

# RISHAB NITHYANAND

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201L, MacLean Hall  
The University of Iowa

## RESEARCH INTERESTS

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My research focuses bringing transparency to the online ecosystems which impact our sociopolitical realities. Specifically, my work seeks to discover and circumvent the entities involved in facilitating online tracking, manipulation, surveillance, and censorship of Internet users.

## EDUCATION

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<b>PhD</b>	Computer Science, Stony Brook University	2017
<b>MS</b>	Computer Science, University of California at Irvine	2010
<b>BTech</b>	Computer Science and Engineering, SRM University	2008

## PROFESSIONAL HISTORY

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<b>Assistant Professor</b> , Department of Computer Science, The University of Iowa	2018 – current
<b>Ford-Mozilla Fellow</b> , Data & Society Research Institute	2017 – 2018
<b>Postdoctoral Researcher</b> , University of Massachusetts at Amherst	2017
<b>Visiting Researcher</b> , International Computer Science Institute	2015 – 2016
<b>Research Intern</b> , Qualcomm Office of the Chief Scientist	2014
<b>Software Engineer</b> , Computer Associates	2012
<b>Research Intern</b> , Sandia National Labs	2011
<b>Staff Research Associate</b> , University of California at Irvine	2010

## PUBLICATIONS

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Note: Conference proceedings are the primary publication venue in computer science.

### *In Conference Proceedings*

[C13] Cook, J., Nithyanand, R., Shafiq, Z. (2020) Inferring Tracker-Advertiser Relationships in the Online Advertising Ecosystem using Header Bidding. *Proceedings of Privacy Enhancing Technologies Symposium (PETS 2020)*. (Accepted/To appear)

[C12] Ahmad, S., Dar, D., Vallina-Rodriguez, N., Zaffar, F., Nithyanand, R. (2020). Apophanies or Epiphanies? How Crawlers Can Impact Our Understanding of the Web. *Proceedings of The Web Conference (WWW 2020)*. (Accepted/To appear)

[C11] Pouryousef, S., Dar, D., Ahmad, S., Gill, P., Nithyanand, R. (2020). Extortion or Expansion? An investigation into the costs and consequences of ICANN's gTLD experiments. *Proceedings of Passive and Active Measurement Conference (PAM 2020)*. (Accepted/To appear)

[C10] Razaghpanah, A., Nithyanand, R., Vallina-Rodriguez, N., Sundaresan, S., Allman, M., Kreibich, C., Gill, P. (2018). Apps, Trackers, Privacy, and Regulators: A Global Study of the Mobile Tracking Ecosystem. *Proceedings of the 25th Annual Network and Distributed System Security*

*Symposium (NDSS 2018)*. <http://wp.internetsociety.org/ndss/wp-content/uploads/sites/25/2018/02/ndss2018\ 05B-3\ Razaghpanah\ paper.pdf>

[C9] Cho, S., Nithyanand, R., Razaghpanah, A., Gill, P. (2017). A Churn for the Better: Localizing Censorship using Network-level Path Churn and Network Tomography. *Proceedings of the 13th International Conference on emerging Networking EXperiments and Technologies (CoNEXT 2017)*. <https://doi.org/10.1145/3143361.3143386>

[C8] Singh, R., Nithyanand, R., Afroz, S., Pearce, P., Tschantz, M. C., Gill, P., Paxson, V. (2017). Characterizing the Nature and Dynamics of Tor Exit Blocking. *Proceedings of the 26th USENIX Security Symposium (USENIX Security 2017)*. <https://www.usenix.org/conference/usenixsecurity17/technical-sessions/presentation/singh>

[C7] Hahn, B., Nithyanand, R., Gill, P., Johnson, R. (2016). Games without Frontiers: Investigating Video Games as a Covert Channel. *Proceedings of the IEEE European Symposium on Security and Privacy (EuroS&P 2016)*. <https://doi.org/10.1109/EuroSP.2016.17>

[C6] Nithyanand, R., Starov, O., Gill, P., Zair, A., Schapira, M. (2016). Measuring and Mitigating AS-level Adversaries Against Tor. *Proceedings of the 23rd Annual Network and Distributed System Security Symposium (NDSS 2016)*. <http://wp.internetsociety.org/ndss/wp-content/uploads/sites/25/2017/09/measuring-mitigating-as-level-adversaries-against-tor.pdf>

[C5] Cai, X., Nithyanand, R., Wang, T., Johnson, R., Goldberg, I. (2014). A Systematic Approach to Developing and Evaluating Website Fingerprinting Defenses. *Proceedings of the 2014 ACM SIGSAC Conference on Computer and Communications Security (CCS 2014)*. <https://doi.org/10.1145/2660267.2660362>

[C4] Wang, T., Cai, X., Nithyanand, R., Johnson, R., Goldberg, I. (2014). Effective Attacks and Provable Defenses for Website Fingerprinting. *Proceedings of the 23rd USENIX Security Symposium (USENIX Security 2014)*. <https://www.usenix.org/conference/usenixsecurity14/technical-sessions/presentation/wang\ tao>

[C3] Kobsa, A., Nithyanand, R., Tsudik, G., Uzun, E. (2011). Usability of Display-Equipped RFID Tags for Security Purposes. *Proceedings of the 16th European Symposium on Research in Computer Security (ESORICS 2011)*. <https://doi.org/10.1007/978-3-642-23822-2\ 24>

[C2] Nithyanand, R., Saxena, N., Tsudik, G., Uzun, E. (2010). Groupthink: usability of secure group association for wireless devices. *Proceedings of the 12th ACM International Conference on Ubiquitous Computing, (UbiComp 2010)*. <https://doi.org/10.1145/1864349.1864399>

[C1] Nithyanand, R., Tsudik, G., Uzun, E. (2010). Readers Behaving Badly - Reader Revocation in PKI-Based RFID Systems. *Proceedings of the 15th European Symposium on Research in Computer Security (ESORICS 2010)*. <https://doi.org/10.1007/978-3-642-15497-3\ 2>

### *In Workshop Proceedings*

[W7] Singh, R., Nithyanand, R., Afroz, S., Pearce, P., Tschantz, M. C., Gill, P., Paxson, V. (2018). Characterizing the Nature and Dynamics of Tor Exit Blocking. *Proceedings of the Applied Networking Research Workshop (ANRW 2018)*. <https://doi.org/10.1145/3232755.3232786>

[W6] Nithyanand, R., Schaffner, B., Gill, P. (2017). Measuring Offensive Speech in Online Political Discourse. *Proceedings of the 7th USENIX Workshop on Free and Open Communications on the Internet (FOCI 2017)*. <https://www.usenix.org/conference/foci17/workshop-program/presentation/nithyanand>

[W5] Nithyanand, R., Khattak, S., Javed, M., Vallina-Rodriguez, N., Falahrestegar, M., Powles, J. E., De Cristofaro, E., Haddadi, H., Murdoch, S. J. (2016). Adblocking and Counter Blocking: A Slice of the Arms Race. *Proceedings of the 6th USENIX Workshop on Free and Open Communications on the Internet (FOCI 2016)*. <https://www.usenix.org/conference/foci16/workshop-program/presentation/nithyanand>

[W4] Cai, X., Nithyanand, R., Johnson, R. (2014). CS-BuFLO: A Congestion Sensitive Website Fingerprinting Defense. *Proceedings of the 13th Workshop on Privacy in the Electronic Society (WPES 2014)*. <https://doi.org/10.1145/2665943.2665949>

[W3] Nithyanand, R., Cai, X., Johnson, R. (2014). Glove: A Bespoke Website Fingerprinting Defense. *Proceedings of the 13th Workshop on Privacy in the Electronic Society (WPES 2014)*. <https://doi.org/10.1145/2665943.2665950>

[W2] Nithyanand, R., Johnson, R. (2013). The password allocation problem: strategies for reusing passwords effectively. *Proceedings of the 12th annual ACM Workshop on Privacy in the Electronic Society (WPES 2013)*. <https://doi.org/10.1145/2517840.2517870>

[W1] Nithyanand, R., Solis, J. (2012). A Theoretical Analysis: Physical Unclonable Functions and the Software Protection Problem. *Proceedings of the 2012 IEEE Symposium on Security and Privacy Workshops (IEEE SPW 2012)*. <https://doi.org/10.1109/SPW.2012.16>

### In Journals

[J2] Kobsa, A., Nithyanand, R., Tsudik, G., Uzun, E. (2013). Can Jannie verify? Usability of display-equipped RFID tags for security purposes. *Journal of Computer Security*, 21(3), 347--370. <https://doi.org/10.3233/JCS-130470>

[J1] Nithyanand, R., Tsudik, G., Uzun, E. (2011). User-aided reader revocation in PKI-based RFID systems. *Journal of Computer Security*, 19(6), 1147--1172. <https://doi.org/10.3233/JCS-2011-0435>

### In Magazines and Popular Media

[M2] Nithyanand, R., Schaffner, B., Gill, P. (2017) "As politicians become less civil, so does the internet", *Vox Mischiefs of Faction*. <https://www.vox.com/mischiefs-of-faction/2017/8/7/16104902/offensive-political-rhetoric-comments-reddit>

[M1] Haddadi, H., Nithyanand, R., Khattak, S., Javed, M., Vallina-Rodriguez, N., Falahrestegar, M., Powles, J. E., De Cristofaro, E., Murdoch, S. J. (2016). The Adblocking Tug-of-War. *USENIX ;login:*, 41(4). <https://www.usenix.org/publications/login/winter2016/haddadi>

### Non-refereed Articles

[N6] Nithyanand, R., Schaffner, B., Gill, P. (2017). Online Political Discourse in the Trump Era. *CoRR*, abs/1711.05303. <http://arxiv.org/abs/1711.05303>

[N5] Razaghpanah, A., Li, A., Arturo Filastino, Nithyanand, R., Ververis, V., Scott, W., Gill, P. (2016). Exploring the Design Space of Longitudinal Censorship Measurement Platforms. *CoRR*, *abs/1606.01979*. <http://arxiv.org/abs/1606.01979>

[N4] Nithyanand, R., Singh, R., Cho, S., Gill, P. (2016). Holding all the ASes: Identifying and Circumventing the Pitfalls of AS-aware Tor Client Design. *CoRR*, *abs/1605.03596*. <http://arxiv.org/abs/1605.03596>

[N3] Vallina-Rodriguez, N., Sundaresan, S., Razaghpanah, A., Nithyanand, R., Allman, M., Kreibich, C., Gill, P. (2016). Tracking the Trackers: Towards Understanding the Mobile Advertising and Tracking Ecosystem. *CoRR*, *abs/1609.07190*. <http://arxiv.org/abs/1609.07190>

[N2] Nithyanand, R., Toohill, J., Johnson, R. (2014). How Best to Handle a Dicey Situation. *CoRR*, *abs/1401.7304*. <http://arxiv.org/abs/1401.7304>

[N1] Cai, X., Nithyanand, R., Johnson, R. (2014). New Approaches to Website Fingerprinting Defenses. *CoRR*, *abs/1401.6022*. <http://arxiv.org/abs/1401.6022>

### Patents

[P1] Benoit, O. J., Nithyanand, R., Cammarota, R., & Palanigounder, A. (2016). U.S. Patent No. 9,407,754. Washington, DC: U.S. Patent and Trademark Office.

## HONORS AND AWARDS

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Open Web Fellow, <i>Ford Foundation and Mozilla</i>	2017
Senior Emerging Technology Fellow, <i>Open Technology Fund</i>	2016
Franklin Antonio Scholarship, <i>Qualcomm Research</i>	2014

## FUNDING

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UIowa CLAS-IIAI Pilot Grant, Amount: \$25K	2020
Google Faculty Research Award, Amount: \$42K	2019

## RESEARCH MENTORING AND ADVISING

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### Doctoral students

Daniyal Dar	Fall 2019 – current
Hammas Tanveer	Fall 2019 – current
Hussam Habib	Fall 2019 – current
Maaz Bin Musa	Fall 2019 – current

### Masters students

John Thiede	Spring 2020 – current
Yiqing Zhu	Spring 2019 – current

### Bachelors students

Owen Kueter	Fall 2019 – current
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Piotr Smietana	Spring 2020 – current
Smriti Barla	Spring 2020 – current
Shayla Ides (co-advised with Brian Ekdale)	Spring 2020 – current

**Past research advisees**

Ralph Nahra	Spring 2019 – Fall 2019
John Thiede (B.Sc.) Now a graduate student at the University of Iowa	Spring 2019 – Fall 2019
Xiaoyu Xing (M.Sc.) Now a software engineer at Amazon.	Spring 2019 – Fall 2019
Yao Wang (B.Sc.) Now a graduate student at (pending).	Spring 2019 – Fall 2019
Xiao Song (B.Sc.) Now a graduate student at the University of Southern California	Fall 2018 – Spring 2019

**TEACHING**

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**CS3640: Introduction to Computer Networks and Applications**

50 students, Median student evaluation rating of instructor effectiveness: 5.6/6.0	Fall 2018
50 students, Median student evaluation rating of instructor effectiveness: TBA	Spring 2020

**CS4640: Computer Security**

32 students, Median student evaluation rating of instructor effectiveness: 5.9/6.0	Spring 2019
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**CS4980: Special Topics in Computer Science: Online Anonymity and Privacy**

12 students, Median student evaluation rating of instructor effectiveness: 5.5/6.0	Fall 2019
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**SELECTED INVITED LECTURES**

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**To Act or React: Can Proactive Moderation Help Reddit?**

University of California at San Diego	2019
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**AI and Big Data in the Online Advertising Ecosystem**

The University of Iowa School of Law	2019
St. Ambrose University	2019

**Tussling with Anonymity and Privacy on the Internet**

Columbia University School of International and Public Affairs	2018
Carnegie Mellon University	2018
North Carolina State University	2018
The University of Iowa	2018
Cornell Tech	2018
Ford Foundation	2018
Data & Society Research Institute Data bite 110	2018
Carleton College	2018

## SELECTED MEDIA COVERAGE

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### Selected coverage of online political discourse and radicalization research

The Hill: “Reddit enlists users to combat coronavirus misinformation”	2020
Mother Jones: “Anti-Muslim Hate Has Been Rampant on Reddit Since the NZ Shooting”	2019
Mother Jones: “Users of a Major Online Trump Hub Expect They’ll Be Kicked off Reddit— and They Don’t Know Where to Go”	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”	2019
Mother Jones: “How Fascist Sympathizers Hijacked Reddit’s Libertarian Hangout”	2018
Inside Science: “Battling Online Bots, Trolls and People”	2018
CNET: “Reddit: Russian propaganda spread on our site before 2016 election”	2018
New Scientist: “Politics chat on Reddit reads like it was written by 6-year-olds”	2017
CBS News: “Reddit was misinformation hotspot in 2016 election, study says”	2017
Vox: “As politicians become less civil, so does the internet”	2017

### Selected coverage of online privacy research

Mozilla Blog: “On Mobile Apps, Who Can See Your Personal Data?”	2018
Neowin: “Mozilla Fellow’s research reveals widespread mobile tracking”	2018
The Conversation: “7 in 10 smartphone apps share your data with third-party services”	2017
Newsweek: “7 out of 10 smartphone apps are sharing your data, new study reveals”	2017
Forbes: “70% Of Mobile Apps Share Your Data with Third Parties”	2017
Heise.DE: “Pagefair: Mobile Adblocker verbreiten sich rasant” (in German)	2016

### Selected coverage of Tor anonymity network attack and defense research

Express VPN: “A spy-proof network? Astoria may hold the answer”	2018
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
Hacker News: “Astoria — Advanced Tor Client Designed to Avoid NSA Attacks”	2015
Slash Gear: “Researchers design new Tor client resistant to NSA attacks”	2015

### Selected coverage of online censorship circumvention research

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”	2015

## SELECTED PROFESSIONAL SERVICE

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### Program committees

Privacy Enhancing Technologies Symposium (PETS)	2021
USENIX Symposium on Networked Systems Design and Implementation (NSDI)	2021
Privacy Enhancing Technologies Symposium (PETS)	2020
USENIX Symposium on Research in Attacks Intrusions and Defenses (RAID)	2019
USENIX Workshop on Free and Open Communication on the Internet (FOCI)	2019
ACM Workshop on Privacy in the Electronic Society (WPES)	2019

### Panels

“Privacy and ethics” at The University of Iowa Teaching with the Library	2019
“Privacy and ethics” at Department of Computer Science at UIowa	2019

“Data privacy online” at Barnard College of Columbia University 2018  
“SATC Funding Review Panel” at National Science Foundation 2018

*Ph.D. student committees*

Daniel Yahyazadeh, *Comprehensive exam* 2020  
Joyantha Debnath, *Qualifying exam* 2020  
Umar Iqbal, *Comprehensive exam* 2019  
Adnan Ahmed, *Comprehensive exam* 2019  
Dat Hong, *Qualifying exam* 2018

*Department service*

Web and social media committee Fall 2019 – current  
SecuriTea reading group co-organizer Spring 2019 – current