

# MONOWAR HASAN

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## Education

- **Ph.D. in Computer Science** **Fall 2015 – Present**  
*University of Illinois Urbana-Champaign (UIUC), Illinois, United States*
    - Advisor: *Prof. Sibin Mohan*
    - Primary research area: *Security issues in hard real-time systems*
  - **M.Sc. in Electrical and Computer Engineering** **May 2015**  
*University of Manitoba (U of M), Manitoba, Canada*
    - Advisor: *Prof. Ekram Hossain*
    - Thesis: *Radio resource management for relay-aided device-to-device communication*  
(URI: <http://hdl.handle.net/1993/30531>)
  - **B.Sc. in Computer Science and Engineering** **April 2012**  
*Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh*
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## Work Experience

- **Student Research Associate** **May–August 2017**  
*IoT Security and Privacy Center, SRI International, California, United States*
    - Mentor: *Dr. Ulf Lindqvist*
    - Primary research area: *Security and privacy issues in Internet of things (IoT)*
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## Publications

*Total citations: 451* (as of March 2017)  
*h-index: 9* (as of March 2017)

- **Book Chapter:**
  22. **M. Hasan** and E. Hossain, “Distributed resource allocation in 5G cellular networks,” book chapter in *Towards 5G: Applications, Requirements & Candidate Technologies*, Wiley, 2016. [cited **9** times]
- **Journals and Magazines:**
  21. **M. Hasan** and E. Hossain, “Distributed resource allocation for relay-aided device-to-device communication under channel uncertainties: A stable matching approach,” *IEEE Transactions on Communications*, vol. 63, no. 10, pp. 3882-3897, Oct. 2015. [cited **17** times]
  20. E. Hossain and **M. Hasan**, “5G cellular: Enabling technologies and research challenges,” *IEEE Instrumentation & Measurement Magazine*, vol. 18, no. 3, pp. 11-21, Jun. 2015. [cited **93** times] (*top most frequently downloaded document from IEEE Xplore for IM Magazine in June 2015-June 2016*)
  19. M. Rasti, **M. Hasan**, L. Le, and E. Hossain, “Distributed uplink power control for multi-cell cognitive radio networks,” *IEEE Transactions on Communications*, vol. 63, no. 3, pp. 628-642, Mar. 2015. [cited **13** times]
  18. **M. Hasan**, E. Hossain, S. Balasubramaniam, and Y. Koucheryavy, “Social behavior in bacterial nanonetworks: Challenges and opportunities,” *IEEE Network*, vol. 29, no. 1, pp. 26-34, Jan. 2015. [cited **6** times]
  17. **M. Hasan** and E. Hossain, “Distributed resource allocation for relay-aided device-to-device communication: A message passing approach,” *IEEE Transactions on Wireless Communications*, vol. 13, no. 11, pp. 6326-6341, Nov. 2014. [cited **24** times]
  16. **M. Hasan**, E. Hossain, and D. I. Kim, “Resource allocation under channel uncertainties for relay-aided device-to-device communications underlying LTE-A cellular networks,” *IEEE Transactions on Wireless Communications*, vol. 13, no. 4, pp. 2322-2338, April 2014. [cited **52** times]

15. **M. Hasan**, E. Hossain, and D. Niyato, "Random access for machine-to-machine communication in LTE-Advanced networks: Issues and approaches," *IEEE Communications Magazine*, vol. 51, no. 6, pp. 86-93, June 2013. [cited **208** times]

- **Refereed Conferences:**

14. R. Kumar, **M. Hasan**, S. Padhy, K. Evchenko, L. Piramanayagam, S. Mohan, and R. Bobba, "End-to-end network delay guarantees for real-time systems using SDN," to be presented in Proc. of *IEEE Real-Time Systems Symposium (RTSS)*, Dec. 2017.
13. **M. Hasan**, S. Mohan, R. Pellizzoni, and R. Bobba, "Contego: An adaptive framework for integrating security tasks in real-time systems," in Proc. of *Euromicro Conference on Real-Time Systems (ECRTS)*, vol. 76, pp. 23:1-23:22, Jun. 2017.
12. **M. Hasan**, S. Mohan, R. Bobba, and R. Pellizzoni, "Exploring opportunistic execution for integrating security into legacy hard real-time systems," in Proc. of *IEEE Real-Time Systems Symposium (RTSS)*, pp. pp. 123-134, Nov. 2016. (received **Outstanding Paper** and **Best Student Paper** award)
11. **M. Hasan** and E. Hossain, "Distributed resource allocation in D2D-enabled multi-tier cellular networks: An auction approach," in Proc. of *IEEE International Conference on Communications (ICC)*, pp. 4552-4557, Jun. 2015. [cited **13** times]

- **Refereed Workshops:**

10. I. Agadacos, C. Chen, M. Campanelli, P. Anantharaman, **M. Hasan**, B. Copos, T. Lepoint, M. Locasto, G. Ciocarlie and U. Lindqvist, "Jumping the air gap: Modeling cyber-physical attack paths in the Internet-of-Things", to be presented in Proc. of *ACM Workshop on Cyber-Physical Systems Security & Privacy (CPS-SPC)*, Nov., 2017.
9. R. Kumar, **M. Hasan**, S. Padhy, K. Evchenko, L. Piramanayagam, S. Mohan, and R. Bobba, "Dependable end-to-end delay constraints for real-time systems using SDN," in Proc. of *International Workshop on Real-Time Networks (RTN)*, Jun. 2017.
8. **M. Hasan**, S. Mohan, R. Bobba, and R. Pellizzoni, "A server model to integrate security tasks into fixed-priority real-time systems," in Proc. of *Workshop on Security and Dependability of Critical Embedded Real-Time Systems (CERTS)*, pp. 61-68, Nov. 2016.
7. F. Abdi, **M. Hasan**, S. Mohan, D. Agarwal, and M. Caccamo, "ReSecure: A restart-based security protocol for tightly actuated hard real-time systems," in Proc. of *Workshop on Security and Dependability of Critical Embedded Real-Time Systems (CERTS)*, pp. 47-53, Nov. 2016. [cited **1** time]
6. **M. Hasan** and E. Hossain, "Resource allocation for network-integrated device-to-device communications using smart relays," in Proc. of *IEEE Globecom Workshops (GC Wkshps)*, pp. 597-602, Dec. 2013. [cited **15** times]

- **Posters:**

5. R. Kumar, **M. Hasan**, K. Evchenko, S. Padhy, S. Mohan, and R. Bobba, "Dependable end-to-end delay constraints for EDS control networks using SDNs", *CREDC Industry Workshop*, Mar. 2017.
4. D. Agarwala, **M. Hasan**, F. Abdi, and S. Mohan, "Restart and secure: An approach to enhance security in real-time cyber-physical systems," *Illinois Science of Security (SoS) Summer Poster Session*, Jul. 2016.
3. L. Piramanayagam, S. Padhy, **M. Hasan**, and S. Mohan, "Precise timing analysis of Open vSwitch for hard real-time applications," *Illinois Science of Security (SoS) Summer Poster Session*, Jul. 2016.

- **Technical Report:**

2. C. Chen, **M. Hasan**, S. Mohan, "Securing real-time Internet-of-things," UIUC Tech. Rep., May 2016 (URL: <http://arxiv.org/abs/1409.2475>).
1. F. Abdi, C. Chen, **M. Hasan**, S. Liu, S. Mohan, M. Caccamo, "Restart-based security mechanisms for safety-critical embedded systems," UIUC Tech. Rep., May 2016 (URL: <https://arxiv.org/abs/1705.01520>).

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## Media Coverage

- *Newly developed security mechanism aims to guard existing real-time systems against cyberattacks* **April 2017**  
Dept. of Computer Science, UIUC newsletter (<http://goo.gl/jy6wkW>)
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## Awards and Honors

- C.L. and Jane W.-S. Liu Award April 2017  
Dept. of Computer Science, University of Illinois Urbana-Champaign
- Feng Chen Memorial Award April 2017  
Dept. of Computer Science, University of Illinois Urbana-Champaign
- Best Student Paper Award December 2016  
2016 IEEE Real-Time Systems Symposium (RTSS)
- Outstanding Paper Award December 2016  
2016 IEEE Real-Time Systems Symposium (RTSS)
- NSF/IEEE Student Travel Grant November 2016  
Sponsored by NSF and IEEE
- Research Assistantship August 2015 – Present  
Dept. of Computer Science, University of Illinois Urbana-Champaign
- UMGSA Conference Grant June 2015  
University of Manitoba Graduate Students' Association
- University of Manitoba General Award November 2014  
University of Manitoba
- Swedish-Bangladesh Trust Fund Travel Grant December 2013  
Economic Relations Division, Ministry of Finance, Bangladesh
- Graduate Student Travel Award September 2013  
Faculty of Graduate Studies, University of Manitoba
- University of Manitoba Graduate Fellowship (UMGF) July 2013 – June 2014  
Faculty of Graduate Studies, University of Manitoba
- International Graduate Student Entrance Scholarship (IGSES) September 2012 – April 2013  
Faculty of Graduate Studies, University of Manitoba
- Research Assistantship July 2012 – June 2015  
Wireless Communications, Networks, and Services Research Group, University of Manitoba
- Professor Dr. Ahmad Ullah and Chemanara Ahmed Ullah Trust Fund Scholarship 2010  
Bangladesh University of Engineering and Technology
- Dean's List Award for academic excellence in Level-2, 3, and 4 2009 – 2011  
Bangladesh University of Engineering and Technology
- University Merit Scholarship 2009 – 2011  
Bangladesh University of Engineering and Technology
- Dhaka Education Board Scholarship 2007 – 2010  
Ministry of Education, Dhaka, Bangladesh

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## Professional Activity

- Reviewer September 2013 – Present  
*Journals:* IEEE Communications Surveys and Tutorials, IEEE Transactions on Vehicular Technology, IEEE Wireless Communications Magazine, IEEE Transactions on Wireless Communications, IEEE Transactions on Signal Processing, IEEE Transactions on Communications  
*Conferences:* IEEE LCN 2014, IEEE APWCS 2014, IEEE ICC 2015, IEEE RTAS 2017 (secondary reviewer)

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## Invited Talks

- *Integrating Security into Legacy Hard Real-Time Systems* June 2017  
Community of Practice for Real-Time Systems Seminar, Rockwell Collins, Iowa, USA

## Technical Skills

**Programming Languages:** C, MATLAB, Python

**Mathematical Tools:** Stochastic and robust optimization, geometric programming, game theory, mechanism design (matching and auction theory), probabilistic inference, reinforcement learning

**Communication:** Excellent oral and written technical communication skills through academic talks and research publications; proficient in collaborative project execution (developed through working experience with faculty members and researchers from different schools and industry partners)

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## References

- **Dr. Sibin Mohan**, Research Assistant Professor  
Computer Science and Information Trust Institute  
University of Illinois Urbana-Champaign, USA  
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- **Dr. Rakesh B. Bobba**, Assistant Professor  
Electrical Engineering and Computer Science  
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- **Dr. Rodolfo Pellizzoni**, Associate Professor  
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- **Dr. Ekram Hossain**, Professor, Fellow IEEE  
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- **Dr. Dusit Niyato**, Associate Professor, Fellow IEEE  
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