

# 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. Sabin Mohan*
    - Primary research area: *Security issues in real-time cyber-physical 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: 717** (as of January 2017)  
**h-index: 10** (as of January 2017)

- **Book Chapter:**
  23. **M. Hasan** and E. Hossain, “Distributed resource allocation in 5G cellular networks,” book chapter in *Towards 5G: Applications, Requirements & Candidate Technologies*, Wiley, 2016. [cited **17** times]
- **Journals and Magazines:**
  22. **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 **30** times]
  21. 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 **185** times] (*top most frequently downloaded document from IEEE Xplore for IM Magazine in June 2015-June 2016*)
  20. 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 **19** times]
  19. **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 **11** times]
  18. **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 **45** times]
  17. **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 **66** times]

16. **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 **291** times]

• **Refereed Conferences:**

15. F. Abdi, C. Chen, **M. Hasan**, S. Liu, S. Mohan, M. Caccamo, "Guaranteed physical security with restart-based design for cyber-physical systems, to be presented in Proc. of *ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS)*, Apr. 2018.
14. **M. Hasan**, S. Mohan, R. Pellizzoni, and R. Bobba, "A design-space exploration for allocating security tasks in multicore real-time systems," to be presented in Proc. of *Design, Automation and Test in Europe (DATE)*, Mar. 2018.
13. 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," in Proc. of *IEEE Real-Time Systems Symposium (RTSS)*, Dec. 2017. [cited **1** time]
12. **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.
11. **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. [cited **7** times] (*received Outstanding Paper and Best Student Paper award*)
10. **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 **22** times]

• **Refereed Workshops:**

9. 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", in Proc. of *ACM Workshop on Cyber-Physical Systems Security & Privacy (CPS-SPC)*, Nov., 2017.
8. 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.
7. **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.
6. 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 **5** times]
5. **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 **18** times]

• **Posters:**

4. 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.
3. 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.
2. 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:**

1. C. Chen, **M. Hasan**, S. Mohan, "Securing real-time Internet-of-things," UIUC Tech. Rep., May 2017 (URL: <http://arxiv.org/abs/1409.2475>).

## Media Coverage

- *Featured student (Celebration of Excellence student awards recipient)* **November 2017**  
CLICK! Magazine, Vol. 2, 2017, Dept. of Computer Science, University of Illinois
  - *Newly developed security mechanism aims to guard existing real-time systems against cyberattacks* **April 2017**  
Dept. of Computer Science, University of Illinois 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)
  - Finalist, Symantec Research Labs Graduate Fellowship **December 2016**  
Symantec Corporation, USA
  - 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, IEEE Transactions on Mobile Computing

*Conferences:* *Primary Reviewer:* IEEE LCN 2014, IEEE APWCS 2014, IEEE ICC 2015  
*Secondary Reviewer:* IEEE RTAS 2017, IEEE RTAS 2018, ACM/IEEE ICCPS 2018

- **Web Chair**  
ACM/IEEE IoTSec 2018
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## Mentoring

- Co-taught programming using the *Scratch* programming language to middle school students **Fall 2017**  
CS@ILLINOIS Outreach Program, Urbana Middle School, Illinois, USA
  - Mentored **two** final-year undergraduate students **Summer 2016**  
*Project focus:* real-time security issues and use of SDN in critical systems  
NSA Science of Security Lablet Program, Information Trust Institute, University of Illinois
  - Mentored **one** first-year M.Sc. student **Fall 2014–Spring 2015**  
*Project focus:* resource allocation in 5G communication systems  
Wireless Communications, Networks, and Services Research Group, University of Manitoba
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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
  - *Exploring Opportunistic Execution for Integrating Security into Legacy Hard Real-Time Systems* **November 2016**  
ITI Trust and Security Seminar, Information Trust Institute, University of Illinois
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## Technical Skills

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

**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 difference schools and industry partners)

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## References

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- **Dr. Rakesh B. Bobba**, Assistant Professor  
Electrical Engineering and Computer Science  
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Web: <http://web.engr.oregonstate.edu/~bobbar/>
- **Dr. Rodolfo Pellizzoni**, Associate Professor  
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- **Dr. Dusit Niyato**, Associate Professor, Fellow IEEE  
Computer Engineering  
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