

# Rishab Nithyanand

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## EDUCATION AND PROFESSIONAL HISTORY

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### Higher Education

- 2017 **Ph.D.**, Computer Science, Stony Brook University  
**Thesis:** DOCTOR: Defending and Opening Communication via Tor
- 2010 **M.S.**, Computer Science, University of California at Irvine  
**Thesis:** Securing Personal RFID Tags and Infrastructures
- 2008 **B.Tech.**, Computer Science and Engineering (with Distinction), SRM University

### Professional and Academic Positions

#### Current Positions

- 2018 – **Assistant Professor**, Department of Computer Science, The University of Iowa.
- 2020 – **co-Director**, Algorithms and Culture Research Group,  
Obermann Center for Advanced Studies at the University of Iowa.
- 2020 – **Research Fellow**, Social and Education Policy Research Program,  
University of Iowa Public Policy Center.

#### Past Positions

- 2017-18 **Ford-Mozilla Fellow**, Data and Society Research Institute.
- 2017 **Postdoctoral Researcher**, Department of Computer Science,  
University of Massachusetts at Amherst.
- 2015-16 **Visiting Researcher**, International Computer Science Institute.
- 2014 **Research Intern**, Office of the Chief Scientist, Qualcomm Research.
- 2012 **Software Engineer**, Computer Associates.
- 2011 **Research Intern**, Sandia National Labs at Livermore.
- 2010 **Staff Research Associate**, Department of Computer Science,  
University of California at Irvine.

### Honors and Awards

- 2019 **Google Faculty Research Award**
- 2017-18 **Open Web Fellow**, Ford Foundation and Mozilla
- 2016-17 **Senior Emerging Technology Fellow**, Open Technology Fund
- 2014-15 **Franklin Antonio Scholarship**, Qualcomm Research

## SCHOLARSHIP

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### Publications

#### Refereed Articles

- [1] A. Dunna, K. Keith, E. Zuckerman, N. Vallina-Rodriguez, B. O'Connor, and R. Nithyanand, "Paying attention to the algorithm behind the curtain: Bringing transparency to youtube's demonetization algorithms," in *Proceedings of 2022 ACM SIGCHI Conference on Computer Supported Cooperative Work (CSCW 2022)* [To appear].
- [2] H. Habib, M. B. Musa, F. Zaffar, and R. Nithyanand, "Are proactive interventions for reddit communities feasible," in *Proceedings of 2022 AAI Conference on Web and Social Media (ICWSM 2022)* [To appear].
- [3] H. Habib and R. Nithyanand, "Exploring the magnitude and effects of media influence on reddit," in *Proceedings of 2022 AAI Conference on Web and Social Media (ICWSM 2022)* [To Appear].
- [4] H. Habib, P. Srinivasan, and R. Nithyanand, "Pathways to radical misogyny: How participation, interaction, and perception in online communities increase radical behavior," in *Proceedings of 2022 ACM SIGCHI Conference on Computer Supported Cooperative Work (CSCW 2022)* [To appear].
- [5] M. B. Musa and R. Nithyanand, "Atom: A generalizable technique for inferring tracker-advertiser data sharing in the online behavioral advertising ecosystem," in *Proceedings of 2022 Privacy Enhancing Technologies Symposium (PETS 2022)* [To appear].
- [6] R. Stoldt, A. High, A. Peterson, K. Biddle, R. Maragh-Lloyd, R. Nithyanand, B. Ekdale, T. Havens, H. Habib, and J. Thiede, "Relationships among vaccination attitudes, social media use, and activist vs. radical behavior," in *Proceedings of 2022 Annual International Communication Association Conference (ICA 2022)* [To Appear].
- [7] S. S. Ahmad, M. D. Dar, M. F. Zaffar, N. Vallina-Rodriguez, and R. Nithyanand, "Apophanies or epiphanies? how crawlers impact our understanding of the web," in *Proceedings of 2020 Web Conference (WWW 2020)*, 2020. [Online]. Available: <https://doi.org/10.1145/3366423.3380113>.
- [8] J. Cook, R. Nithyanand, and Z. Shafiq, "Inferring tracker-advertiser relationships in the online advertising ecosystem using header bidding," in *Proceedings of 2020 Privacy Enhancing Technologies Symposium (PETS 2020)*, 2020. [Online]. Available: <https://doi.org/10.2478/popets-2020-0005>.
- [9] S. Pouryousef, M. D. Dar, S. Ahmad, P. Gill, and R. Nithyanand, "Extortion or expansion? an investigation into the costs and consequences of icann's gtdl experiments," in *Proceedings of 2020 International Conference on Passive and Active Measurement (PAM 2020)*, 2020. [Online]. Available: [https://doi.org/10.1007/978-3-030-44081-7%5C\\_9](https://doi.org/10.1007/978-3-030-44081-7%5C_9).
- [10] A. Razaghpanah, R. Nithyanand, N. Vallina-Rodriguez, S. Sundaresan, M. Allman, C. Kreibich, and P. Gill, "Apps, trackers, privacy, and regulators: A global study of the mobile tracking ecosystem," in *Proceedings of 2018 Network and Distributed System Security Symposium (NDSS 2018)*, 2018. [Online]. Available: [http://wp.internet-society.org/ndss/wp-content/uploads/sites/25/2018/02/ndss2018%5C\\_05B-3%5C\\_Razaghpanah%5C\\_paper.pdf](http://wp.internet-society.org/ndss/wp-content/uploads/sites/25/2018/02/ndss2018%5C_05B-3%5C_Razaghpanah%5C_paper.pdf).
- [11] S. Cho, R. Nithyanand, A. Razaghpanah, and P. Gill, "A churn for the better: Localizing censorship using network-level path churn and network tomography," in *Proceedings of 2017 ACM International Conference on Emerging Networking Experiments and Technologies (CoNEXT 2017)*, 2017. [Online]. Available: <https://doi.org/10.1145/3143361.3143386>.

- [12] R. Nithyanand, B. Schaffner, and P. Gill, "Measuring offensive speech in online political discourse," in *Proceedings of 2017 USENIX Workshop on Free and Open Communication on the Internet (FOCI 2017)*, 2017. [Online]. Available: <https://www.usenix.org/conference/foci17/workshop-program/presentation/nithyanand>.
- [13] R. Singh, R. Nithyanand, S. Afroz, P. Pearce, M. C. Tschantz, P. Gill, and V. Paxson, "Characterizing the nature and dynamics of tor exit blocking," in *Proceedings of 2017 USENIX Security Symposium (Security 2017)*, E. Kirda and T. Ristenpart, Eds., 2017. [Online]. Available: <https://www.usenix.org/conference/usenixsecurity17/technical-sessions/presentation/singh>.
- [14] B. Hahn, R. Nithyanand, P. Gill, and R. Johnson, "Games without frontiers: Investigating video games as a covert channel," in *Proceedings of 2016 IEEE European Symposium on Security and Privacy (EuroS&P 2016)*, 2016. [Online]. Available: <https://doi.org/10.1109/EuroSP.2016.17>.
- [15] R. Nithyanand, S. Khattak, M. Javed, N. Vallina-Rodriguez, M. Falahrastegar, J. E. Powles, E. D. Cristofaro, H. Haddadi, and S. J. Murdoch, "Adblocking and counter blocking: A slice of the arms race," in *Proceedings of 2016 USENIX Workshop on Free and Open Communication on the Internet (FOCI 2016)*, A. Houmansadr and P. Mittal, Eds., 2016. [Online]. Available: <https://www.usenix.org/conference/foci16/workshop-program/presentation/nithyanand>.
- [16] R. Nithyanand, O. Starov, P. Gill, A. Zair, and M. Schapira, "Measuring and mitigating as-level adversaries against tor," in *Proceedings of 2016 Network and Distributed System Security Symposium (NDSS 2016)*, 2016. [Online]. Available: <http://wp.internetsociety.org/ndss/wp-content/uploads/sites/25/2017/09/measuring-mitigating-as-level-adversaries-against-tor.pdf>.
- [17] X. Cai, R. Nithyanand, and R. Johnson, "Cs-bufflo: A congestion sensitive website fingerprinting defense," in *Proceedings of 2014 ACM Workshop on Privacy in the Electronic Society (WPES 2014)*, 2014. [Online]. Available: <https://doi.org/10.1145/2665943.2665949>.
- [18] X. Cai, R. Nithyanand, T. Wang, R. Johnson, and I. Goldberg, "A systematic approach to developing and evaluating website fingerprinting defenses," in *Proceedings of 2014 ACM SIGSAC Conference on Computer and Communications Security (CCS 2014)*, G. Ahn, M. Yung, and N. Li, Eds., 2014. [Online]. Available: <https://doi.org/10.1145/2660267.2660362>.
- [19] R. Nithyanand, X. Cai, and R. Johnson, "Glove: A bespoke website fingerprinting defense," in *Proceedings of 2014 ACM Workshop on Privacy in the Electronic Society (WPES 2014)*, 2014. [Online]. Available: <https://doi.org/10.1145/2665943.2665950>.
- [20] T. Wang, X. Cai, R. Nithyanand, R. Johnson, and I. Goldberg, "Effective attacks and provable defenses for website fingerprinting," in *Proceedings of 2014 USENIX Security Symposium (Security 2014)*, 2014. [Online]. Available: [https://www.usenix.org/conference/usenixsecurity14/technical-sessions/presentation/wang%5C\\_tao](https://www.usenix.org/conference/usenixsecurity14/technical-sessions/presentation/wang%5C_tao).
- [21] A. Kobsa, R. Nithyanand, G. Tsudik, and E. Uzun, "Can jannie verify? usability of display-equipped RFID tags for security purposes," *Journal of Computer Security*, vol. 21, no. 3, 2013. [Online]. Available: <https://doi.org/10.3233/JCS-130470>.
- [22] R. Nithyanand and R. Johnson, "The password allocation problem: Strategies for reusing passwords effectively," in *Proceedings of 2013 ACM Workshop on Privacy in the Electronic Society (WPES 2013)*, A. Sadeghi and S. Foresti, Eds., 2013. [Online]. Available: <https://doi.org/10.1145/2517840.2517870>.
- [23] R. Nithyanand and J. Solis, "A theoretical analysis: Physical unclonable functions and the software protection problem," in *Proceedings of 2012 IEEE Symposium on Security and Privacy Workshops (S&P (W) 2012)*, 2012. [Online]. Available: <https://doi.org/10.1109/SPW.2012.16>.
- [24] A. Kobsa, R. Nithyanand, G. Tsudik, and E. Uzun, "Usability of display-equipped RFID tags for security purposes," in *Proceedings of 2011 European Symposium on Research in Computer Security (ESORICS 2011)*, 2011. [Online]. Available: [https://doi.org/10.1007/978-3-642-23822-2%5C\\_24](https://doi.org/10.1007/978-3-642-23822-2%5C_24).

- [25] R. Nithyanand, R. Sion, and J. Solis, “Poster: Making the case for intrinsic personal physical unclonable functions (ip-pufs),” in *Proceedings of 2011 ACM SIGSAC Conference on Computer and Communications Security (CCS 2011)*, Y. Chen, G. Danezis, and V. Shmatikov, Eds., 2011. [Online]. Available: <https://dl.acm.org/citation.cfm?id=2093503>.
- [26] R. Nithyanand, G. Tsudik, and E. Uzun, “User-aided reader revocation in pki-based RFID systems,” *Journal of Computer Security*, vol. 19, no. 6, 2011. [Online]. Available: <https://doi.org/10.3233/JCS-2011-0435>.
- [27] R. Nithyanand, N. Saxena, G. Tsudik, and E. Uzun, “Groupthink: Usability of secure group association for wireless devices,” in *Proceedings of 2010 ACM SIGCHI Conference on Ubiquitous Computing (UbiComp 2010)*, 2010. [Online]. Available: <https://doi.org/10.1145/1864349.1864399>.
- [28] R. Nithyanand, G. Tsudik, and E. Uzun, “Readers behaving badly - reader revocation in pki-based RFID systems,” in *Proceedings of 2010 European Symposium on Research in Computer Security (ESORICS 2010)*, D. Gritzalis, B. Preneel, and M. Theoharidou, Eds., 2010. [Online]. Available: [https://doi.org/10.1007/978-3-642-15497-3%5C\\_2](https://doi.org/10.1007/978-3-642-15497-3%5C_2).

### Non-Refereed Articles

- [1] H. Haddadi, R. Nithyanand, S. Khattak, M. Javed, N. Vallina-Rodriguez, M. Falahrastegar, J. E. Powles, E. D. Cristofaro, and S. J. Murdoch, “The adblocking tug-of-war,” *login Usenix Mag.*, 2016. [Online]. Available: <https://www.usenix.org/publications/login/winter2016/haddadi>.

### Electronic Publications

- [1] H. Habib, M. B. Musa, F. Zaffar, and R. Nithyanand, “To act or react: Investigating proactive strategies for online community moderation,” *CoRR*, 2019. arXiv: [1906.11932](https://arxiv.org/abs/1906.11932). [Online]. Available: <http://arxiv.org/abs/1906.11932>.
- [2] R. Nithyanand, B. Schaffner, and P. Gill, “Online political discourse in the trump era,” *CoRR*, 2017. arXiv: [1711.05303](https://arxiv.org/abs/1711.05303). [Online]. Available: <http://arxiv.org/abs/1711.05303>.
- [3] R. Nithyanand, R. Singh, S. Cho, and P. Gill, “Holding all the ases: Identifying and circumventing the pitfalls of as-aware tor client design,” *CoRR*, 2016. arXiv: [1605.03596](https://arxiv.org/abs/1605.03596). [Online]. Available: <http://arxiv.org/abs/1605.03596>.
- [4] A. Razaghpanah, A. Li, A. Filastò, R. Nithyanand, V. Ververis, W. Scott, and P. Gill, “Exploring the design space of longitudinal censorship measurement platforms,” *CoRR*, 2016. arXiv: [1606.01979](https://arxiv.org/abs/1606.01979). [Online]. Available: <http://arxiv.org/abs/1606.01979>.
- [5] N. Vallina-Rodriguez, S. Sundaresan, A. Razaghpanah, R. Nithyanand, M. Allman, C. Kreibich, and P. Gill, “Tracking the trackers: Towards understanding the mobile advertising and tracking ecosystem,” *CoRR*, 2016. arXiv: [1609.07190](https://arxiv.org/abs/1609.07190). [Online]. Available: <http://arxiv.org/abs/1609.07190>.
- [6] X. Cai, R. Nithyanand, and R. Johnson, “New approaches to website fingerprinting defenses,” *CoRR*, 2014. arXiv: [1401.6022](https://arxiv.org/abs/1401.6022). [Online]. Available: <http://arxiv.org/abs/1401.6022>.
- [7] R. Nithyanand, J. Toohill, and R. Johnson, “How best to handle a dicey situation,” *CoRR*, 2014. arXiv: [1401.7304](https://arxiv.org/abs/1401.7304). [Online]. Available: <http://arxiv.org/abs/1401.7304>.
- [8] R. Nithyanand, “A survey on the evolution of cryptographic protocols in epassports,” *IACR Cryptol. ePrint Arch.*, 2009. [Online]. Available: <http://eprint.iacr.org/2009/200>.
- [9] R. Nithyanand and K. Raman, “Fuzzy privacy preserving peer-to-peer reputation management,” *IACR Cryptol. ePrint Arch.*, 2009. [Online]. Available: <http://eprint.iacr.org/2009/442>.

## Inventions and Patents

1. Olivier Jean Benoit, Rishab Nithyanand, Rosario Cammarota, Anand Palanigounder, “Multigranular Authentication Techniques”, US9344553 B1.

## Grants and Contracts

### Current

- 09/2020 – 09/2024 *SaTC: CORE: Medium: Collaborative: Studying the Impact of IPv6 on Information Controls and Censorship Circumvention*  
 Funded by National Science Foundation, Total award amount: \$1.2M; Investigators: Eric Wustrow (PI), co-PIs: Rishab Nithyanand, Amir Houmansadr; Awarded to UIowa: \$399K, Share: \$399K.
- 01/2021 – 12/2023 *Algorithmic Personalization and Online Radicalization: A Mixed Methods Approach*  
 Funded by Air Force Office of Scientific Research (through the Minerva research initiative), Total award amount: \$1.02M; Investigators: Brian Ekdale (PI), co-PIs: Tim Havens, Andrew High, Raven Maragh-Lloyd, Rishab Nithyanand; Awarded to UIowa: \$1.02M, Share: \$591K.
- 03/2019 – *Unveiling Entity Relationships in Online Data Markets*  
 Funded by Google Faculty Research Award, Total award amount: \$41K; Investigator: Rishab Nithyanand; Awarded to UIowa: \$41K, Share: \$41K.

### Completed

- 05/2020 – 08/2020 *Identifying and Combating Coordinated Disinformation Campaigns*  
 Funded by Public Policy Center at The University of Iowa, Total award amount: \$6K; Investigators: (co-PIs): Rishab Nithyanand, Brian Ekdale; Share: \$3K.
- 09/2019 – 05/2020 *Algorithmic Personalization and Online Radicalization*  
 Funded by the Iowa Initiative for Artificial Intelligence, Total award amount: \$8K; Investigators: (co-PIs): Rishab Nithyanand, Brian Ekdale, Tim Havens; Share: \$8K.

## Invited Lectures

### National — Invited Lectures

- 2022 *Glowing in the Dark: Uncovering IPv6 Scanning in the Wild*  
Google Research (Networking and Systems Infrastructure)  
(Virtual)
- 2021 *Glowing in the Dark: Uncovering IPv6 Scanning in the Wild*  
Williams College Department of Computer Science Colloquium  
Williamstown, MA, USA
- 2019 *To Act or React: How Proactive Moderation Can Help Reddit*  
University of California at San Diego Center for Networked Systems Colloquium  
San Diego, CA, USA
- 2019 *AI and Big Data in the Online Advertising Ecosystem*  
St. Ambrose University and IEEE Iowa-Illinois Chapter Speaker Series  
Davenport, IA, USA
- 2019 *AI and Big Data in the Online Advertising Ecosystem*  
University of Iowa School of Law IBL Distinguished Speaker Series  
Iowa City, IA, USA
- 2019 *Tussling with Anonymity and Privacy on the Internet*  
Carleton College CS Department Colloquium  
Northfield, MN, USA
- 2018 *Tussling with Anonymity and Privacy on the Internet*  
Carnegie Mellon University Heinz College Colloquium  
Pittsburgh, PA, USA
- 2018 *Tussling with Anonymity and Privacy on the Internet*  
North Carolina State University CS Department Colloquium  
Raleigh, NC, USA
- 2018 *Tussling with Anonymity and Privacy on the Internet*  
Cornell Tech Digital Life Initiative Speaker Series  
New York, NY, USA
- 2018 *Tussling with Anonymity and Privacy on the Internet*  
Ford Foundation  
New York, NY, USA
- 2018 *Tussling with Anonymity and Privacy on the Internet*  
Data & Society Research Institute Databite #110  
New York, NY, USA

## TEACHING

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### Courses Taught at the University of Iowa

Term	Course #	Title	Ten-day Enroll.	Final Enroll.
Spring 22	CS:4980:0001	Privacy Technology & Law	14	14
Fall 21	CS:3640:0001	Introduction to Computer Networks and Their Applications	60	58
Spring 21	CS:4980:0001	Privacy Technology & Law	12	12
Fall 20	CS:3640:0001	Introduction to Computer Networks and Their Applications	60	50
Spring 20	CS:3640:0001	Introduction to Computer Networks and Their Applications	54	52
Fall 19	CS:4980:0004	Online Privacy and Anonymity	12	12
Spring 19	CS:4640:0001	Computer Security	35	32
Fall 18	CS:3640:0001	Introduction to Computer Networks and Their Applications	56	50

### Student Mentoring

#### Undergraduate Research Advisees

2018 – 2019	Xiao Song	Next: PhD student at University of Southern California
2018 – 2020	Yao Wang	Next: MSc student at Georgia Institute of Technology
2019 – 2020	John Thiede	Next: MCS student at University of Iowa
2019 – 2021	Piotr Smietana	Next: Software engineer at Pegasystems

#### Graduate Masters Research Advisees

2018 – 2019	Xiaoyu Xing	Next: Software engineer at Amazon
2020 – 2021	Mert Erdemir	Next: PhD student at Georgia Institute of Technology

#### Graduate PhD Advisees

2019 –	Hammas Bin Tanveer	Qualifiers complete
2019 –	Hussam Habib	Comprehensive complete
2019 –	Maaz Bin Musa	Qualifiers complete
2021 –	Sarmad Chandio	-
2021 –	Adnan Ahmed	Ph.D. topic proposal complete

#### PhD — Committee Member

2022 –	Flannery Currin	Ph.D. Computer Science at University of Iowa
2022 –	Mitziu Echeverria	Ph.D. Computer Science at University of Iowa
2022 –	Jonathan Rusert	Ph.D. Computer Science at University of Iowa
2022 –	Joyanta Debnath	Ph.D. Computer Science at University of Iowa
2020 – 2021	Umar Iqbal	Ph.D. Computer Science at University of Iowa
2020 – 2021	Daniel Yahyazadeh	Ph.D. Computer Science at University of Iowa

## SERVICE

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### Profession

#### Program Committee Member

- 2023 IEEE Symposium on Security and Privacy
- 2022 The Web Conference
- 2022 Privacy Enhancing Technologies Symposium
- 2021 ACM Conference on Computer and Communications Security
- 2021 Privacy Enhancing Technologies Symposium
- 2021 USENIX Security Symposium
- 2021 USENIX Symposium on Networked Systems Design and Implementation
- 2021 SIGCOMM Workshop on Free and Open Communication on the Internet
- 2020 Privacy Enhancing Technologies Symposium
- 2020 USENIX Workshop on Free and Open Communication on the Internet
- 2020 ACM Workshop on Privacy in the Electronic Society
- 2019 USENIX Symposium on Research in Attacks, Intrusions, and Detection
- 2019 USENIX Workshop on Free and Open Communication on the Internet
- 2018 ACM Workshop on Privacy in the Electronic Society

#### Research Proposal Reviewer

- 2022 National Sciences and Engineering Research Council of Canada
- 2018 National Science Foundation SaTC

#### Other: Panel Discussion Member

- 2019 University of Iowa Teaching with the Library: Privacy and Ethics
- 2018 Barnard College at Columbia University: Data Privacy Online

### Department

- 2021 – Informatics graduate program admissions and recruitment committee
- 2020 – Executive Committee
- 2019 – Web and Social Media Committee
- 2019 – 2020 Colloquium co-organizer (w/Zubair Shafiq)
- 2019 – 2020 Faculty Secretary



**Selected Media Contributions (includes coverage of my research)**

- 2020 The Hill: “Reddit enlists users to combat coronavirus misinformation”
- 2019 Mother Jones: “Anti-Muslim Hate Has Been Rampant on Reddit Since the NZ Shooting”
- 2019 El Pais: “Descenso en cinco clics a la madriguera del supremacismo en YouTube”
- 2019 Mother Jones: “Why Reddit Is Losing Its Battle with Online Hate”
- 2018 Inside Science: “Battling Online Bots, Trolls and People”
- 2018 CNET: “Reddit: Russian propaganda spread on our site before 2016 election”
- 2018 Mozilla Blog: “On Mobile Apps, Who Can See Your Personal Data?”
- 2017 New Scientist: “Politics chat on Reddit reads like it was written by 6-year-olds”
- 2017 CNET: “Reddit was misinformation hotspot in 2016 election, study says”
- 2017 Vox: “As politicians become less civil, so does the internet”
- 2017 Fast Company: “Here’s How To Track The Smartphone Apps That Are Tracking You”
- 2016 Heise.DE: “Pagefair: Mobile Adblocker verbreiten sich rasant” (in German)
- 2015 Daily Dot: “Hackers build a new Tor client designed to beat the NSA”
- 2015 The Register: “New relay selection fix for Tor to spoil spooks’ fun (eventually)”
- 2015 WIRED: “An App That Hides Secret Messages in StarCraft-Style Games”
- 2015 South China Morning Post: “Anti-censorship technology uses online video games to bypass Chinese internet restrictions”