aaron Schulman, Christo Wilson
ACM IMC 2014 (Internet Measurement Conference) Long paper
51. **D-mystifying the D-root Address Change**
Matthew Lentz, Dave Levin, Jason Castonguay, Neil Spring, Bobby Bhattacharjee
ACM IMC 2013 (Internet Measurement Conference) Short paper
52. **A Slick Control Plane for Network Middleboxes**
Bilal Anwer, Theophilus Benson, Nick Feamster, Dave Levin, Jennifer Rexford
ONS 2013 (Open Network Summit)
53. **SDX: A Software Defined Internet Exchange**
Josh Bailey, Russ Clark, Nick Feamster, Dave Levin, Jennifer Rexford, Scott Shenker
ONS 2013 (Open Network Summit)
54. **Making Currency Cheap with iOwe**
Dave Levin, Aaron Schulman, Katrina LaCurts, Neil Spring, Bobby Bhattacharjee
NetEcon 2011 (Workshop on the Economics of Networks, Systems, and Computation)
55. **Secure Sharing in Distributed Information Management Applications: Problems and Directions**
Piotr Mardziel, Adam Bender, Michael Hicks, Dave Levin, Mudhakar Srivatsa, Jonathan Katz
ACITA 2010 (Annual Conference of the International Technology Alliance)
56. **Don't Love Thy Nearest Neighbor**
Cristian Lumezanu, Dave Levin, Bo Han, Neil Spring, Bobby Bhattacharjee
IPTPS 2010 (International Workshop on Peer-to-Peer Systems)
57. **Stay or go? Participation in Under-Provisioned Video Streams**
Dave Levin, Daniel Malter, Neil Spring, Bobby Bhattacharjee
NetEcon 2009 (Workshop on the Economics of Networks, Systems, and Computation)

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