Academic Curriculum Vitæ

Ryan Scott Wails
Computer Scientist
Information Technology Division
US Naval Research Laboratory

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Higher Education

PhD (computer science), Georgetown University, 2024 (expected).
MS (computer science), Georgetown University, 2021.
BS (computer science), The Pennsylvania State University, 2016.
BS (mathematics), The Pennsylvania State University, 2016.

Professional Appointments

US Naval Research Laboratory. Computer scientist in the Center for High Assurance Computer Systems, formal methods section, since 2017.

Harris Corporation, Herndon, VA. Software engineer under contract to the US Naval Research Laboratory, 2016–2017.

The Applied Research Laboratory at Penn State University. Undergraduate researcher in the cognitive perception and computational intelligence lab, 2014–2016.

Cambridge-Lee Industries LLC, Reading, PA. Technician in the management information systems department, 2012–2014.

Awards and Distinctions

US Naval Research Laboratory, Alan Berman annual research publication award (which recognizes the best publications lab-wide) for "Co-opting Linux Processes for High-Performance Network Simulation," 2023.

USENIX Annual Technical Conference, best paper award for "Co-opting Linux Processes for High-Performance Network Simulation," 2022.

National Science Foundation, graduate research fellowship, 2021.

US Naval Research Laboratory, Alan Berman annual research publication award (which recognizes the best publications lab-wide) for "CLAPS: Client-Location-Aware Path Selection in Tor," 2021.

The Applied Research Laboratory at Penn State University, student contribution award, 2015.

Last updated February 09, 2024.

Publications

Refereed Papers

P1. R. Wails, G. A. Sullivan, M. Sherr, and R. Jansen, On precisely detecting censorship circumvention in real-world networks, in *Proceedings of the 2024 Network and Distributed System Security Symposium*, (San Diego, CA), M. Payer and C. Pöpper, Eds., ISOC, 2024

P2. R. Jansen and R. Wails, Data-explainable website fingerprinting with network simulation, *Proceedings on Privacy Enhancing Technologies*, vol. 2023, no. 4, pp. 559–577, 2023

P3. R. Wails, R. Jansen, A. Johnson, and M. Sherr, Proteus: Programmable protocols for censorship circumvention, in *Free and Open Communications on the Internet 2023*, (Lausanne, CH), R. Ensafi and C. Bocovich, Eds., 2023, pp. 50–66

P4. R. Jansen, J. Newsome, and R. Wails, Co-opting Linux processes for high-performance network simulation, in *Proceedings of the 2022 USENIX Annual Technical Conference*, (Carlsbad, CA), N. Zilberman and J. Schindler, Eds., USENIX Assn, 2022, pp. 327–349

P5. R. Wails, A. Stange, E. Troper, A. Caliskan, R. Dingledine, R. Jansen, and M. Sherr, Learning to behave: Improving covert channel security with behavior-based designs, *Proceedings on Privacy Enhancing Technologies*, vol. 2022, no. 3, pp. 179–199, 2022

P6. F. Rochet, R. Wails, A. Johnson, P. Mittal, and O. Pereira, CLAPS: Client-location-aware path selection in Tor, in *Proceedings of the 2020 ACM SIGSAC Conference on Computer and Communications Security*, (Virtual Event, USA), J. Katz and G. Vigna, Eds., ACM, 2020, pp. 17–34

P7. R. Wails, A. Johnson, D. Starin, A. Yerukhimovich, and S. D. Gordon, Stormy: Statistics in Tor by measuring securely, in *Proceedings of the 2019 ACM SIGSAC Conference on Computer and Communications Security*, (London, UK), X. Wang and J. Katz, Eds., ACM, 2019, pp. 615–632

P8. G. Wan, A. Johnson, R. Wails, S. Wagh, and P. Mittal, Guard placement attacks on path selection algorithms for Tor, *Proceedings on Privacy Enhancing Technologies*, vol. 2019, no. 4, pp. 272–291, 2019

P9. R. Wails, Y. Sun, A. Johnson, M. Chiang, and P. Mittal, Tempest: Temporal dynamics in anonymity systems, *Proceedings on Privacy Enhancing Technologies*, vol. 2018, no. 3, pp. 22–42, 2018

Collaborators

Aylin Caliskan (University of Washington), Mung Chiang (Princeton University), Roger Dingledine (The Tor Project), S. Dov Gordon (George Mason University), Rob Jansen (US Naval Research Laboratory), Aaron Johnson (US Naval Research Laboratory), Prateek Mittal (Princeton University), Jim Newsome (The Tor Project), Olivier Pereira (Université catholique de Louvain), Florentin Rochet (Université catholique de Louvain), Micah Sherr (Georgetown University), Andrew Stange (Carnegie Mellon University), Daniel Starin (Perspecta Labs), George Sullivan (University of California San Diego), Yixin Sun (Princeton University), Eliana Troper (Georgetown University), Sameer Wagh (Princeton University), Gerry Wan (Princeton University), Arkady Yerukhimovich (George Washington University)

Talks

T1. "Censorship, Circumvention, Detection, and How to Hide Better" presented at *DistriNet Seminar Series*, KU Leuven, Lueven, Flemish Brabant, BE, September 2023.

T2. "Proteus: Programmable Protocols for Censorship Circumvention," presented at *FOCI'23: 2023 Free and Open Communications on the Internet,* Lausanne, Vaud, CHE, July 2023.

T3. "Learning to Behave: Improving Covert Channel Security with Behavior-Based Designs," presented at *PETS 2022: The 22nd Privacy Enhancing Technologies Symposium*, Sydney, NSW, AUS, July 2022.

T4. "Location Aware Path Selection in Tor," presented at *HotPETs 2020: The 13th Workshop on Hot Topics in Privacy Enhancing Technologies*, virtual event, July 2020.

T5. "Stormy: Statistics in Tor by Measuring Securely," presented at *ACM CCS 2019: The 2019 ACM SIGSAC Conference on Computer and Communication Security*, London, UK, November 2019.

T6. "Stormy: Statistics in Tor by Measuring Securely," presented at *The 15th Semi-Annual GU-CS Graduate Research Presentation Day*, Georgetown University, Washington, DC, USA, September 2019.

T7. "Guard Placement Attacks on Path Selection Algorithms for Tor," presented at *DCAPS: DC-Area Anonymity, Privacy, and Security Seminar*, Georgetown University, Washington, DC, USA, June 2019.

T8. "Tempest: Temporal Dynamics in Anonymity Systems," presented at *PETS 2018: The 18th Privacy Enhancing Technologies Symposium*, Barcelona, CT, ESP, July 2018.

T9. "Tunable Transparency: Secure Computation in the Tor Network," presented at *DCAPS: DC-Area Anonymity, Privacy, and Security Seminar*, Georgetown University, Washington, DC, USA, June 2018.

T10. "Tempest: Temporal Dynamics in Anonymity Systems," presented at *DCAPS: DC-Area Anonymity, Privacy, and Security Seminar*, University of Maryland, College Park, MD, USA, October 2017.

Academic Service

Program Committee Member

ACM CCS 2024: The 31st ACM Conference on Computer and Communications Security
IEEE S&P 2024: IEEE Security and Privacy 2024
PETS 2024: The 24th Privacy Enhancing Technologies Symposium
PETS 2023: The 23rd Privacy Enhancing Technologies Symposium
USENIX Security 2021: The 30th USENIX Security Symposium
WPES 2020: The 19th ACM Workshop on Privacy in the Electronic Society
PETS 2019: The 19th Privacy Enhancing Technologies Symposium, Junior Member

External Reviewer

USENIX Security 2020: The 29th USENIX Security Symposium
ACM Computing Surveys (2020)
PETS 2020: The 20th Privacy Enhancing Technologies Symposium
IEEE Communications Letters (2018)
PETS 2018: The 18th Privacy Enhancing Technologies Symposium
WPES 2017: The 2017 Workshop on Privacy in the Electronic Society

Teaching Experience

Georgetown University, guest lecturer for "COSC 538: Internet Censorship and Circumvention," 2023; substitute lecturer for "COSC 4705: Intro to Network Security," 2024.

George Washington University, guest presenter for "CSCI 6221: Advanced Software Paradigms," 2021–2022.

Private tutor for "C Programming, Algorithms and Data Structures," 2019.

Princeton University, undergraduate student project mentor, 2019.

The Pennsylvania State University, substitute lecturer for "IST 220: Networking and Telecommunications," 2016; substitute lecturer for "CMPSC 122: Intermediate Programming," 2015; tutor for "Algorithms and Data Structures," 2015; substitute lecturer for "CMPSC 221: Object-Oriented Programming," 2015; substitute lecturer for "IST 220: Networking and Telecommunications," 2015; grader for "MATH 141: Calculus II," 2014; grader for "MATH 140: Calculus I," 2013.