

# Satyajayant Misra

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## EDUCATION

### Doctor of Philosophy (8/2003 - 8/2009)

Department of Computer Science and Engineering  
Ira A. Fulton School of Engineering  
Arizona State University (ASU)  
Major: Computer Science  
Thesis: SAS: Security, Anonymity, and Survivability in Wireless Sensor and Ad Hoc Networks

### Integrated Master of Science (9/1998 - 6/2003)

Department of Computer Science and Information Systems  
Department of Physics  
Birla Institute of Technology and Science (BITS), Pilani  
Majors: Information Systems and Physics

## QUALIFICATION SUMMARY

My research interests are in networking, distributed systems, security, privacy, and resilience with emphasis on:

- ▷ Anonymous, secure, and private networking and communications in the Internet of Things (IoT) and Cyber-Physical Systems (CPS), and distributed systems (e.g., blockchains, distributed ledgers).
- ▷ Design of security, privacy, and optimization protocols for leveraging the information-centric networking paradigm for IoT, CPS, and the future Internet.
- ▷ Design and development of low-cost and customizable wireless sensors for aiding experimental research.
- ▷ Design of algorithms for online social networks analysis.

I have co-authored more than **100** refereed papers in the above areas. The relevance of my research can be gauged from the cumulative peer-citation count of over **6400** (highest citation of an individual article is over 2850, with *i-10* index of 46, and *h*-index of 26). Several of my works have been published in prestigious peer reviewed journals and conferences (acceptance rates < 25%), such as *ACM SACMAT'2021*, *ACM Computer and Communications Security (CCS) '2019, '2021*, *IEEE Communications on Surveys and Tutorials'2018, '2012 and '2008*, *IEEE Transactions on Dependable and Secure Computing'2019*, *IEEE IoT Journal'2018*, *ACM ICN'2019, '2016, and '2015*, *ACM Conference on Data and Application Security and Privacy (CODASPY)'2019*, *IEEE International Conference on Distributed Computing Systems (ICDCS)'2018*, *IEEE Communications Magazine'2016*, *IEEE Transactions on Wireless Communications'2011 and '2014*, *IEEE Transactions on Computers'2014*, *IEEE/ACM Transactions on Networking'2010 and '2013*, *IEEE Transactions on Mobile Computing'2012*, *IEEE Transactions on Intelligent Transportation Systems'2011 '2020*, *IEEE Transactions on Smart Grid '2020*, *IEEE Transactions on Vehicular Technology'2009*, *IEEE/ACM SuperComputing'2012*, *IEEE MASS'2011*, *IEEE SECON'2010*, *Computer Networks'2008*, and *IEEE INFOCOM'2009, '2008, and '2007*.

## AWARDS and HONORS

- ▷ Awarded statewide best mentor award by the NM EPSCoR State Adjudication committee, 2019.
- ▷ Best paper award in ACM MobiArch Workshop, 2017 (in conjunction with ACM SIGCOMM'2017).

- ▷ Affiliated scientist/faculty Los Alamos National Lab (LANL) and New Mexico Consortium, 2017–onwards.
- ▷ One of the first eleven NSF INSPIRE CREATIV grant awardees for year 2012.
- ▷ Awarded NSF Fellowship to attend the TRUST-WISE workshop at UC Berkeley, summer 2006.
- ▷ Awarded student leadership award by the Computer Science and Engineering department in 2004.
- ▷ Participant of the group that won the third prize in the city of Phoenix Downtown Shade Modeling contest, September 2007.
- ▷ Student Travel Grant Award for GLOBECOM 2007, MILCOM 2007, MILCOM 2006, ICC 2006.
- ▷ Awarded fellowship under the Young Science Fellowship Program by Indian Institute of Science (IISc) Bangalore, for academic years 1999-2001.
- ▷ Best academic performance award by the Physics Department (BITS, Pilani) for exceptional performance in M.Sc (Hons) Physics, class of 2003.
- ▷ Ranked 6th in the M.Sc. (Tech) Information Systems class of 2003, graduating with distinction.

## RESEARCH EXPERIENCES

### **Associate Professor (08/2015 - Present), Dept. of Computer Science, NMSU**

Director, *Networks and Systems Optimization Laboratory (NSOL)*

Working on wireless ad hoc and sensor networks, Internet of Things, Cyber-Physical Systems, future Internet architectures, and exascale supercomputing architecture. Addressing issues in security, privacy, and network optimizations.

### **Affiliated Faculty Researcher (06/2017 - Present), Los Alamos National Laboratories, NM**

Information Science and Technology Institute,

Working on cybersecurity, high performance computing, and quantum computing.

### **Assistant Professor (08/2009 - 07/2015), Dept. of Computer Science, NMSU**

Worked on wireless ad hoc and sensor networks, future Internet architectures, and exascale supercomputing architecture. Addressing issues in security, privacy, and efficient operation in these networks.

### **Research Associate (01/2005 - 07/2009), Dept. of Computer Science and Engineering, ASU**

I designed, implemented, and evaluated anonymous protocols for wireless sensor networks, secure localization and target tracking protocols that withstand malicious anchors, relay nodes placement algorithms for wireless sensor networks, and anonymous/secure authentication protocols for vehicular ad hoc networks and RFID systems. **Past**

#### **Projects (Involved as a Research Associate):**

- ▷ Security and Survivability of Real-time Systems with MANETs, sponsored by NSF.
- ▷ Robustness and Survivability Issues in Wireless Ad Hoc Networks, sponsored by ARO.
- ▷ Numerical and Combinatorial Algorithms for Location Problems arising in Wireless Sensor Networks and Other Applications, sponsored by NSF.
- ▷ Cross-layer Optimization for Dynamic Spectrum Access Wireless Mesh Networks, sponsored by NSF.

### **Research Intern (1/2003 - 6/2003), Veritas Software Inc., India**

I worked on an individual product named the “Veritas Configuration File Synchronizer,” which was to form a part of the Veritas Cluster Server. I designed and implemented the first prototype of the product.

### **Research Assistant (7/2002 - 12/2002), Department of Computer Science and Information Systems, BITS Pilani, India**

Completed M.S. thesis titled, “Internet Quality of Service with Incomplete Information.” Modeled various parameters to obtain a relationship between the parameters and delay over the Internet. Proposed an efficient algorithm

to find a path in the Internet given several QoS constraints.

**Project Leader and Research Assistant (7/2001 - 7/2002), Department of Computer Science and Information Systems, BITS Pilani, India**

Led the *Desktop Videoconferencing* subgroup of the IPv6@BITS group. Contributed to the design and development of a complete desktop videoconferencing toolkit.

**TEACHING, ADVISING, and MENTORING EXPERIENCES**

**Associate Professor (8/2015 - Present), Assistant Professor (8/2009 - 07/2015) Dept. of Computer Science, New Mexico State University**

I have taught courses in Computer Networks, Computer Security, and Operating Systems, and mentored graduate and undergraduate students for their thesis and projects. I have mentored **six** undergraduate students for their undergraduate thesis. I have graduated **16** M.S. students. I have graduated two Ph.D. student (CS faculty at St. Louis University & Cal. State Univ., San Marcos) and am currently advising **six** Ph.D. students, and **two** M.S. students. As part of my participation in different interdisciplinary research projects effort I am mentoring five students (two Ph.D. and two M.S. students in Electrical Engineering and one Ph.D. student in Biology (graduated)).

**Teaching Associate (TA) (9/2003 - 5/2005), Dept. of Computer Science and Engineering, ASU**

I worked as a teaching associate for the courses Programming with C++ (CSE 100) (taught labs), Data Structures using Java (CSE 210) (taught labs), Design and Analysis of Algorithms (CSE 450/598), and Convex Optimization with Engineering Applications (CSE 591).

**Student Mentor (01/2007 - 5/2008), Research Experience for Undergraduate (REU) Program, NSF**

I have supervised three undergraduate students as their student mentor.

**FUNDING EFFORTS**

Currently involved in several funded research grant efforts as PI & Co-PI (~ \$27 million). Administered or currently administering grants totaling ~\$3.5 million as lead PI (leading a project/sub-project).

- [1] Awarded NSF grant – *CREST: Interdisciplinary Center for Research Excellence in Design of Intelligent Technologies for Smartgrids Phase II*, Co-PI, total amount \$4,995,000, (Co-PI leads one of the projects with a budget of ~ \$500K), funding period 2/1/2020 – 1/31/2025.
- [2] Awarded DoE grant – *Optimal Reconfiguration and Resilient Control Framework for Real-Time Photovoltaic Dispatch to Manage Critical Infrastructure (ReDis-PV)*, Collaborative Proposal with UNC Charlotte, NMSU PI (leads cybersecurity project, \$540K), total amount \$3,600,000, funding period 01/15/2020 – 01/14/2023.
- [3] Awarded FAA grant – *UAS Cyber Security and Safety Lit Review*, Collaborative Proposal with Oregon State University, NMSU academic PI (leads cybersecurity project, \$300K), total amount \$988,476, funding period 08/15/2020 – 07/31/2021.
- [4] Awarded NSF grant – *Security for Pervasive Edge Computing Ecosystems*, PI, total amount \$56,638, funding period 08/01/2020 – 07/31/2021.
- [5] Awarded NSF/Intel grant – *ICN-WEN: Collaborative Research: ICN-Enabled Secure Edge Networking with Augmented Reality*, Collaborative Proposal with UCLA, NMSU PI (leads security project, \$300K, total amount \$2,000,000 (UCLA, FIU, & NMSU), funding period 07/15/2017 – 07/14/2020.
- [6] Co-leading the Networks and Security subproject of NSF EPSCoR grant – *RII Track-1: The New Mexico SMART Grid Center: Sustainable, Modular, Adaptive, Resilient, and Transactive*, involves New Mexico State

University, University of New Mexico, Los Alamos National Lab, Sandia National Lab, New Mexico Tech, and others. Leads Communications and Cybersecurity Project (Co-PI share \$680K) total \$24,000,000, funding period 09/15/2018 – 09/14/2023.

- [7] Awarded NSF grant – *CyberTraining: CDL: Cyber Infrastructure Training and Mentoring (CI-TraM)*, Co-PI, \$467,179, funding period 07/12/2017 – 07/11/2020.
- [8] Awarded an NSF REU Site grant – *BIGData: Big Data Analytics for Cyber-physical systems*, Co-PI (\$192k), total amount \$391,532, funding period 2/1/2016 – 1/31/2019.
- [9] Awarded a DoD Army Research Lab grant – *Theories and Algorithms to Achieve Linear Capacity Scaling in Wireless Networks through Opportunistic Usage of Direct Energy Links*, Co-PI, total amount \$593,233, funding period 8/24/2015 – 8/23/2019.
- [10] Awarded DoD/ARL Army High Performance Computing Research Center grant – *Implementation, Verification, and Testing of the US Army Patented OS Friendly Microprocessor Architecture*, Co-PI, total amount \$125,000, funding period 1/15/2017 – 1/14/2018.
- [11] Awarded an NSF CREST grant – *iCREDITS: interdisciplinary Center of Research Excellence in Design of Intelligent Technologies for Smart grids*, Co-PI, total amount \$5,000,000 (Co-PI leads one of the projects with a budget of \$750,000), funding period 2/01/2014 – 1/31/2019.
- [12] Awarded Army Research Lab/Department of Defense (ARL/DoD) grant – *Large-scale Simulation of Attack Surfaces and Vectors in Mobile Ad Hoc Networks to Identify and Characterize Vulnerabilities*, Single PI, amount \$123,000/yr, funding period 12/01/2015 – .
- [13] Awarded NSF INSPIRE grant – *CREATIV: Towards Ubiquitous Adoption of Wireless Sensor Networks in Experimental Biology Research*, Lead PI, total amount \$832,000 (PI’s budget is \$432,000), funding period 08/01/2012 – 07/31/2018.
- [14] Awarded Los Alamos National Security/Department of Energy (LANS/DoE) grant – *One-sided Communication State of the Art Study with MPI-1/MPI-2, UCCS, and OpenSHMEM*, Single PI, amount \$80,000, funding period 12/01/2013 – 11/30/2015.
- [15] Awarded DoEd GAANN grant – *Training Graduate Students for Research and Teaching Careers in Computer Science*, Co-PI, amount \$395,775, funding period 08/01/2012 – 07/31/2017.
- [16] Awarded one month summer support for summer of 2011 to perform preliminary collaborative research in supercomputing with the Los Alamos National Lab (LANL) (funded by the New Mexico Consortium (NMC)).

## SELECT PUBLICATIONS (Google Scholar citations count (on Apr. 22, 2021))

**NOTE: \* next to the name indicates student or post-doc**

### Book Chapters

- [1] X. Chen, J. Zhang, and **S. Misra**, “Socially-aware Cooperative D2D and D4D Communications towards Fog Networking,” *Fog Networking*, John Wiley and Sons (in press).

### Refereed Journal Papers

- [2] S. Helal, F.-C. Delicato, C.-B. Margi, and **S. Misra**, M. Endler, Challenges and Opportunities for Data Science and Machine Learning in IoT Systems - A Timely Debate: Part 1, *IEEE Internet Things Magazine*, 4(1):46-52, 2021.
- [3] S. Helal, F.-C. Delicato, C.-B. Margi, and **S. Misra**, M. Endler, Challenges and Opportunities for Data Science and Machine Learning in IoT Systems - A Timely Debate: Part 2, *IEEE Internet Things Magazine*, (early access).

- [4] S. Mastorakis, A. Mtibaa, J. Lee, and **S. Misra**, “iCedge: When Edge Computing Meets Information-Centric Networking,” *IEEE Internet of Things Journal*, 7(5):4203-4217, 2020. ((Citations: 26))
- [5] R. Gellikumar, D. Ameme\*, **S. Misra**, S. Brahma, and R. Tourani, “iCASM: An Information-Centric Network Architecture for Wide Area Measurement Systems,” *IEEE Transactions on Smart Grid*, 11(4):3418-3427, 2020. ((Citations: 2))
- [6] V. Kilari\*, R. Yu\*, **S. Misra**, and G. Xue, “Robust Revocable Anonymous Authentication for Vehicle to Grid Communications,” *IEEE Transactions on Intelligent Transportation Systems (T-ITS)*, 21(11):4845-4857, 2020.
- [7] **S. Misra**, R. Tourani\*, F. Natividad\*, T. Mick\*, N. Majd, and H. Huang, “AccConF: An Access Control Framework for Leveraging In-Network Cached Data in ICNs,” *IEEE Transactions on Secure and Distributed Computing (TDSC)*, 16(1):5-17, 2019. ((Citations: 42))
- [8] R. Tourani, A. Mtibaa, **S. Misra**, “Distributed Data-Gathering and -Processing in Smart Cities: An Information-Centric Approach,” *Open Journal of Internet of Things (OJIOT)*, 5(1), pp. 93-104, 2019.
- [9] W. Tang, P. Furth, V. Nammi\*, G. Panwar\*, V. Ibarra\*, X. Tang, G. Unguez, and **S. Misra**, “An Aquatic Wireless Biosensor for Electric Organ Discharge With an Integrated Analog Front End,” *IEEE Sensors Journal*, 19(15), pp. 6260-6269, 2019.
- [10] T. Mick\*, R. Tourani\*, and **S. Misra**, “LASer: Lightweight Authentication and Secured Routing for NDN IoT in Smart Cities,” *IEEE Internet of Things Journal*, 5(20):755-764, 2018. (Citations: 58)
- [11] R. Tourani\*, T. Mick\*, **S. Misra**, and G. Panwar\*, “Security, Privacy, and Access Control in Information-Centric Networking: A Survey,” *IEEE Communications Surveys and Tutorials (COMST)*, 20(1):566-600, 2018. (Citations: 189)
- [12] A. Tabakhi\*, W. Yeoh, R. Tourani, F. Natividad\*, **S. Misra**, “Communication-Sensitive Pseudo-Tree Heuristics for DCOP Algorithms,” *International Journal on Artificial Intelligence Tools*, 27(7), 1860008, 2018.
- [13] H. Barani\*, Y. Jaradat, H. Huang, Z. Li, **S. Misra**, “Effect of sink location and redundancy on multi-sink wireless sensor networks: a capacity and delay analysis,” *IET Communications*, 12(8):941-947, 2018. (Citations: 14)
- [14] Z. Li\*, H. Huang, **S. Misra**, “Stability Analysis and Stabilization of Markovian Jump Systems with Time-varying Delay and Uncertain Transition Information,” *International Journal of Robust and Nonlinear Control (Wiley)*, 28(1):68-85, 2018. ((Citations: 11))
- [15] G. Panwar\*, R. Tourani\*, T. Mick\*, A. Mtibaa, and **S. Misra**, “DICE: Dynamic Multi-RAT Selection in the ICN-enabled Wireless Edge,” *ACM Computer Communication Review*, 47(5):67-72, 2017. (Citations: 16)
- [16] H. Huang, Y. Jaradet, **S. Misra**, A. Abu-Baker, R. Asorey-Cacheda, R. Tourani\*, M. Masoud, I. Jannoud, “Capacity of Large-Scale Wireless Networks Under Jamming: Modeling and Analyses,” *IEEE Transactions on Vehicular Technology (TVT)*, 66(9):8524-8534, 2017. (Citations: 1)
- [17] R. Tourani\*, **S. Misra**, and T. Mick\*, “IC-MCN: An architecture for an information-centric mobile converged network,” *IEEE Communications Magazine*, vol. 54, no. 9, pp. 43-49, 2016. (Citations: 9)
- [18] Z. Li\*, H. Huang, and **S. Misra**, “Compressed Sensing via Dictionary Learning and Approximate Message Passing for Multimedia Internet of Things,” *IEEE Internet of Things Journal*, vol. 4, no. 2, pp. 505-512, 2016. (Citations: 11)

- [19] Z. Li\*, Y. Xu, H. Huang, and **S. Misra**, “Sparse control and compressed sensing in networked switched systems,” *IET Control Theory & Applications (CTA)*, vol. 10, no. 9, pp. 1078–1087, 2016. (Citations: 10)
- [20] G. Calinescu, B. Grimmer, **S. Misra**, S. Tongngam\*, G. Xue, and W. Zhang, “Improved approximation algorithms for single-tiered relay placement,” *Journal of Combinatorial Optimization*, vol. 31, no. 3, pp. 1280–1287, 2015.
- [21] Y. Hao\*, H. Cao, C. Hu\*, K. Bhattarai\*, and **S. Misra**, “K-anonymity for Social Networks Containing Rich Structural and Textual Information,” *Springer Social network analysis and mining journal (SNAM)*, vol. 4, no. 1, pp. 1–40, 2015. (Citations: 3)
- [22] H. Huang, Y. Jaradet\*, **S. Misra**, and R. Tourani\*, “Towards Achieving Linear Capacity Scaling in Wireless Networks through Directed Energy,” *IEEE Transactions on Wireless Communications (TWC)*, vol. 13, no. 4, pp.1806–1814, 2014.
- [23] **S. Misra**, N. Majd\*, and H. Huang, “Approximation Algorithms for Constrained Relay Node Placement in Energy Harvesting Wireless Sensor Networks,” *IEEE Transactions on Computers (ToC)*, vol. 63, no. 12, pp. 2933–2947, 2014. (Citations: 33)
- [24] D. Yang\*, G. Xue, X. Fang\*, **S. Misra**, and J. Zhang\*, “A Game Theoretic Approach to Stable Routing in Max-Min Fair Networks,” *IEEE Transactions on Networking (TON)*, vol. 21, no. 6, pp. 1947–1959, December, 2013. (Citations: 5)
- [25] H. Huang, **S. Misra**, W. Tang, H. Barani\*, and H. Al-Azzawi\*, “Applications of Compressed Sensing in Communications Networks,” *arXiv preprint arXiv:1305.3002*, 2013. (Citations: 44)
- [26] A. Abu-Baker\*, H. Huang, and **S. Misra**, “Maximizing lifetime sequences of wireless sensor networks powered by renewable energy,” accepted for publication in *Sensor Review Journal*. (Citations: 4)
- [27] X. Fang\*, **S. Misra**, G. Xue, and D. Yang\*, “Managing Smart Grid Information in the Cloud: Opportunities, Model, and Applications,” *IEEE Networks Magazine*, vol. 26, no. 4, pp. 32–38, 2012. (Citations: 136)
- [28] M. Balakrishnan\*, H. Huang, R. Asorey-Cacheda, **S. Misra**, S. Pawar\*, and Y. Jaradat\*, “Measures and countermeasures for null frequency jamming of on-demand routing protocols in wireless ad hoc networks,” *IEEE Transactions on Wireless Communications (TWC)*, vol. 11, no. 11, pp. 3860–3868, 2012. (Citations: 10)
- [29] X. Fang\*, **S. Misra**, D. Yang\*, and G. Xue, “Smart Grid – The New and Improved Power Grid: A Survey,” *IEEE Communications on Surveys and Tutorials (CST)*, vol. 14, no. 4, pp. 944–980, 2012. (Citations: 2853)
- [30] D. Yang\*, **S. Misra**, X. Fang\*, G. Xue, and J. Zhang, “Two-Tiered Constrained Relay Node Placement in Wireless Sensor Networks: Computational Complexity and Efficient Approximations,” *IEEE Transactions on Mobile Computing (TMC)*, vol. 11, no. 8, pp. 1399–1411, 2012. (Citations: 142)
- [31] D. Huang, **S. Misra**, G. Xue, and M. Verma\*, “PACP: An efficient pseudonymous authentication based conditional privacy protocol for VANETs,” *IEEE Transactions on Intelligent Transportation Systems (T-ITS)*, vol. 12, no. 3, pp. 734–746, 2011. (Citations: 195)
- [32] **S. Misra**, S. Hong, G. Xue, and J. Tang, “Constrained relay node placement in wireless sensor networks: Formulation and approximations,” *IEEE Transactions on Networking (TON)*, vol. 18, no. 2, pages 434–448, 2010. (Citations: 204)
- [33] **S. Misra**, G. Xue, and S. Bhardwaj, “Secure and robust localization in a wireless ad hoc environment,” *IEEE Transactions on Vehicular Technology (TVT)*, vol. 58, no. 3, pages 1480–1489, 2009. (Citations: 50)

- [34] J. Tang, **S. Misra**, and G. Xue, “Joint spectrum allocation and scheduling for fair spectrum sharing in cognitive radio wireless networks,” *Journal of Computer Networks (ComNet)*, vol. 52, no. 11, pages 2148–2158, 2008. (Citations: 142)
- [35] **S. Misra**, M. Reisslein, and G. Xue, “Multimedia streaming in wireless sensor networks,” *IEEE Communications Surveys and Tutorials (CST)*, vol. 10, no. 4, pages 18–39, 2008. (Citations: 536)
- [36] **S. Misra** and G. Xue, “Efficient anonymity schemes for clustered wireless sensor networks,” *International Journal of Sensor Networks (IJSNet)*, vol. 1, no. 1/2, 2006. (Citations: 98)

#### Refereed Conference & Workshop Papers

- [34] S. Dougherty, R. Tourani, G. Panwar, R. Vishwanathan, **S. Misra**, S. Srikathyayani, APECS: A Distributed Access Control Framework for Pervasive Edge Computing Services, *ACM CCS*, 2021 (accepted).
- [35] G. Panwar, R. Vishwanathan, **S. Misra**, Revocable and Traceable Blockchain Rewrites using Attribute-based Cryptosystems, *ACM Symposium on Access Control Models and Technologies (SACMAT)*, accepted.
- [36] A. James, G. Torres, S. Shrestha, R. Tourani, and **S. Misra**, iCAAP: information-Centric network Architecture for Application-specific Prioritization in Smart Grid, *IEEE Conference on Intelligent Smart Grid Technologies (ISGT)*, 2021.
- [37] T. Machacek, M. Biswal, and **S. Misra**, Proof of X: Experimental Insights on Blockchain Consensus Algorithms in Energy Markets, *IEEE Conference on Intelligent Smart Grid Technologies (ISGT)*, 2021.
- [38] R. Tourani, G. Torres, and **S. Misra**, PERSIA: a PuzzLE-based InteReSt FloodIng Attack Countermeasure, *ACM Conference on Information-Centric Networking (ICN)*, pp. 117-128, 2020.
- [39] V. Kilari, R. Yu, **S. Misra**, and G. Xue, EARS: Enabling Private Feedback Updates in Anonymous Reputation Systems, *IEEE Conference on Communications and Network Security (CNS)*, 2020.
- [40] M. Biswal\*, **S. Misra**, and A. Tayeen, “Black Box Attack on Machine Learning Assisted Wide Area Monitoring and Protection Systems,” *IEEE Conference on Intelligent Smart Grid Technologies (ISGT)*, 2019.
- [41] A. Tayeen\*, S. Masadeh\*, A. Mtibaa, **S. Misra**, and M. Choudhury, “Comparison of Text Mining Feature Extraction Methods Using Moderated vs Non-Moderated Blogs: An Autism Perspective,” *ACM International Conference on Digital Public Health (DPH)*, pp. 69-78, 2019.
- [42] R. Vishwanathan, G. Panwar\*, **S. Misra** and A. Bos\*, “SAMPL: Scalable Auditability of Monitoring Processes using Public Ledgers,” *ACM Conference on Computer Communication Security (CCS)*, pp. 2249–2266, 2019.
- [43] R. Tourani, A. Bos\*, **S. Misra** and F. Esposito, “Towards security-as-a-service in multi-access edge.” *ACM/IEEE Symposium on Edge Computing (SEC), EdgeSP Workshop*, pp. 358-363, 2019.
- [44] S. Ramani\*, R. Tourani, G. Torres\*, **S. Misra** and A. Afanasyev, “NDN-ABS: Attribute-Based Signature Scheme for Named Data Networking,” *ACM Information-Centric Networking Conference (ICN)*, pp. 123-133, 2019.
- [45] G. Panwar\*, **S. Misra**, R. Vishwanathan, “BIAnC: Blockchain-based Anonymous and Decentralized Credit Networks,” *ACM Conference on Data and Application Security and Privacy (CODASPY)*, pp. 339–350, 2019. (Citations: 10)
- [46] R. Tourani\*, R. Stubbs\* and **S. Misra**, “TACTIC: Tag-based Access ConTrol Framework for the Information-Centric Wireless Edge Networks,” *IEEE International Conference on Distributed Computing Systems (ICDCS)*, pp. 456-466, 2018. (Citations: 10)

- [47] A. Mtibaa\*, R. Tourani, **S. Misra**, J. Burke and L. Zhang, “Towards Edge Computing over Named Data Networking,” *IEEE International Conference on Edge Computing (EDGE)*, pp. 117–12, 2018.
- [48] G. Panwar\*, R. Tourani\*, T. Mick\*, **S. Misra** and A. Mtibaa\*, “On Implicit Denial of Service Attack in NDN and Potential Mitigations,” *IEEE International Conference on Communications Workshops (ICC Workshops)*, 2018.
- [49] A. Mtibaa, C. Good\*, **S. Misra**, D. Mitchell and B. Parikh, “RC-UDP: On Raptor Coding Over UDP For Reliable High-Bandwidth Data Transport,” *IEEE International Conference on Communications (ICC)*, 2018.
- [50] S. Parvin\*, R. Darshoori\*, S. Mahbub\*, A. Alshehri\*, A. Mtibaa\*, **S. Misra**, H. Huang, “STAR: STABLE Routing for Hidden Interfering Primary User Problems in Mobile Cognitive Radio Networks,” *Proceedings of IEEE Military Communications Conference (MILCOM)*, pp. 569–574, 2017.
- [51] G. Panwar\*, R. Tourani\*, T. Mick\*, A. Mtibaa\*, **S. Misra**, “DICE: Dynamic Multi-RAT selection in the ICN-enabled wireless edge,” *ACM SIGCOMM MobiArch Workshop*, 2017.
- [52] G. Chennupati\*, N. Santhi, R. Bird, S. Thulasidasan, H. Badawy, **S. Misra**, S. Eidenbenz, “A Scalable Analytical Memory Model for CPU Performance Prediction,” *International Workshop on Performance Modeling, Benchmarking and Simulation of High Performance Computer Systems*, pp. 114–135, 2017. (Citations: 13)
- [53] G. Ravikumar\*, G. Ramya\*, **S. Misra**, S. Brahma and S. Khaparde, “iPaCS: An integrative power and cyber systems co-simulation framework for smart grid,” *IEEE Power & Energy Society General Meeting*, pp. 1–5, 2017.
- [54] H. Barani, H. Huang, **S. Misra**, *et al.*, “The Effect of Popularity Rule on Capacity and Delay in Multi-Sink WSNs,” *IEEE WCNC*, 2017.
- [55] A. Tabakhi\*, R. Tourani\*, F. Natividad\*, W. Yeoh, **S. Misra**, “Pseudo-Tree Construction Heuristics for DCOPs and Evaluations on the ns-2 Network Simulator,” *IEEE International Conference on Tools with Artificial Intelligence (ICTAI)*, pp. 1105–1112, 2017. \*
- [56] R. Tourani\*, **S. Misra**, T. Mick\*, S. Brahma, M. Biswal, and D. Ameme\*, “iCenS: An Information-Centric Smart Grid Network Architecture,” *Proceedings of the IEEE Smart Grid Communication Conference (SmartGridComm)*, 2016. (Citations: 14)
- [57] V. Kilari\*, **S. Misra**, and G. Xue, “Revocable Anonymity based Authentication for Vehicle to Grid (V2G) Communications,” *Proceedings of the IEEE SmartGridComm Conference (SmartGridComm)*, 2016.
- [58] T. Mick\*, R. Tourani\*, and **S. Misra**, “MuNCC: Multi-hop neighborhood collaborative caching in information centric networks,” *3rd ACM Conference on Information-Centric Networking (ICN)*, pp. 93–101, 2016. (Acceptance rate: 22%) (Citations: 7)
- [59] R. Tourani\*, **S. Misra**, and T. Mick\*, “Application-Specific Secure Gathering of Consumer Preferences and Feedback in ICNs,” *3rd ACM Conference on Information-Centric Networking (ICN)*, pp. 65–70, 2016. (Acceptance rate: 22%)
- [60] **S. Misra**, A. Tayeen\*, and W. Xu, “SybilExposer: An Effective Scheme to Detect Sybil Communities in Online Social Networks,” *IEEE International Conference on Communications (ICC)*, 2016. (Citations: 16)
- [61] Z. Li\*, Y. Deng, H. Huang, and **S. Misra**, “ECG signal compressed sensing using the wavelet tree model,” *8th International Conference on Biomedical Engineering and Informatics (BMEI)*, pp. 194–199, 2015. (Citations: 1)



- [62] R. Tourani\*, **S. Misra**, J. Kliewer, S. Ortegel\*, and T. Mick\*, “Catch Me If You Can: A Practical Framework to Evade Censorship in Information-Centric Networks. *ACM International Conference on Information-Centric Networks (ICN)*, pp.167–176, 2015. (Acceptance rate: 21%) (Citations: 13)
- [63] N. Majd\*, **S. Misra**, and R. Tourani\*, “Split-Cache: A Holistic Caching Framework for Improved Network Performance in Wireless Ad Hoc Networks,” *IEEE GLOBECOM Conference (accepted)*, 2014. (Citations: 11)
- [64] H. Al-Azzawi\*, H. Huang, **S. Misra**, and W. Tang, “On Using Compressed Sensing for Efficient Transmission & Storage of Electric Organ Discharge,” *IEEE International Symposium on Circuits and Systems (ISCAS)*, 2014.
- [65] M. Harris\*, E. Salazar\*, R. Güth\*, V. Nawathe\*, M. Sharifi\*, W. Tang, and **S. Misra**, “Wireless Sensing Framework for Long-Term Measurements of Electric Organ Discharge,” *IEEE Biomedical Circuits and Systems Conference (BioCAS)*, 2013. (Citations: 1)
- [66] **S. Misra**, R. Tourani\*, and N. Majd\*, “Secure Content Delivery in Information-Centric Networks: Design, Implementation, and Analyses,” *The 3rd ACM SIGCOMM Workshop on Information-Centric Networking (ICN)*, 2013. (Acceptance rate: 20%) (Citations: 262)
- [67] Y. Hao\*, H. Cao, K. Bhattarai\*, and **S. Misra**, “STK-anonymity: k-anonymity of social networks containing both structural and textual information,” *Proceedings of the ACM SIGMOD Workshop on Databases and Social Networks*, pp. 19–24, 2013. (Citations: 3)
- [68] J. Lafon\*, **S. Misra**, and J. Brinhurst, “On Distributed File Tree Walk of Parallel File Systems,” accepted to *IEEE/ACM International Conference for High Performance Computing, Networking, Storage and Analysis (SuperComputing)*, 2012. (Citations: 18)
- [69] **S. Misra**, N. Majd\*, and H. Huang, “Constrained Relay Node Placement in Energy Harvesting Wireless Sensor Networks,” *IEEE International Conference on Mobile Ad Hoc and Sensor Systems (IEEE MASS)*, pages 25–34, 2011. (Citations: 18)
- [70] M. Balakrishnan, H. Huang, **S. Misra**, R. Asorey-Cacheda, S. Pawar\*, and Y. Jaradat\*, “Null Frequency Jamming of Dynamic Routing in Wireless Ad Hoc Networks,” accepted to the *IEEE International Global Communications Conference (IEEE GLOBECOM)*, 2011.
- [71] **S. Misra**, K. Bhattarai\*, and G. Xue, “BAMBI: Blackhole Attacks Mitigation with Multiple Base Stations in Wireless Sensor Networks,” *IEEE International Conference on Communications (ICC)*, 2011. (Citations: 46)
- [72] S. Myneni\*, **S. Misra**, and G. Xue, “SAMA: Serverless Anonymous Mutual Authentication for Low-Cost RFID Tags,” *IEEE International Conference on Communications (ICC)*, 2011. (Citations: 5)
- [73] A. Abu-Baker\*, H. Huang, E. Johnson, and **S. Misra**, “Green Diffusion: Data Dissemination in Sensor Networks Using Solar Power,” *IEEE Consumer Communication and Networking Conference*, 2010. (Citations: 6)
- [74] D. Yang\*, G. Xue, X. Fang\*, **S. Misra**, and J. Zhang\*, “Routing in Max-Min Fair Networks: A Game Theoretic Approach,” *IEEE International Conference on Network Protocols (ICNP)*, 2010 (**First runner-up for the best paper award**; Acceptance Rate: 18%). (Citations: 8)
- [75] A. Abu-Baker\*, H. Huang, E. Johnson, **S. Misra**, R. Asorey-Cacheda, and M. Balakrishnan, “Maximizing Alpha-Lifetime of Sensor Networks with Solar Energy Sources,” *IEEE MILCOM*, 2010. (Citations: 4)

- [76] **S. Misra** and S. Myneni\*, “On Identifying Power Control Performing Sybil Nodes in Wireless Sensor Networks Using RSSI,” *IEEE GLOBECOM*, 2010. (Citations: 18)
- [77] D. Yang\*, X. Fang\*, G. Xue, **S. Misra**, and A. Irani\*, “Simple and Effective Scheduling in Wireless Networks under the Physical Interference Model,” *IEEE GLOBECOM*, 2010. (Citations: 5)
- [78] D. Yang, **S. Misra**, X. Fang, G. Xue, and J. Zhang, “Two-Tiered Constrained Relay Node Placement in Wireless Sensor Networks: Efficient Approximations,” *IEEE International Conference on Sensor, Mesh, and Ad Hoc Communications and Networks (SECON)*, 2010. (Citations: 30)
- [79] D. Yang, **S. Misra**, and G. Xue, “Joint Base Station Placement and Fault-Tolerant Routing in Wireless Sensor Networks,” *IEEE Global Communications Conference (GLOBECOM)*, 2009. (Citations: 3)
- [80] **S. Misra**, G. Xue, and D. Yang, “Polynomial time approximations for multi-path routing with bandwidth and delay constraints,” *IEEE Conference on Computer Communications (INFOCOM)*, 2009 (Acceptance Rate: 282/1435). (Citations: 59)
- [81] **S. Misra**, M. Verma, D. Huang, and G. Xue, “SEAS: A secure and efficient anonymity scheme for low-cost RFID tags,” *IEEE International Conference on Communications (ICC)*, 2009. (Citations: 7)
- [82] **S. Misra**, S. Hong, G. Xue, and J. Tang, “Constrained relay node placement in wireless sensor networks to meet connectivity and survivability requirements,” *IEEE Conference on Computer Communications (INFOCOM)*, 2008, pp. 879–887 (Acceptance Rate: 236/1160). (Citations: 204)
- [83] W. Zhang, G. Xue, and **S. Misra**, “Fault-tolerant relay node placement in wireless sensor networks: Problems and algorithms,” *IEEE Conference on Computer Communications (INFOCOM)*, 2007, pp. 1649–1657 (Acceptance Rate: 252/1400). (Citations: 231)
- [84] **S. Misra**, G. Xue, and A. Shrivastava, “Robust localization in wireless sensor networks through the revocation of malicious anchors,” *IEEE International Conference on Communications (ICC)*, 2007, pp. 3057–3062. (Citations: 8)
- [85] **S. Misra** and G. Xue, “CluRoL: Clustering based robust localization in wireless sensor networks,” *IEEE Military Communications Conference (MILCOM)*, 2007. (Citations: 8)
- [86] **S. Misra**, W. Zhang, and G. Xue, “A Technique to enhance localization in the presence of NLOS errors,” *IEEE Global Communications Conference (GLOBECOM)*, 2007, pp. 1070–1075. (Citations: 2)
- [87] J. Tang, **S. Misra**, and G. Xue, “Spectrum allocation and scheduling in dynamic spectrum access wireless networks,” *International Conference on Quality of Service in Heterogeneous Wired/Wireless Networks (QShine)*, 2007, pp. 2148–2158. (Citations: 4)
- [88] **S. Misra**, S. Bhardwaj, and G. Xue, “ROSETTA: Robust and secure target tracking in a wireless ad hoc environment,” *IEEE Military Communication Conference (MILCOM)*, 2006 (Acceptance Rate: 25%). (Citations: 15)
- [89] **S. Misra** and G. Xue, “SAS: A simple anonymity scheme for clustered wireless sensor networks,” *IEEE International Conference on Communications (ICC)*, 2006, pp. 3414–3419. (Citations: 16)
- [90] M. Bhardwaj, **S. Misra**, and G. Xue, “Distributed topology control in wireless ad hoc networks using  $\beta$ -skeleton,” *IEEE Workshop on High Performance Switching and Routing (HPSR)*, 2005, pp. 371–375. (Citations: 8)

## Patents

- [86] R. Tourani\*, **S. Misra**, S. Ortegel\*, and T. Mick\*, “Communication Protocol Leveraging Huffman Encoding and Multi-Huffman Tables,” Patent approved, Patent No.: 15/685,892.
- [87] G. Panwar\*, R. Vishwanathan, **S. Misra**, “Scalable Auditability of Monitoring Processes using Public Ledgers,” Provisional patent.

### Other Publications

- [87] A. Chakraborti, S. Amin, A. Azgin, **S. Misra**, R. Ravindran, “Using ICN Slicing Framework to Build an IoT Edge Network,” *In Proceedings of the SIGCOMM Posters and Demos (SIGCOMM Posters and Demos)*, 2018.
- [88] D. Ameme\*, S. Misra, A. Mtibaa. “A Case for Information Centric Networking For Smart Grid Communications,” *In Proceedings of the SIGCOMM Posters and Demos (SIGCOMM Posters and Demos)*, pp. 25-27, 2017.
- [89] R. Güth\*, M. Harris\*, E. Salazar\*, V. Nawathe\*, M. Sharifi\*, W. Tang, **S. Misra** and G. Unguez, “Temperature-induced effects on the discharge and phenotype of *Eigenmannia virescens* electric organ,” poster presentation in *Society of Integrative and Comparative Biology (SICB)*, 2014.
- [90] H. Al-Azzawi\*, H. Huang, **S. Misra** and W. Tang, “On Using Compressed Sensing for Reducing Transmission and Storage Requirements for Experimental Data,” poster presentation in annual meeting of *American Society in Cellular Biology (ASCB)*, December 2013.
- [91] X. Fang\*, **S. Misra**, G. Xue and D. Yang\*, “How Smart Devices, Online Social Networks and the Cloud Will Affect the Smart Grid’s Evolution,” *IEEE Smart Grid Newsletter*, January, 2013.

### NATIONAL LABS and INDUSTRY COLLABORATORS

- ▷ Stephan Eidenbenz, Director Information Science & Technology Institute (ISTI), Los Alamos National Laboratory.
- ▷ Abraham Ellis, Technical Lead for PV Grid Integration, Sandia National Laboratories.
- ▷ Ross Guttromson, Manager, Electric Power Systems Research at Sandia National Laboratories.
- ▷ Jaime Acosta, Research Scientist, Army Research Laboratory, Whitesands Missile Range.
- ▷ Eve Schooler, Principal Engineer and Director, Internet of Things (IoT) group, Intel.
- ▷ Srikathyayani Srikanteswara, Engineer, Intel Labs.
- ▷ Alia Long, Scientist, Los Alamos National Labs.

### REPRESENTATIVE CONFERENCE AND COLLOQUIA PRESENTATIONS

- ▷ TACTIC: Tag-based Access ConTrol Framework for the Information-Centric Wireless Edge Networks, IEEE International Conference on Distributed Computing Systems (ICDCS), Vienna, Austria, 2018.
- ▷ Application-Specific Secure Gathering of Consumer Preferences and Feedback in ICNs, ACM International Conference on Information-Centric Networks, Kyoto, Japan, September, 2016.
- ▷ Invited Presentation on Networking and Communication Challenges in the Internet of Battlefield Things, Army Research Laboratory, Adelphi Campus, October, 2015.
- ▷ Catch me if you can: A Practical Framework to Evade Censorship in Information-centric networks, ACM International Conference on Information-Centric Networks, San Francisco, CA, September, 2015.
- ▷ SybilExposer: An efficient framework for sybil node detection in online social networks,

- ▷ SIAM International Conference on Computational Sciences (invited speaker in the Diversity Workshop), Salt Lake City, UT, March, 2015.
- ▷ Temperature Effects on the Electric Discharge and Gene Expression in the Electric Organ of *Eigenmannia virescens*, Society for Integrative and Comparative Biology, Annual Meeting, Austin, TX, January, 2014.
- ▷ Wireless Sensing Framework for Long-Term Measurements of Electric Organ Discharge in Electric Fish, American Society for Cellular Biology, Annual Meeting, New Orleans, LA, December, 2013.

## PROFESSIONAL SERVICES

### Invited Panelist:

- ▷ Invited to serve as a panelist for *New Opportunities and Challenges for Internet Privacy using ICN* panel in ACM ICN 2016.
- ▷ Invited to participate in the DoE *Smart Grid Networking and Security Challenges* Meeting to inform the DoE, Washington D.C., September, 2016.
- ▷ Invited to participate in the DoE *Science Network and Transport Layer Challenges for 2025* Meeting to inform the DoE, Washington D.C., February, 2016.
- ▷ Invited participation in *Networking and Communication Challenges in the Internet of Battlefield Things* discussion, Army Research Laboratory, Adelphi Campus, October, 2015.

### Research Proposal Adjudication:

- ▷ Invited to serve as panelist on several National Science Foundation (NSF) panels till date.

### Consulting:

- ▷ Subject Matter Expert (SME) for the Arrowhead Center at NMSU in seven projects.

### Editorial Board:

- ▷ Associate Editor, IEEE Internet of Things Journal (2019 – onwards).
- ▷ Editorial board of the IEEE Wireless Communications Magazine (2010 – onwards).
- ▷ Editorial board of the IEEE Communications on Surveys and Tutorials journal (2009-2013).
- ▷ Guest Editor, IEEE Communications Magazine, Special Issue on ICN Security, 2017-2018.

### Executive Committee of Conferences (Representative):

- ▷ Poster chair, ACM Information-Centric Networking Conference (ICN), 2019.
- ▷ TPC Co-chair, ACM Information-Centric Networking Conference (ICN), 2018.
- ▷ Workshop Co-chair, ACM MobiArch Workshop, 2018.
- ▷ Symposium Co-chair for ICNC, Communication, QoS and System Modeling Symposium, 2016.
- ▷ Demo Chair for ACM MobiHoc Conference 2015. Systems (ANTS), 2014.

### Session Chair (Representative):

- ▷ IEEE GLOBECOM 2010, Ad Hoc and Sensor Networks Symposium: Session on Energy Saving and Power Control Protocols I.
- ▷ IEEE GLOBECOM 2009, Ad Hoc and Sensor Networks Symposium: Session on Routing Protocols in Wireless Sensor Networks.
- ▷ Invited to chair Session 4b: Security, at IEEE MASS 2011.

### Technical Program Committee Member (Partial List):

- ▷ IEEE ICN 2013 – .
- ▷ IEEE INFOCOM 2010 – 2017.

- ▷ IEEE ICC 2009 – .
- ▷ IEEE WCNC 2010 – .
- ▷ IEEE GLOBECOM 2010 – .

**Reviewer (Partial List):**

- ▷ IEEE/ACM Transactions on Mobile Computing.
- ▷ IEEE/ACM Transactions on Parallel and Distributed Systems.
- ▷ IEEE/ACM Transactions on Networking.
- ▷ IEEE Transactions on Wireless Communication.
- ▷ IEEE Transactions on Vehicular Technology.
- ▷ IEEE Communications on Surveys and Tutorials.
- ▷ Elsevier Computer Networks.
- ▷ Elsevier Journal on Performance Evaluation.
- ▷ IEEE International Conference on Communications (ICC) – 2006, 2008–2013.
- ▷ IEEE International Global Communications Conference (GLOBECOM) – 2006, 2009–2013.
- ▷ IEEE Conference on Sensor and Ad Hoc Communications and Networks (SECON’2007).
- ▷ IEEE Mobile Ad Hoc and Sensor Systems (MASS’2006).
- ▷ IEEE International Conference on Computer Communications and Networks (ICCCN’2006).

**Other Services:**

- ▷ Lead and organized the graduate student volunteers in INFOCOM 2008, Phoenix, AZ.
- ▷ Student volunteer at IEEE Performance Computing and Communications Conference (IPCCC’2005).
- ▷ Student volunteer at IEEE Workshop on High Performance Switching and Routing (HPSR’2004).

**GRADUATED STUDENTS & POST-DOCS**

Advised two post-docs, 21 graduate students, and four undergraduate students.

**Advisees (Partial List):**

- ▷ Abderrahmen Mtibaa, Ph.D., Initial Job: Assistant Professor in CS, University of Missouri, St. Louis, St. Louis, Missouri.
- ▷ Reza Tourani, Ph.D., Initial Job: Assistant Professor in CS, St. Louis University, St. Louis, Missouri.
- ▷ Andres Cuevas, M.S., Initial Job: Scientist, Army Research Lab, Whitesands Missile Range, Whitesands, New Mexico
- ▷ Charles Good, M.S., Initial Job: Scientist, Sandia National Laboratory, Albuquerque, NM.
- ▷ Vicente Ibarra, Ph.D., Initial Job: Scientist, Los Alamos National Laboratories, Los Alamos.
- ▷ Nahid Ebrahimi Majd, Ph.D., Initial Job: Assistant Professor, California State University, San Marcos.
- ▷ Bhumika Parikh, M.S., Initial Job: Software Engineer, Landys and Gyr Corporation.
- ▷ Travis Mick, M.S., Initial Job: Scientist, Sandia National Laboratory, Albuquerque, NM.
- ▷ Sowmya Myneni, M.S., Initial Job: Ph.D. student, Arizona State University.
- ▷ Krishna Cherukuri, M.S., Initial Job: Verizon Inc.
- ▷ Sanian Gaffar, M.S., Initial Job: National Oceanic and Atmospheric Administration (NOAA).
- ▷ Michael Harris, M.S. (also did B.S. thesis), Initial Job: CEO, Visgence Inc (local start-up).
- ▷ Reza Tourani, M.S., Initial Job: Returned as Ph.D. student.
- ▷ Gustavo Rayos, B.S. Thesis, Initial Job: Consolidated Nuclear Security, LLC.

- ▷ Erik Ness, B.S. Thesis, Initial Job: Amazon.com.
- ▷ Andres Cuevas, B.S. Thesis, Initial Job: NavAir; Returned as M.S. student.
- ▷ Travis Mick, M.S. student, Initial Job: Sandia National Lab.
- ▷ Mona Assarandarban, M.S. student, Joined University of Connecticut as Ph. D. student.

## **CURRENT STUDENTS**

Currently advising one research assistant professor, six PhD students, two masters students, and two undergraduate students.