

# Dave Levin

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Academic Appointment	<b>University of Maryland</b> , College Park, MD USA <i>Assistant Professor</i> <span style="float: right;"><b>2017 – present</b></span> 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.
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Education	<b>University of Maryland</b> , College Park, Maryland USA Ph.D., Computer Science, September 2010 <ul style="list-style-type: none"><li>• Dissertation: Systems-compatible Incentives</li><li>• Advisors: Bobby Bhattacharjee, Neil Spring, and Aravind Srinivasan</li></ul> B.S., Computer Science, May 2002 B.S., Mathematics, May 2002  <b>University of Notre Dame</b> , Notre Dame, Indiana USA Attended August 1997 – May 1999
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Honors and Awards	<ul style="list-style-type: none"><li>• Facebook/USENIX Internet Defense Prize (3rd place), for <i>Weaponizing Middleboxes for TCP Reflected Amplification</i>, 2021</li><li>• Distinguished paper award, USENIX Security 2021, for <i>Weaponizing Middleboxes for TCP Reflected Amplification</i></li><li>• IRTF Applied Networking Research Prize (ANRP) for <i>Come as You Are: Helping Unmodified Clients Bypass Censorship with Server-side Evasion</i>, 2021</li><li>• NCWIT (National Center for Women &amp; Information Technology) Undergraduate Research Mentoring Award, 2020</li><li>• NSF CAREER Award, 2020</li><li>• IRTF Applied Networking Research Prize (ANRP) for <i>Understanding the Role of Registrars in DNSSEC Deployment</i>, 2019</li><li>• Dean's Award for Excellence in Teaching, College of Computer, Mathematical, and Natural Sciences, 2018</li><li>• IEEE Cybersecurity Award for Innovation 2017, for <i>CRLite: A Scalable System for Pushing All TLS Revocations to All Browsers</i></li><li>• Distinguished paper award, USENIX Security 2017, for <i>A Longitudinal, End-to-End View of the DNSSEC Ecosystem</i></li><li>• Reviewer award, SIGCOMM 2012</li><li>• Best paper, USENIX NSDI 2009, for <i>TrInc: Small Trusted Hardware for Large Distributed Systems</i></li><li>• Best presentation, Computer Science track of UMD Graduate Research Interaction Day, 2009</li><li>• Microsoft Live Labs fellowship, awarded 2008</li><li>• Dean's fellowship for excellence in research, Computer Science Dept., Univ. of Maryland, 2006</li><li>• Outstanding undergraduate computer science teaching assistant award, Univ. of Maryland, 2002</li></ul>
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Refereed Publications	<ol style="list-style-type: none"><li>1. <b>Sound Methodology for Downloading Webpages</b> Soumya Indela, Dave Levin TMA 2021 (Network Traffic Measurement and Analysis Conference)</li><li>2. <b>Even Censors Have a Backup: Examining the GFWs Double HTTPS Censorship System</b> Kevin Bock, Gabriel Naval, Kyle Reese, Dave Levin FOCI 2021 (ACM Workshop on Free and Open Communications on the Internet)</li></ol>
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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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