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Curriculum Vitae
September 22, 2018

Contents

1 Education, Work Experience, Honours and Awards

1.1 Education

Degree	*Institution*	*Year*
Ph.D.	University of Victoria, Canada Department of Electrical and Computer Engineering (with full CGPA)	June 2001
M.Sc.	Bangladesh U. of Engineering and Technology (BUET) Department of Computer Science and Engineering (with distinction, highest CGPA)	April 1997
B.Sc.	Bangladesh U. of Engineering and Technology (BUET) Department of Computer Science and Engineering (with distinction, 2nd position in the class)	February 1995

Thesis Titles:

- *Ph.D. thesis*: "Radio link and transport layer protocol design issues in wireless IP networks"
- *M.Sc. thesis*: "Design and performance study of multistage space division packet switches"

1.2 Work Experience

- *Professor*, Department of Electrical and Computer Engineering, University of Manitoba, Winnipeg, Canada, since March 2010.
- *Associate Professor (with tenure)*, Department of Electrical and Computer Engineering, University of Manitoba, Winnipeg, Canada, April 2006 - March 2010 (**awarded early promotion and tenure**).
- *Assistant Professor*, Department of Electrical and Computer Engineering, University of Manitoba, Winnipeg, Canada, January 2001-March 2006.
- *Lecturer*, Department of Computer Science and Engineering, Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh, September 1995-September 1997.

1.3 Honours and Awards

- Clarivate Analytics Highly Cited Researcher in Computer Science, 2018
- Clarivate Analytics Highly Cited Researcher in Computer Science, 2017
- **2017 IEEE TCGCC (Technical Committee on Green Communications and Networking) Distinguished Technical Achievement**

Recognition Award with the following citation: "for outstanding technical leadership and achievement in green wireless communications and networking"

- **2017 IEEE Communications Society Best Survey Paper Award**
- Visiting Professor, Chalmers University, Sweden, May 2017
- **IEEE Vehicular Technology Conference (VTC 2016 - Fall) Best Student Paper Award**, as a co-author
- Member, College of New Scholars, Artists and Scientists of the Royal Society of Canada, 2016
- **Merit Award** for "Research and Scholarly Activities", University of Manitoba, 2015
- IEEE Vehicular Technology Society Distinguished Lecturer, 2016-
- **IEEE Fellow** (Class of 2015), with the citation "for contributions to spectrum management and resource allocation in cognitive and cellular radio networks"
- IEEE Communications Society Transmission, Access, and Optical Systems (TAOS) Technical Committee's **Award for Best Paper** in the Green Communications Track of the Symposium on Selected Areas in Communications (SAC) in IEEE Global Communications Conference (Globecom) 2015
- **Merit Award** for "Research and Scholarly Activities", University of Manitoba, 2014
- **Merit Award** for "Research and Scholarly Activities", University of Manitoba, 2013
- **IEEE Wireless Communications and Networking Conference (WCNC 2012) Best Paper Award**
- IEEE Communications Society Distinguished Lecturer, 2012-2015
- **The 2011 IEEE Communications Society Fred W. Ellersick Prize**, June 2011
- **Visiting Research Scientist**, School of Computer Engineering, Nanyang Technological University, Singapore, February 2011
- **Visiting Professor**, Tohoku University, Japan, November 2010
- **Merit Award** for "Research and Scholarly Activities", University of Manitoba, 2009

- **Visiting Research Scientist**, School of Computer Engineering, Nanyang Technological University, Singapore, August 2009
- **Visiting Fellow**, School of Computer Science and Engineering, The University of New South Wales, Australia, June 2008
- Finalist, *Best (Student) Paper Award*, *IEEE Global Communications Conference (Globecom'06)* (Category: Communication Systems), 27 November-1 December 2006, San Francisco, USA
- *Best (Student) Paper Award*, *ACM International Wireless Communications and Mobile Computing Conference (IWCMC'06)*, 3-6 July 2006, Vancouver, Canada
- University of Victoria Fellowship, 1998-2001
- Dr. M. A. Rashid Gold Medal (from BUET), 2001
- Graduate Scholarship Award from the British Columbia Advanced Systems Institute (ASI), 1998
- *Lucent Technologies Inc. Research Award* for contribution in the *IEEE International Conference on Personal Wireless Communications (ICPWC'97)*
- IEEE Student Travel Grant Award, 1999
- Bangladesh University of Engineering and Technology (BUET) Merit Scholarship

2 Research and Scholarly Works

2.1 Current Research Interests

- 5G/beyond 5G (B5G) cellular wireless networks (machine-type communications and wireless Internet-of-Things [IoT], spectrum/resource management in multi-tier and D2D-enabled cellular networks, distributed wireless access in ultra-dense small cell networks, user association and scheduling, power control, network selection, self-organizing small cells, energy-harvesting wireless networks, wireless fronthauling/backhauling, cloud-RAN, massive MIMO, non-orthogonal multiple access (NOMA), resource allocation for wireless network virtualization, visible light communications (VLC), mobile edge computing, mobility/handoff management)
- Applications of machine learning in wireless/mobile networks
- Cognitive wireless networks (interference modeling, dynamic spectrum access, power and admission control, spectrum management, spectrum trading, cognitive MAC protocols, performance modeling and optimization)

- Economic and game-theory models for wireless/mobile communication networks
- Cyber physical systems (smart power grid and energy Internet, vehicular networks)

2.2 Summary of Research Achievements

Contribution	Number
No. of Refereed Journal Papers (published/accepted), J#	184
No. of Refereed Journal Papers (submitted), JS#	05
No. of Invention Disclosures, P#	2, US patents
No. of Refereed Magazine Papers (published/accepted), M#	47
No. of Refereed Magazine Papers (submitted), MS#	1
No. of Books (edited/co-edited volumes)	6
No. of Books (authored/co-authored)	4
No. of Book Chapters, BC#	20
No. of Refereed Conference Papers (published/accepted), C#	155
No. of Refereed Conference Papers (submitted), CS#	0

2.3 Citation Information

Table 1: Citation (22 September 2018)

Google Scholar	Total citation: **22515** H-Index: **76**

2.4 Publications

Books/Monographs

B12. **E. Hossain**, M Rasti, and L. B. Le, *Radio Resource Management in Wireless Networks: An Engineering Approach*, Cambridge University Press, 2017.

B11. D. Niyato, **E. Hossain**, D. I. Kim, V. K. Bhargava, and L. Shafai, *Wireless-Powered Communication Networks*, Cambridge University Press, 2017.

B10. L. Song, D. Niyato, Z. Han, and **E. Hossain**, Wireless Device-to-Device Communications and Networks, Cambridge University Press, 2015.

B9. **E. Hossain**, L. B. Le, and D. Niyato, *Radio Resource Management in Multi-tier Cellular Wireless Networks*, Wiley, 2013.

B8. **E. Hossain**, V. K. Bhargava, and G. Fettweis, *Green Radio Communication Networks*, (edited volume), Cambridge University Press, 2012.

B7. **E. Hossain**, Z. Han, and H. V. Poor, *Smart Grid Communications and Networking*, (edited volume), Cambridge University Press, 2012.

B6. **E. Hossain**, V. K. Bhargava, and D. I. Kim, *Cooperative Cellular Wireless Networks*, (edited volume) Cambridge University Press, 2011.

B5. **E. Hossain**, D. Niyato, and Z. Han, *Dynamic Spectrum Access in Cognitive Radio Networks*, Cambridge University Press, ISBN-13: 9780521898478.

B4. **E. Hossain**, *Heterogeneous Wireless Access Networks: Architectures and Protocols*, (edited volume), ISBN: 978-0-387-09776-3, Springer, 2008.

B3. T. Issariyakul and **E. Hossain**, *Introduction to Network Simulator - NS2*, ISBN: 978-0-387-71760-9, Springer, 2008.

B2. **E. Hossain** and K. K. Leung, *Wireless Mesh Networks: Architectures and Protocols*, (edited volume), ISBN: 978-0-387-68839-8, Springer, 2007.

B1. **E. Hossain** and V. K. Bhargava, *Cognitive Wireless Communication Networks*, (edited volume), ISBN: 978-0-387-68830-5, Springer, 2007.

Journal Articles (Accepted/Published)

J184. S. Guruacharya and **E. Hossain**, "Approximation of meta distribution and its moments for Poisson cellular networks," *IEEE Wireless Communications Letters*, to appear.

J183. S. Guruacharya, V. Mittal, and **E. Hossain**, "Battery recharge time of a stochastic linear and non-linear energy harvesting system," *IEEE Transactions on Vehicular Technology*, vol. 67, no. 8, pp. 7877–7881, August 2018.

J182. Md S. Ali, **E. Hossain**, A. Al-Dweik, and D. I. Kim, "Downlink power allocation for CoMP-NOMA in multi-cell networks," *IEEE Transactions on Communications*, vol. 66, no. 9, pp. 3982–3998, Sept. 2018.

J181. T. Sanguanpuak, S. Gurucharya, **E. Hossain**, N. Rajatheva, and M. Latva-aho, "Infrastructure sharing in cellular mobile networks: Analysis of trade-offs and market," *IEEE Transactions on Mobile Computing*, to appear.

J180. Z. Khan, J. J. Lehtomäki, **E. Hossain**, M. Latva-aho, and A. Marshall, "An FPGA-based implementation of a multifunction environment sensing device for shared access with rotating radars," *IEEE Transactions on Instrumentation & Measurement*, to appear.

J179. U. Habiba and **E. Hossain**, "Auction mechanisms for virtualization in 5G cellular networks: Basics, trends, and open challenges," *IEEE Communications Surveys & Tutorials*, vol. 20, no. 3, pp. 2264–2293, 2018.

J178. S. Ranadheera, S. Maghsudi, and **E. Hossain**, "Computation offloading and activation of mobile edge computing servers: A minority game," *IEEE Wireless Communications Letters*, to appear.

J177. K. N. R. Surya Vara Prasad, **E. Hossain**, V. K. Bhargava, and S. Mallick, "Analytical approximation-based machine learning methods for user positioning in distributed massive MIMO," *IEEE Access*, to appear.

J176. H. Tabassum and **E. Hossain**, "Coverage and rate analysis for co-existing RF/VLC downlink cellular networks," *IEEE Transactions on Wireless Communications*, to appear.

J175. F. Khoramnejad, M. Rasti, H. Pedram, and **E. Hossain**, "On resource management in load-coupled OFDMA networks," *IEEE Transactions on Communications*, to appear.

J174. K. N. R. Surya Vara Prasad, **E. Hossain**, and V. K Bhargava, "Low-dimensionality of noise-free RSS and its application in distributed massive MIMO," *IEEE Wireless Communications Letters*, vol. 7, no. 4, pp. 486-489, August 2018.

J173. P. Semasinghe, **E. Hossain**, and S. Maghsudi, "Cheat-proof distributed power control in full-duplex small cell networks: A repeated game with imperfect public monitoring," *IEEE Transactions on Communications*, vol. 66, no. 4, April 2018, pp. 1787–1802.

J172. S. Lohani, **E. Hossain**, and V. K. Bhargava, "Joint resource allocation and dynamic activation of energy harvesting small cells in HetNets," *IEEE Transactions on Wireless Communications*, vol. 17, no. 3, March 2018, pp. 1768–1783.

J171. S. Guruacharya and **E. Hossain**, "Self-sustainability of energy harvesting systems: Concept, analysis, and design," *IEEE Transactions on Green Communications and Networking*, vol. 2, no. 1, March 2018, pp. 175–192.

J170. S. Guruacharya, H. Tabassum, and E. Hossain, "SINR outage evaluation in cellular networks: Saddle point approximation (SPA) using normal inverse Gaussian (NIG) distribution," *IEEE Transactions on Wireless Communications*, vol. 17, no. 1, January 2018, pp. 591–605.

J169. S. Guruacharya, V. Mittal, and **E. Hossain**, "Level-triggered harvest-then-consume protocol with two bits or less energy state information," *IEEE Wireless Communications Letters*, vol. 7, no. 2, April 2018, pp. 150–153.

J168. Z. Khan, J. J. Lehtomäki, R. Aguilar, R. Vuohtoniemi, **E. Hossain**, L. A. DaSilva, and A. Marshall, "Database-assisted distributed and cloud-based access methods for unlicensed and radar bands," *IEEE Transactions on Cognitive Communications and Networking*, vol. 3, no. 3, September 2017, pp. 404–419.

J167. A. H. Sakr and **E. Hossain**, "On user association in multi-tier full-duplex cellular networks," *IEEE Transactions on Communications*, vol. 65, no. 9, Sept. 2017, pp. 4080–4095.

J166. S. Maghsudi and **E. Hossain**, "Distributed user association in energy harvesting small cell networks: An exchange economy with uncertainty," *IEEE Transactions on Green Communications and Networking*, vol. 1, no. 3, Sept. 2017, pp. 294–308.

J165. J. Kang, R. Yu, X. Huang, S. Maharjan, Y. Zhang, and **E. Hossain**, "Enabling localized peer-to-peer electricity trading among plug-in hybrid electric vehicles using consortium blockchains," *IEEE Transactions on Industrial Informatics*, Special Section on "Smart Grid and Renewable Energy Resources: Information and Communication Technologies with Industry Perspective", vol. 13, no. 6, December 2017, pp. 3154–3164.

J164. H. Tabassum, **E. Hossain**, and Md. J. Hossain, "Modeling and analysis of uplink non-orthogonal multiple access (NOMA) in large-scale cellular networks using Poisson cluster processes," *IEEE Transactions on Communications*, vol. 65, no. 8, Aug. 2017, pp. 3555–3570.

J163. U. Siddique, H. Tabassum, and **E. Hossain**, "Downlink spectrum allocation for in-band/out-band wireless self-backhauling of full-duplex small cells," *IEEE Transactions on Communications*, vol. 65, no. 8, Aug. 2017, pp. 3538–3554.

J162. S. Maghsudi and **E. Hossain**, "Distributed cell association in energy harvesting dense small cell networks: A mean-field multi-armed bandit approach," *IEEE Access*, Special Section on "Energy Harvesting and Scavenging: Technologies, Algorithms, and Communication Protocols", vol. 5, pp. 3513–3523.

J161. P. Luong, T. Nguyen, L. B. Le, N.-D. Dao, and **E. Hossain**, "Energy-efficient WiFi offloading and network management in heterogeneous wireless networks," *IEEE Access*, vol. 4, January 2017, pp. 10210–10227 (DOI: 10.1109/ACCESS.2017.2647739).

J160. D. T. Hoang, P. Wang, D. Niyato, and **E. Hossain**, "Charging and discharging of Plug-In Electric Vehicles (PEVs) in Vehicle-to-Grid (V2G) systems: A cyber insurance-based model," *IEEE Access*, Special Section on "Resource Management in Vehicular Ad-Hoc Networks: Energy Management, Communication Protocol and Future Applications", vol. 5, pp. 732–754.

J159. S. Maghsudi and **E. Hossain**, "Distributed user association in energy harvesting small cell networks: A probabilistic model," *IEEE Transactions on Wireless Communications*, vol. 16, no. 3, March 2017, pp. 1549–1563.

J158. S. Sekander, H. Tabassum, and **E. Hossain**, "Decoupled uplink-downlink user association in multi-tier full-duplex cellular networks: A two-sided matching game," *IEEE Transactions on Mobile Computing*, vol. 16, no. 10, Oct. 2017, pp. 2778–2791.

J157. Md S. Ali, **E. Hossain**, and D. I. Kim, "Non-Orthogonal Multiple Access (NOMA) for downlink multiuser MIMO systems: User clustering, beamforming, and power allocation," *IEEE Access*, Special Section on "PHY and MAC Layer Advances in 5G Wireless Networks", vol. 5, pp. 565–577, Dec. 2016. (**Invited paper**)

J156. C. Yang, J. Li, P. Semasinghe, **E. Hossain**, S. M. Perlaza, and Z. Han, "Distributed interference and energy-aware power control for ultra-dense D2D networks: A mean field game," *IEEE Transactions on Wireless Communications*, vol. 16, no. 2, February 2017, pp. 1205–1217.

J155. S. Lohani, **E. Hossain**, and V. K. Bhargava, "On downlink resource allocation for SWIPT in small cells in a two-tier HetNet," *IEEE Transactions on Wireless Communications*, vol. 15, no. 11, pp. 7709–7724, November 2016 (DOI: 10.1109/TWC.2016.2606394).

J154. Md S. Ali, H. Tabassum, and **E. Hossain**, "Dynamic user clustering and power allocation for uplink and downlink non-orthogonal multiple access (NOMA) systems," *IEEE Access*, Special Section on "Optimization for Emerging Wireless Networks: IoT, 5G, and Smart Grid Communication Networks", vol. 4, pp. 6325–6343, Oct. 2016. (**Invited paper**)

J153. H. Tabassum, A. Hamdi Sakr, and E. Hossain, "Analysis of massive MIMO-enabled downlink wireless backhauling for full-duplex small cells," *IEEE Transactions on Communications*, vol. 64, no. 6, June 2016, pp. 2354–2369.

J152. Z. B. Khanian, M. Rasti, F. Salek, and **E. Hossain**, "A distributed opportunistic MAC protocol for multichannel wireless networks," *IEEE Transactions on Wireless Communications*, vol. 15, no. 6, June 2016, pp. 4263–4276.

J151. A. Hourani, K. Sithamparanathan, and **E. Hossain**, "Relay-assisted device-to-device communication: A stochastic analysis of energy saving," *IEEE Transactions on Mobile Computing*, vol. 15, no. 12, Dec 2016, pp. 3129–3141.

J150. S. Gurucharya, H. Tabassum, and **E. Hossain**, "Saddle point approximation for outage probability using cumulant generating functions," *IEEE Wireless Communications Letters*, vol. 5, no. 2, Feb. 2016, pp. 192–195.

J149. N. Wang, **E. Hossain**, and V. K. Bhargava, "Joint downlink cell association and bandwidth allocation for wireless backhauling in two-tier HetNets with large-scale antenna arrays," *IEEE Transactions on Wireless Communications*, vol. 15, no. 5, May 2016, pp. 3251–3268.

J148. M. Monemi, M. Rasti, and **E. Hossain**, "On characterizing interference regions in uplink cognitive radio networks," *IEEE Transactions on Communications*, vol. 64, no. 2, Feb. 2016, pp. 511–524.

J147. A. Abdelnasser and **E. Hossain**, "Resource allocation for an OFDMA cloud-RAN of small cells overlaying a macrocell," *IEEE Transactions on Mobile Computing*, vol. 15, no. 11, Nov. 2016, pp. 2837–2850.

J146. K. Zhu and **E. Hossain**, "Virtualization of 5G cellular networks as a hierarchical combinatorial auction," *IEEE Transactions on Mobile Computing*, vol. 15, no. 10, Oct. 2016, pp. 2640–2654.

J145. M. Monemi, M. Rasti, and **E. Hossain**, "Low-complexity SINR feasibility checking and joint power and admission control in prioritized multi-tier cellular networks," *IEEE Transactions on Wireless Communications*, vol. 15, no. 3, March 2016, pp. 2421–2434.

J144. T. K. Thuc, **E. Hossain**, and H. Tabassum, "Downlink power control in two-tier cellular networks with energy-harvesting small cells as stochastic games," *IEEE Transactions on Communications*, vol. 63, no. 12, Dec. 2015, pp. 5267–5282.

J143. S. Lohani, R. A. Loodaricheh, **E. Hossain**, and V. K. Bhargava, "On multiuser resource allocation in relay-based wireless-powered uplink cellular networks," *IEEE Transactions on Wireless Communications*, vol. 15, no. 3, March 2016, pp. 1851–1865 (DOI: 10.1109/TWC.2015.2496943).

J142. Y. Maddahi, S. Liao, W.-K. Fung, **E. Hossain**, and N. Sepehri, "Selection of network parameters in wireless control of bilateral teleoperated manipulators," *IEEE Transactions on Industrial Informatics*, vol. 11, no. 6, Dec. 2015, pp. 1445–1456 (DOI: 10.1109/TII.2015.2490625).

J141. S. Gurucharya, H. Tabassum, and **E. Hossain**, "Integral approximations for coverage probability," *IEEE Wireless Communications Letters*, vol. 5, no. 1, Feb. 2016, pp. 24–27 (DOI: 10.1109/LWC.2015.2488646).

J140. G. H. S. Carvalho, S. Woungang, A. Anpalagan, and **E. Hossain**, "QoS-aware energy-efficient joint radio resource management in multi-RAT heterogeneous networks," *IEEE Transactions on Vehicular Technology*, vol. 65, no. 8, August 2016, pp. 6343–6345.

J139. U. Siddique, H. Tabassum, **E. Hossain**, and D. I. Kim, "Channel access-aware user association with interference coordination in two-tier downlink cellular networks," *IEEE Transactions on Vehicular Technology*, vol. 65, no. 7, July 2016, pp. 5579–5594.

J138. K. W. Choi, D. T. Wiriaatmadja, and **E. Hossain**, "Discovering mobile applications for device-to-device communication: Hash function and Bloom filter-based approach," *IEEE Transactions on Mobile Computing*, vol. 15, no. 2, Feb. 2016, pp. 336–349 (DOI: 10.1109/TMC.2015.2418767).

J137. K. M. Thilina, **E. Hossain**, and D. I. Kim, "DCCC-MAC: A dynamic common control channel-based MAC protocol for cellular cognitive radio networks," *IEEE Transactions on Vehicular Technology*, vol. 65, no. 5, May 2016, pp. 3597–3613 (DOI: 10.1109/TVT.2015.2438058).

J136. P. Semasinghe and **E. Hossain**, "Downlink power control in self-organizing dense small cells underlaying macrocells: A mean field game," *IEEE Transactions on Mobile Computing*, vol. 15, no. 2, Feb. 2016, pp. 350–363 (DOI: 10.1109/TMC.2015.2417880).

J135. N. Mokari, S. Parsaeefard, P. Azmi, H. Saeedi, and **E. Hossain**, "Robust ergodic resource allocation in cognitive radio networks," *IEEE Transactions on Mobile Computing*, vol. 15, no. 2, Feb. 2016, pp. 419–431 (DOI: 10.1109/TMC.2015.2413782).

J134. Z. Khan, J. J. Lehtomäki, L. A. DaSilva, **E. Hossain**, and M. Latva-aho, "Opportunistic channel selection by cognitive radios under imperfect observations and limited memory: A repeated game model," *IEEE Transactions on Mobile Computing*, vol. 15, no. 1, Jan. 2016, pp. 173–187 (DOI: 10.1109/TMC.2015.2412940).

J133. 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, Oct. 2015, pp. 3882–3897.

J132. A. H. Sakr and **E. Hossain**, "Analysis of K-tier uplink cellular networks with ambient RF energy harvesting," *IEEE Journal on Selected Areas in Communications*, Special Issue on "Recent Advances in Heterogenous Cellular Networks", vol. 33, no. 10, Oct. 2015, pp. 2226–2238.

J131. H. Tabassum and **E. Hossain**, "On the deployment of dedicated energy sources in wireless-powered cellular networks," *IEEE Transactions on Communications*, vol. 63, no. 9, Sept. 2015, pp. 3391–3404.

J130. **E. Hossain**, D. Niyato, and D. I. Kim, "Evolution and future trends of research in cognitive radio: A contemporary survey," *Wireless Communications and Mobile Computing (Wiley)*, vol. 15, no. 11, pp. 1530–1564, August 2015 (DOI: 10.1002/wcm.2443).

J129. H. Tabassum, **E. Hossain**, Md. J. Hossain, and D. I. Kim, "On the spectral efficiency of multiuser scheduling in RF-powered uplink cellular networks," *IEEE Transactions on Wireless Communications*, vol. 14, no. 7, July 2015, pp. 3586–3600.

J128. E. Baktash, M. Rasti, and **E. Hossain**, "Resource allocation for intra-cell subcarrier reuse in cooperative OFDMA wireless networks," *IEEE Transactions on Mobile Computing*, vol. 14, no. 7, July 2015, pp. 1475–1489.

J127. K. M. Thilina, **E. Hossain**, and M. Moghadari, "Cellular OFDMA cognitive radio networks: Generalized spectral footprint minimization," *IEEE Transactions on Vehicular Technology*, vol. 64, no. 7, July 2015, pp. 3190–3204.

J126. A. H. Sakr and **E. Hossain**, "Cognitive and energy harvesting-based D2D communication in cellular networks: Stochastic geometry modeling and analysis," *IEEE Transactions on Communications*, vol. 63, no. 5, May 2015, pp. 1867–1880. **Won the 2018 IEEE Communications Society Young Author Best Paper Award.**

J125. P. Semasinghe, **E. Hossain**, and K. Zhu, "An evolutionary game for distributed resource allocation in self-organizing small cells," *IEEE Transactions on Mobile Computing*, vol. 14, no. 2, April 2015, pp. 274–287.

J124. M. Rasti, M. Hasan, L. B. Le, and **E. Hossain**, "Distributed uplink power control for multi-cell cognitive radio networks," *IEEE Transactions on Communications*, vol. 63, no. 3, March 2015, pp. 628–642.

J123. A. Abdelnasser, **E. Hossain**, and D. I. Kim, "Tier-aware resource allocation in OFDMA macrocell-small cell networks," *IEEE Transactions on Communications*, vol. 63, no. 3, March 2015, pp. 695–710.

J122. K. Zhu and **E. Hossain**, "Joint mode selection and spectrum partitioning for device-to-device communication: A dynamic Stackelberg game," *IEEE Transactions on Wireless Communications*, vol. 14, no. 3, March 2015, pp. 1406–1420.

J121. K. Zhu, **E. Hossain**, and A. Anpalagan, "Downlink power control in two-tier cellular OFDMA networks under uncertainties: A robust Stackelberg

game," *IEEE Transactions on Communications*, vol. 63, no. 2, Feb. 2015, pp. 520–535.

J120. M. Monemi, M. Rasti, and **E. Hossain**, "On joint power and admission control in underlay cellular cognitive radio networks," *IEEE Transactions on Wireless Communications*, vol. 14, no. 1, Jan. 2015, pp. 265–278.

J119. N. Mokari, S. Parsaeefard, H. Saeedi, P. Azmi, and **E. Hossain**, "Secure robust ergodic resource allocation in cognitive radio networks," *IEEE Transactions on Signal Processing*, vol. 63, no. 2, Jan. 2015, pp. 291–304.

J118. 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, Nov. 2014, pp. 6326–6341.

J117. H. ElSawy, **E. Hossain**, and M.-S. Alouini, "Analytical modeling of mode selection and power control for underlay D2D communication in cellular networks," *IEEE Transactions on Communications*, vol. 62, no. 11, Nov. 2014, pp. 4147–4161.

J116. A. H. Sakr and **E. Hossain**, "Location-aware cross-tier coordinated multipoint transmission in two-tier cellular networks," *IEEE Transactions on Wireless Communications*, vol. 13, no. 11, Nov. 2014, pp. 6311–6325.

J115. H. Tabassum, U. Siddique, **E. Hossain**, and M. J. Hossain, "Downlink performance of cellular systems with base station sleeping, user association, and scheduling," *IEEE Transactions on Wireless Communications*, vol. 13, no. 10, Oct. 2014, pp. 5752–5767.

J114. H. ElSawy and **E. Hossain**, "On stochastic geometry modeling of cellular uplink transmission with truncated channel inversion power control," *IEEE Transactions on Wireless Communications*, vol. 13, no. 8, August 2014, pp. 4454–4469.

J113. K. Zhu, **E. Hossain**, and D. Niyato, "Pricing, spectrum sharing, and service selection in two-tier small cell networks: A hierarchical dynamic game approach," *IEEE Transactions on Mobile Computing*, vol. 13, no. 8, August 2014, pp. 1843–1856.

J112. H. Tabassum, Z. Dawy, **E. Hossain**, and S. Alouini, "Interference statistics and capacity analysis for uplink transmission in two-tier small cell networks: A geometric probability approach," *IEEE Transactions on Wireless Communications*, vol. 13, no. 7, July 2014, pp. 3837–3852.

J111. H. ElSawy, **E. Hossain**, and S. Camorlinga, "Spectrum-efficient multichannel design for coexisting IEEE 802.15.4 networks: A stochastic geometry approach," *IEEE Transactions on Mobile Computing*, vol. 13, no. 7, July 2014, pp. 1611–1624.

J110. B. Shrestha, **E. Hossain**, and K. W. Choi, "Distributed and centralized hybrid CSMA/CA-TDMA schemes for single-hop wireless networks," *IEEE Transactions on Wireless Communications*, vol. 13, no. 7, July 2014, pp. 4050–4065.

J109. M. Hasan, **E. Hossain**, and D. I. Kim, "Resource allocation under channel uncertainties for relay-aided device-to-device communication underlaying LTE-A cellular networks," *IEEE Transactions on Wireless Communications*, vol. 13, Apr. 2014, pp. 2322–2338.

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Journal Articles (Submitted)

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JS05. I. Kovacevic, A. S. Shafigh, S. Glisic, B. Lorenzo, and **E. Hossain**, "A netwok slicing framework for latency equalization," submitted to the *IEEE/ACM Transactions on Networking*.

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JS02. K. N. R. Surya Vara Prasad, **E. Hossain**, and V. K. Bhargava, "Machine learning methods for user positioning with uplink RSS in distributed massive MIMO," submitted to the *IEEE Transactions on Wireless Communications*.

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C1. **E. Hossain**, M. S. Alam, and M. H. A. Khan, "Output queuing analysis in space division packet switching networks," in *Proc. Int. Conf. on Robotics, Vision and Parallel Processing for Industrial Automation (ROVPIA'96)*, Ipoh, Malaysia, December 1996, pp. 329–334.

Technical Report

TR1. **E. Hossain**, T. Hwang, B. Jensen, and V. K. Bhargava, "GPRS-based wireless IP networks: Transmission control and multimedia call control signaling issues," Technical Report ECE-00-1, University of Victoria, prepared for Motorola Wireless Data Systems, June 2000.

Invention Disclosures

P2. B. Shrestha, **E. Hossain**, S. Camorlinga, R. Krishnamurthy, and D. Niyato, "Method for allocation of guaranteed time slots for efficient transmission of time-critical data in IEEE 802.15.4 wireless personal area networks," US Patent 8,976,763 (issued on March 10, 2015).

P1. D. NIyato, **E. Hossain**, and S. Camorlinga, "System and method for remote and mobile patient monitoring service using heterogeneous wireless access networks, " US Patent 9,007,908 (issued on April 14, 2015).

3 Teaching and Graduate Student Supervision

3.1 Courses Developed at the University of Manitoba

- Wireless Networks (ECE 4540)
- Special Topics in Communication Networks (ECE 4870)
- Advanced Wireless Communication Networks (ECE 7200)
- Cognitive Wireless Communication Networks (ECE 7202)
- Game Theory for Wireless Communication and Networks (ECE 7440-T56)
- Optimization Techniques With Applications to Communications Systems and Networks (ECE 7440-T64)

3.2 Courses Taught at the University of Manitoba

- **Electric Circuits (ECE2262)**: Summer 2010
- **Digital Logic Systems (ECE 2220)**: Fall 2001, Fall 2002, Summer 2003, Fall 2003, Summer 2004, Summer 2005, Summer 2007, Fall 2009, Fall 2011, Fall 2012, Fall 2014, Fall 2016
- **Signal Processing-II (ECE 4830)**: Fall 2004, Fall 2005, Fall 2006, Fall 2007, Fall 2008
- **Telecommunications Network Engineering (ECE 3700/ECE 7590)**: Spring 2002, Spring 2003, Spring 2014, Spring 2015, Spring 2016, Spring 2017, Spring 2018
- **Special Topics in Communication Networks (ECE 4870)**: Spring 2014
- **Wireless Networks (ECE 4540)** - (introduced and developed by **E. Hossain**): Fall 2003, Fall 2004, Fall 2006, Fall 2007, Fall 2008, Fall 2011, Fall 2012
- **Advanced Wireless Communication Networks (ECE 7200)** - (introduced and developed by **E. Hossain**): Fall 2001, Fall 2002, Fall 2003, Spring 2004, Spring 2005, Spring 2007, Spring 2008, Spring 2009, Spring 2011, Spring 2012, Spring 2013, Fall 2014, Spring 2015, Fall 2015, Winter 2017, Spring 2018
- **Cognitive Wireless Communication Networks (ECE 7202)** - (introduced and developed by **E. Hossain**): Summer 2008, Summer 2009, Winter 2011, Summer 2012, Summer 2013, Summer 2014, Summer 2015, Spring 2016.

- **Game Theory for Wireless Communication and Networks (ECE 7440)** - (introduced and developed by **E. Hossain**): Summer 2017
- **Optimization Techniques With Applications to Communications Systems and Networks (ECE 7440-T64)** - (introduced and developed by **E. Hossain**): Summer 2017

3.3 Undergraduate Thesis Supervised at the University of Manitoba

- Huy Hoang Bui, Hyunhoon Jo, Farhan Rahman, Aleksa Svitlica, and Wyatt Thomson, *Smart Traffic Network for Autonomous Vehicles*
- Drew Barclay, Llandro Ojeda, Maricar Aliasut, *Location Tracking with Augmented Reality*, March 2017.
- Sanchuan Liu and Ye Sun, *Development of a ZigBee Based Wireless ECG Signal Transceiver*, March 2009.
- Jordan Sylvestre and Sean Smith, *Wireless Smart Home on Gumstix*, March 2007.
- Andell Anees Alexander, Raymond Taylor, Vinujanan Vairavanathan, and Yao Fu, *Solar Powered ZigBee-Based Wireless Motion Surveillance*, March 2007.
- Ace Abrenica, Rezan Almojuela, Roger Dalupang, and Rhodelle Magnayon, *The Control of an Outdoor Device by Implementing a ZigBee Wireless Connection with Solar Energy as a Primary Power Source*, March 2006.
- Mark Dodd and Benjamin Windsor, *A ZigBee-Based Wireless Smart Home*, March 2006.
- Jingjing Wang and Yabin Sun, *Remote Control of Home Appliances over the Internet Using Bluetooth Wireless Network*, March 2006.
- Jay Sethi, Matthew, and Ryan Supeene, *Design of a Practical Mesh Network Using Available Consumer Hardware*, March 2006.
- Scott McCamis and Voytek Plawny, *Simulation of Adaptive Error Control in a Link-Level Wireless Protocol*, April 2003.
- Dinen Subramanium, *Simulation of TCP over 3G Cellular Wireless Networks*, August 2002.
- Troy Dale Dolyniuk and Darryl David Shpak, *Fair Queuing and Energy Efficiency in Wireless MAC Protocols*, April 2002.
- Kar Mun Cheng, Ping Tai Cheuk, Lowell Miller, and Qing Rong Zhen, *Modeling and Simulation of 3G Cellular Wireless Networks*, April 2002.

- Norman Figueroa, *Error Control for Multimedia Wireless LAN*, August 2001.

3.4 Graduate Students Supervised at the University of Manitoba

3.4.1 Ph.D. Student Supervision

- Sudha Lohani, Completed Ph.D. in December 2017 (co-supervised), Thesis Title: *Resource Allocation in Relay-based and Heterogeneous Wireless Networks with Energy Harvesting*

- Uzma Siddique, Completed Ph.D. in April 2017, Thesis Title: *Modeling and Analysis of User Association and Wireless Backhauling in Small Cell Networks*, Recipient of the University of Manitoba Graduate Fellowship (**UMGF**)

- Ahmed Hamdi, Completed Ph.D. in January 2017, Thesis Title: *Modeling, Analysis, and Optimization of Multi-tier Cellular Networks*, Recipient of the University of Manitoba Graduate Fellowship (**UMGF**)

- Prabodini Semasinghe, Completed Ph.D. in August 2016, Thesis Title: *Distributed Resource Allocation for Self-Organizing Small Cell Networks: A Game Theoretic Approach*, Recipient of the University of Manitoba Graduate Fellowship (**UMGF**)

- Amr Abdelnasser, Completed Ph.D. in December 2015, Thesis Title: *Radio Resource Management Techniques for Multi-tier Cellular Wireless Networks*, Recipient of the University of Manitoba Graduate Fellowship (**UMGF**)

- Madushan Thilina, Completed Ph.D. in May 2015, Thesis Title: *On Spectrum Sensing, Medium Access Control, and Resource Management in Cognitive Radio Networks*, Recipient of the University of Manitoba Graduate Fellowship (**UMGF**)

- Hesham ElSawy, Completed Ph.D. in February 2014, Thesis Title: *Modeling, Analysis, and Optimization of Random Wireless Networks: Stochastic Geometry Approach*

- Bharat Shrestha, Completed Ph.D. in November 2013, Thesis Title: *Analysis of CSMA/CA-TDMA Hybrid Channel Access Schemes with Applications to Wireless Sensor Networks*

- Phond Phunchongharn, Completed Ph.D. in August 2012, Thesis Title: *Dynamic Wireless Access Methods with Applications to eHealth Services*

- Khajonpong Akkarajitsakul, Completed Ph.D. in July 2012, Thesis Title: *Game Theoretic Models for Resource Allocation and Management in Wireless Networks*

- Surachai Chieochan, Completed Ph.D. in September 2011, Thesis Title: *Network Coded Media Distribution in Infrastructure Wireless Mesh Networks*

- Dusit Niyato, Completed Ph.D. in July 2008, Thesis Title: *Radio Resource Management in Broadband Wireless Networks*, Recipient of the University of Manitoba Graduate Fellowship (**UMGF**).

- Afshin Fallahi, Completed Ph.D. in December 2007, Thesis Title: *Dynamic Power Management for QoS-Aware Wireless Multimedia Sensor Networks*.

- Long Bao Le, Completed Ph.D. in April 2007, Thesis Title: *Cross-Layer Design and Analysis of Wireless Networks*, Recipient of the University of Manitoba Graduate Fellowship (**UMGF**).

- T. Issariyakul, Completed Ph.D. in August 2005, Thesis Title: *Scheduling and Error Control in Cellular and Multi-Hop Wireless Networks: Analysis and Optimization*, Recipient of University of Manitoba Graduate Fellowship (**UMGF**).

- Rakpong Kaewpuang, Ph.D. student (did not complete)

- Mohammad Moghadari, Ph.D. student (did not complete)

3.4.2 M.Sc. Student Supervision/Co-Supervision

- Shermila Ranadheera, Completed M.Sc. in December 2017, Thesis Title: *Computation Offloading in Mobile Edge Networks: A Minority Game model*

- Md. Monjurul Islam Khan, Completed M.Sc. in April 2017, Thesis Title: *Development of an ns-3 Based Simulator from Space Telemetry*

- Md Shipon Ali, Completed M.Sc. in April 2017, Thesis Title: *Non-Orthogonal Multiple Access (NOMA) for Cellular Wireless Communications*

- Adedayo Ogundipe, Completed M.Sc. in July 2016, Thesis Title: *Adaptive Harvest-Then-Transmit for a Two-Tier Heterogeneous Wireless Network*

- S. Sekander, Completed M.Sc. in June 2016, Thesis title: *Decoupled Uplink-Downlink User Association in Full-Duplex Small Cell Networks*, Recipient of the University of Manitoba Graduate Fellowship (**UMGF**).

- M. Hasan, Completed M.Sc. in May 2015, Thesis title: *Radio Resource Management for Relay-Aided Device-to-Device Communication*, Recipient of the University of Manitoba Graduate Fellowship (**UMGF**).

- T. K. Thuc, Completed M.Sc. in May 2015, Thesis title: *Power Control in Energy-Harvesting Small Cell Networks: Application of Stochastic Game*, Recipient of the University of Manitoba Graduate Fellowship (**UMGF**).
- N. Saquib, Completed M.Sc. in January 2013, Thesis title: *Resource Allocation and Interference Management in Two-Tier Cellular Wireless Networks*, Recipient of the University of Manitoba Graduate Fellowship (**UMGF**).
- A. T. Nguyen, Completed M.Sc. in September 2008, Thesis Title: *MIMO-Based Wireless Mesh Networks: Resource Allocation and Performance Evaluation.*
- I. A. Qaimkhani, Completed M.Sc. in December 2007, Thesis Title: *QoS Enhancements in IEEE 802.11 Wireless LANs to Support Real-Time Services.*
- B. Pawlak, Completed M.Sc. in August 2007, Thesis Title: *Positron Emission Tomography (PET) Image Reconstruction by Density Estimation* (Co-supervised).
- D. Niyato, Completed M.Sc. in August 2005, Thesis Title: *Call Admission Control, Bandwidth Adaptation, and Scheduling in Cellular Wireless Internet: Analytical Models and Performance Evaluation.*
- M. M. Rashid, Completed M.Sc. in July 2004, Thesis Title: *Provisioning and Controlling Differentiated Quality of Service in Web Servers: An Analytical Approach*, Recipient of the University of Manitoba Graduate Fellowship (**UMGF**), co-supervised with Prof. M. Maheswaran, McGill University, Canada.
- K. N. Parvez, Completed M.Sc. in April 2004, Thesis Title: *Enhancing TCP Performance in Wide-Area Wireless Networks Using End-to-End Bandwidth Estimation.*
- R. Palit, Completed M.Sc. in April 2004, Thesis Title: *Mobility-Aware Access-Based Clustering in Mobile Wireless Ad hoc Networks*, Recipient of the University of Manitoba Graduate Fellowship (**UMGF**).

3.5 Current Graduate Students

- Shermila Ranadheera, Ph.D. student (expected to complete by December 2021)
- Taniya Shafique, Ph.D. student (expected to complete by December 2021)
- Mohammad Salehi, Ph.D. student (expected to complete by December 2021)
- Md Shipon Ali, Ph.D. student (expected to complete by December 2020)

- Vandana Mittal, Ph.D. student (expected to complete by April 2021)
- Ummy Habiba, Ph.D. student (expected to complete by December 2018)
- Silvia Sekander, Ph.D. student (expected to complete by December 2019)
- Parveen Afroza, M.Sc. student (expected to complete by August 2018)
- Mojaiana Synthia, M.Sc. student (expected to complete by December 2018)
- Kazi Ishfaq Ahmed, M.Sc. student (expected to complete by April 2019)

3.6 Post-Doctoral Research Associates

- Sudarshan Gurucharya, Ph.D. (Nanyang Technological University, Singapore), May 2015 –
- Hina Tabassum, Ph.D. (King Abdullah University of Science and Technology, Saudi Arabia), July 2013 -
- Amr Abdelnasser, Ph.D. (University of Manitoba, Canada), January 2016 – June 2016
- Setareh Maghsudi, Ph.D. (Technische Universitat Berlin, Germany), June 2015 – August 2016
- Ning Wang, Ph.D. (University of Victoria, Canada), Co-supervised, May 2014 – June 2015
- Mehdi Rasti, Ph.D. (Tarbiat Modares University, Iran), June 2013 - December 2013
- Kun Zhu, Ph.D. (Nanyang Technological University, Singapore), September 2012 – August 2015
- Ning Wang, Ph.D. (University of Victoria, Canada), Co-supervised, May 2014 – June 2015
- Mohammad Mamunur Rashid, Ph.D. (The University of British Columbia, Canada), May 2011 – August 2011
- Kaewon Choi, Ph.D. (Seoul National University, Korea), July 2009 – August 2010
- Hengameh Keshavarz, Ph.D. (University of Waterloo, Canada), November 2008 – October 2009
- Javad Ahmadi-Shokouh, Ph.D. (University of Waterloo, Canada), November 2008 – October 2009
- Teerawat Issariyakul, Ph.D. (University of Manitoba, Canada), February 2008 – June 2008

4 Professional Activities

4.1 Journal/Magazine Editorship

- Editor-in-Chief, *IEEE Press* (2018-2019)
- Editor-in-Chief, *IEEE Communications Surveys and Tutorials* (2012-2016)
- Editor, *IEEE Journal on Selected Areas in Communications: Cognitive Radio Series* (2011-2014)
- Member, IEEE Press Editorial Board (2013-2018)
- Editor, *IEEE Transactions on Mobile Computing* (2007-2012)
- Editor, *IEEE Transactions on Wireless Communications* (2001-2009)
- Area Editor, Resource Management and Multiple Access, *IEEE Transactions on Wireless Communications* (2010-2012)
- Associate Editor, *IEEE Transactions on Vehicular Technology* (2006-2009)
- Editor, *IEEE Wireless Communications* (since 2006)
- Editor, *IEEE Communications Surveys and Tutorials* (2009-2011)
- Editor, *Ad Hoc Networks* (Elsevier) Journal (2009-2012)
- Editor, *Wireless Communications and Mobile Computing* (Wiley Interscience) (2004-2009)
- Editor, *KICS/IEEE Journal of Communications and Networks* (2003-2009)
- Editor, *International Journal of Vehicular Technology (IJVT)* (Hindawi Publishing) (2006-2009)

4.2 Journal/Magazine Guest Editorship

- Guest Editor, Special Issue of the *KICS/IEEE Journal of Communications and Networks* on "Cognitive Networking", April 2014.
- Guest Editor, Special Issue of *IEEE Communications Magazine* on "Context-Aware Networking and Communications", June 2014.
- Guest Editor, Special Issue of *IEEE Wireless Communications* on "Multicell Cooperation", February 2013.
- Guest Editor, Special Issue of the *KICS/IEEE Journal of Communications and Networks* on "Communications and Networking for Smart Grid", December 2012.

- Guest Editor, Special Issue of the *IEEE Journal on Selected Areas in Communications* on "Economics of Communication Networks and Systems", Fourth Quarter, 2012.

- Guest Editor, Special Issue of the *Journal of Communications* (http://www.academypublisher.com/jcm/) on "Cognitive Radio Enabled Communications and Networking", November 2009.

- Guest Editor, Special Issue of the *IEEE Transactions on Systems, Man and Cybernetics-PartB* on "Game Theory," 2009.

- Guest Editor, Special Issue of the *Computer Communications* Journal (Elsevier) on "Cognitive Radio and Dynamic Spectrum Sharing Systems," 2009, http://www.elsevier.com/locate/comcom.

- Guest Editor, Special Issue of the *EURASIP Journal on Wireless Communications and Networking* on "Fairness in Radio Resource Management for Wireless Networks," 2009.

- Guest Editor, Special Issue of the *Computer Communications* Journal (Elsevier) on "Quality, Reliability, Security and Robustness for Heterogeneous Wireless Networks," 2009.

- Guest Editor, Special Issue of the *Mobile Networks and Applications* Journal (Springer) on "New Advances in Heterogeneous Networking for Quality, Reliability, Security and Robustness," 2008.

- Guest Editor, Special Issue of the *KICS/IEEE Journal of Communications and Networks (JCN)* on "Cognitive Radio - A Path in the Evolution of Public Wireless Networks," December 2008.

- Guest Editor, Special Issue of the *IEEE Communications Magazine* on "Advances in Mobile Multimedia Networking and QoS," August 2007.

- Guest Editor, Special Issue of the *IEEE Wireless Communications* on "Radio Resource Management and Protocol Engineering in IEEE 802.16," February 2007.

- Guest Editor, Special Issue of the *IEEE Communications Magazine* on "Cross-Layer Protocol Engineering for Wireless Mobile Networks - Part I," January 2006.

- Guest Editor, Special Issue of the *IEEE Communications Magazine* on "Cross-Layer Protocol Engineering for Wireless Mobile Networks - Part II," December 2005.

- Guest Editor, Special Issue of the *Wireless Communications and Mobile Computing (WCMC)* on "Radio Link and Transport Protocol Engineering for Future-Generation Wireless Mobile Data Networks," April 2005.

- Guest Editor, Special Issue of the *Canadian Journal of Electrical and Computer Engineering (CJECE)* on "Advances in Wireless Communications and Networking," January/April 2004.

4.3 Research Proposal Review Committee and Panel Membership

- European Research Commission (ERC), EU
- Science Foundation of Ireland (SFI), Ireland
- Research Grants Council (RGC) of Hong Kong, China
- National Science Foundation (NSF), USA
- Natural Sciences and Engineering Research Council of Canada (NSERC), Canada

4.4 Professional Membership

- Member, Association of Professional Engineers and Geoscientists of the Province of Manitoba (APEGM)
- Fellow, IEEE
- Member, IEEE Communications Society
- Member, IEEE Vehicular Technology Society
- Chair, IEEE Communications Society Chapter, IEEE Winnipeg Section (2008-2012, 2014-2015)
- Vice-Chair, IEEE Winnipeg Section (2016)
- Chair, IEEE Winnipeg Section (2017)

4.5 Conference/Symposium/Workshop Chair/Co-Chair

- Technical Program Co-Chair, *IEEE/CIC ICCC*, Qingdao, China, October 22-24, 2017.
- Technical Program Co-Chair, *28th Biennial Symposium on Communications (BSC'16)*, Kelowna, BC, Canada, June 5-8, 2016.
- General Co-Chair, *6th EAI International Conference on Game Theory for Networks (GameNets'16)*, Kelowna, BC, Canada, May 10-12, 2016.
- Technical Program Chair, MAC Track, *IEEE Wireless Communications and Networking Conference (WCNC'16)*, Doha, Qatar, April 3-6, 2016.

- General Co-Chair, *First International Workshop on Green and Sustainable Networking and Computing (GSNC 2016)*, in conjunction with IEEE INFOCOM 2016, San Francisco, CA, USA, 10-15 April 2016.

- Co-Chair, *International Workshop on Spatial Stochastic Models for Wireless Networks (SPASWIN 2014)*, in conjunction with 12th International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt 2014), Hammamet, Tunisia, May 12-16, 2014.

- Chair, *First International Workshop on Green Cognitive Communication and Computing Networks (GCCCN2014)*, in conjunction with The 33rd Annual IEEE International Conference on Computer Communications (INFOCOM'14), Toronto, Canada, April 27 - May 2, 2014.

- Technical Symposium Co-Chair, *Wireless Networking and Applications*, *First IEEE Int. Conf. on Communications in China (ICCC'12)*, Beijing, China, August 15-18, 2012.

- Technical Program Co-Chair, "Cognitive Radio and Networks" Symposium, *IEEE International Conference on Communications (ICC'12)*, Ottawa, Canada, June 10-15, 2012.

- Technical Program Co-Chair, "Mobile and Wireless Networks" Track, *IEEE Wireless Communications and Networking Conference (WCNC'12)*, Paris, France, April 1-4, 2012.

- Technical Program Co-Chair, "Cognitive Radio and Spectrum Management" Track, *22nd IEEE Symposium on Personal, Indoor, Mobile and Radio Communications (PIMRC'11)*, Toronto, Canada, September 11-14, 2011.

- Technical Program Chair, *Cognitive Radio and Cooperative Communications* Track, *IEEE 72nd Vehicular Technology Conference (VTC'10-Fall)*, Ottawa, Canada, September 6-9, 2010.

- Technical Program Chair, *Cognitive and Cooperative Communications* Track, *IEEE 71th Vehicular Technology Conference (VTC'10-Spring)*, Taipei, Taiwan, May 16-19, 2010.

- Publicity Chair for the America Region, *IEEE Wireless Communications and Networking Conference (WCNC'10)* (http://www.ieee-wcnc.org/2010/), Sydney, Australia, April 18-21, 2010.

- Technical Program Chair, *Symposium on Next-Generation Mobile Networks* held in conjunction with *International Wireless Communication and Mobile Computing Conference (IWCMC'10)*, Caen, France, 28 June - 2 July, 2010.

- Technical Program Chair, *Workshop on Cognitive Wireless Communications and Networking* to be held in conjunction with the *IEEE International Conference on Ultra Modern Telecommunications* (http://www.icumt.org/), Saint Petersburg (Russia), October 12-14, 2009.

- Technical Program Chair, *Symposium on Next-Generation Mobile Networks* held in conjunction with *International Wireless Communication and Mobile Computing Conference (IWCMC'09)*, Leipzig, Germany, 21-24 June, 2009.

- Technical Program Chair, *Workshop on Cognitive Radio and Networks*, held in conjunction with *19th IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC'08)*, Cannes, French Riviera, France, 15-18 September, 2008.

- Technical Program Co-Chair, *Wireless Networks and Cognitive Radio Track*, *IEEE 68th Vehicular Technology Conference (VTC2008-Fall)*, Calgary, Canada, 21-24 September 2008.

- Technical Program Co-Chair, *Fifth International ICST Conference on Heterogeneous Networking for Quality, Reliability, Security and Robustness (QShine'08)*, Hong Kong, 28-31 July, 2008.

- Technical Program Co-Chair, *Symposium on Next-Generation Mobile Networks* held in conjunction with *International Wireless Communication and Mobile Computing Conference (IWCMC'08)*, Maris Conference Centers, Chinia, Crete Island, Greece, 6-8 August, 2008.

- Technical Program Co-Chair, *Symposium for Communications and Networking*, held in conjunction with *21st Canadian Conference on Electrical and Computer Engineering (CCECE'08)*

  (http://www.ewh.ieee.org/reg/7/ccece08/).

- Technical Program Co-Chair, *IEEE Wireless Communications and Networking Conference (WCNC'08)*, 31 March-3 April 2008, Las Vegas, USA.

- Technical Program Co-Chair, Symposium on "Wireless Networking", *IEEE Globecom'07*, 26-30 November 2007, Washington, DC, USA.

- Technical Program Chair, Workshop on "Cognitive Wireless Networks (CWNets)" held in conjunction with *QShine: International Conference on Heterogeneous Networking for Quality, Reliability, Security and Robustness*, 14-17 August 2007, Vancouver, British Columbia, Canada.

- Technical Program Chair, Workshop on "Wireless Networking for Intelligent Transportation Systems (WiN-ITS)" held in conjunction with *QShine: International Conference on Heterogeneous Networking for Quality, Reliability, Security and Robustness*, 14-17 August 2007, Vancouver, British Columbia, Canada.

- Poster Chair, *QShine: International Conference on Heterogeneous Networking for Quality, Reliability, Security and Robustness*, 14-17 August 2007, Vancouver, British Columbia, Canada.

- Technical Program Co-Chair, *Symposium on Next-Generation Mobile Networks* held in conjunction with *International Wireless Communication and Mobile Computing Conference (IWCMC'07)*, 12-16 August 2007, Turtle Bay Resort, Honolulu, Hawaii, USA.

- Technical Program Co-Chair, *Int. Conference on Next-Generation Wireless Systems (ICNEWS'06)*, 2-4 January 2006, Dhaka, Bangladesh.

4.6 Technical Program Committee Membership

- *IEEE PIMRC 2017 - Workshop on Full-Duplex Technologies (FDX 2017)*, Montreal, Canada, 8-13 Oct. 2017.

- *IEEE Globecom 2017 - Wireless Communications Symposium*, Singapore, 4-8 Dec. 2017.

- *2016 IEEE Global Communications Conference (Globecom): 5th International Workshop on Emerging Technologies for 5G Wireless Cellular Networks*, Washington, DC, USA, 04 December 2016.

- *IEEE Globecom 2016 - Wireless Communications Symposium*, Washington, DC, USA, 4-8 Dec. 2016.

- *IEEE Canadian Conference on Electrical and Computer Engineering (CCECE'16)*, Vancouver, Canada, 15-18 May 2016.

- *2016 IEEE Conference on Computer Communications Workshops (INFOCOM WKSHPS): 5G & Beyond - Enabling Technologies and Applications (5G 2016)*, San Francisco, CA, USA, 11 April 2016.

- *2016 IEEE Conference on Computer Communications Workshops (INFOCOM WKSHPS): SmartCity16: The 2nd IEEE INFOCOM Workshop on Smart Cities and Urban Computing*, San Francisco, CA, USA, 11 April 2016.

- *8th International Conference on Communication Systems and Networks (COMSNETS'16)*, Bangalore, India, 5-9 January 2016.

- *IEEE Globecom 2015 - 7th Int. Workshop on Heterogeneous and Small Cell Networks (HetSNets)*, San Diego, CA, USA, 6-10 Dec. 2015.

- *IEEE Globecom 2015 - Wireless Communications Symposium*, San Diego, CA, USA, 6-10 Dec. 2015.

- *IEEE DySPAN 2015*, Stockholm, Sweden, 29 Sept.-02 Oct. 2015.

- *NetEcon 2015: The 10th Workshop on the Economics of Networks, Systems and COmputation*, in conjunction with ACM SIGMETRICS 2015 and ACM EC 2015, Portland, OR, USA, June 15, 2015.
- *The Third IEEE International Workshop on Emerging COgnitive Radio Applications and aLgorithms (IEEE CORAL 2015)*, June 14, Boston, USA, 2015.
- *IEEE ICC 2015 - Workshop on 5G & Beyond Enabling Technologies and Applications*, London, UK, June 2015.
- *IEEE ICC 2015 - 4th International Workshop on Small Cells and 5G Networks (SmallNets*, London, UK, June 2015.
- *IEEE Globecom 2014 Workshop - Emerging Technologies for 5G Wireless Cellular Networks (Wi5G)*, Austin, TX, USA, Dec. 2014.
- *IEEE Globecom 2014 Workshop - Heterogeneous and Small Cell Networks*, Austin, TX, USA, Dec. 2014.
- *IEEE Globecom 2014 - Symposium on Selected Areas in Communications (Green Communication Systems and Networks)*, Austin, TX, USA, Dec. 2014.
- *IEEE BlackSeaCom 2014 - Second International Black Sea Conference on Communications and Networking*, Chisinau, Moldova, May 27-30, 2014.
- *IEEE VidEv 2014 - The 3rd IEEE Workshop on Video Everywhere*, Sydney, Australia, June 16, 2014.
- *International Workshop on Heterogeneous and Small Cell Networks*, in conjunction with *IEEE Globecom 2013*, Atlanta, GA, USA, December 9, 2013.
- *International Workshop on Emerging Technologies for LTE-Advanced and Beyond-4G*, in conjunction with *IEEE Globecom 2013*, Atlanta, GA, USA, December 13, 2013.
- *Selected Areas in Communications Symposium*, *IEEE Globecom 2013*, Atlanta, GA, USA, December 9-13, 2013.
- *W-PIN+NetEcon 2013: The joint Workshop on Pricing and Incentives in Networks and Systems*, Pittsburgh, PA, USA, June 21, 2013.
- *The 2nd IEEE WoWMoM Workshop on Video Everywhere (IEEE VidEv 2013)*, Madrid, Spain, June 4, 2013.
- *The Second IEEE International Workshop on Emerging COgnitive Radio Applications and aLgorithms (IEEE CORAL 2013)*, Madrid, Spain, June 4, 2013.

- *Wireless Networking Symposium*, IEEE ICC 2013, Budapest, Hungary, June 9-13, 2013. 2nd IEEE Workshop on Video Everywhere (VidEv 2013), Madrid, Spain, June 4, 2013.
- *Workshop on Pricing and Incentives in Networks (W-PIN 2012)*, in conjunction with *ACM SIGMETRICS/Performance 2012*, London, UK, June 11, 2012.
- *International Workshop on Emerging Technologies for LTE-Advanced and Beyond-4G*, in conjunction with *IEEE Globecom 2012*, Anaheim, CA, USA, 3-7 December, 2012.
- *Cognitive Radio and Networks* Symposium, *IEEE Globecom 2012*, Anaheim, CA, USA, December 3-7, 2012.
- *Wireless Networking* Symposium, *IEEE International Conference on Communications (ICC'12)*, Ottawa, Canada, June 10-15, 2012.
- *7th IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (IEEE WiMob)*, Shanghai, China, 10-12 October, 2011.
- *8th IEEE International Conference on Mobile Ad-hoc and Sensor Systems (IEEE MASS 2011)*, Valencia, Spain, 17-22 October, 2011.
- *6th International ICST Conference on Cognitive Radio Oriented Wireless Networks (CrownCom 2011)*, Yokohama, Japan, 31 May-3 June, 2011.
- *Workshop on Cognitive and Cooperative Networks*, IEEE Infocom 2011, Shanghai, China, April 10-15, 2011.
- *IEEE WoWMoM 2011*, Lucca, Italy, June 20-24, 2011.
- *IEEE DySPAN 2011*, Aachen, Germany, May 3-6, 2011.
- *Wireless Networking Symposium*, IEEE ICC 2011, Kyoto, Japan, June 5-9, 2011.
- *Wireless Networking Symposium*, IEEE Globecom 2010, Miami, FL, USA, December 6-10, 2010.
- *Wireless Communications Symposium*, IEEE Globecom 2010, Miami, FL, USA, December 6-10, 2010.
- *The 13th International Symposium on Wireless Personal and Multimedia Communications (WPMC'10)*, 11-14 October 2010, Recife, Brazil.
- *IEEE Vehicular Networks and Applications Workshop (VehiMobi'10)*, co-located with *IEEE International Conference on Communications (ICC'10)*, 23-27 May 2010, Cape Town, South Africa.

- *IEEE INFOCOM'10 Workshop on Cognitive Wireless communications and Networking*, 15-19 March 2010, San Diego, CA, USA.
- *IEEE Workshop on Networking Intelligent Vehicles and Infrastructures (NiVi'09)* (http://snac.eas.asu.edu/workshop/NIVI09.), in conjunction with *IEEE Global Communications Conference(Globecom'09)*, Honololu, Hawaii, USA, Nov 30-December 4, 2009.
- "Wireless Networking Symposium", *IEEE Global Communications Conference(Globecom'09)*, Honololu, Hawaii, USA, Nov 30-December 4, 2009.
- Symposium on "Selected Areas in Communications", *IEEE Global Communications Conference(Globecom'09)*, Honololu, Hawaii, USA, Nov 30-December 4, 2009.
- "Wireless Communications Symposium", *IEEE Global Communications Conference(Globecom'09)*, Honololu, Hawaii, USA, Nov 30-December 4, 2009.
- "*The International Workshop on Scalable Ad Hoc and Sensor Networks (SASN'09)* held in conjunction with the *IEEE International Conference on Ultra Modern Telecommunications* (http://www.icumt.org/), Saint Petersburg (Russia), October 12-14, 2009
- "IEEE Vehicular Networks and Applications Workshop", co-located with *IEEE International Conference on Communications*, 14-18 June 2009, Dresden, Germany.
- "Cognitive Radio" track, *IEEE VTC2009-Spring*, 26-29 April 2009, Barcelona, Spain.
- Symposium on "Selected Areas in Communications", *IEEE Int. Conference on Communications (ICC'09)*, Dresden, Germany, June 14-18, 2009.
- Symposium on "Ad Hoc, Sensor and Mesh Networking", *IEEE Global Communications Conference (Globecom'08)*, New Orleans, LA, USA, 30 November- 4 December 2008.
- Symposium on "Wireless Networking", *IEEE Global Communications Conference (Globecom'08)*, New Orleans, LA, USA, 30 November- 4 December 2008.
- "Cognitive Radio Networks" track, *17th Int. Conference on Computer Communication and Networks (ICCCN 2008)*, St. Thomas U.S. Virgin Islands, USA, 3 - 7 August 2008.
- 4th ACM International Workshop on *Wireless Multimedia Networking and Performance Modeling (WMuNeP 2008)*, co-located with the *11th ACM International Symposium on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM 2008)*, Vancouver, Canada, 27-31 October 2008.

- Workshop on *Machine Learning in Cognitive Networks: Theory, Application, and Future (MLCN'08)*, co-located with the *IEEE World Congress on Computational Intelligence (WCCI 2008)*, HongKong, China, 1-6 June, 2008.
- *IEEE Vehicular Networks and Applications Workshop (Vehi-Mobi 2008)*, co-located with IEEE ICC 2008, Beijing, China, 19-23 May 2008.
- *First IEEE International Workshop on Cognitive Radio and Advanced Spectrum Management (CogART 2008)*, Aalborg, Denmark, 14 February 2008.
- *3rd International Conference on Cognitive Radio Oriented Wireless Networks and Communications (CrownCom'08)*, Singapore, 14-17 May 2008.
- *IEEE Communications Conference (ICC'08)*, Beijing, China, 19-23 May 2008.
- *IEEE Wireless Communications and Networking Conference (WCNC'08)*, Las Vegas, USA, 31 March-3 April, 2008.
- *IEEE Pacific Rim Conference on Communications, Computers and Signal Processing (PACRIM'07)*, University of Victoria Victoria, B.C., Canada, 22-24 August, 2007.
- *QShine: International Conference on Heterogeneous Networking for Quality, Reliability, Security and Robustnes*, 14-17 August 2007, Vancouver, British Columbia, Canada.
- *2nd IEEE International Workshop on Heterogeneous Wireless Networks: Resource Management and QoS (HWN-RMQ'07)*, Las Vegas, Nevada, USA, 11-13 January 2007.
- *International Symposium on Broadband Access Technologies in Metropolitan Area Networks 2006*, 16-18 October 2006, Niagara Falls, Canada.
- *IEEE Wireless Communications and Networking Conference (WCNC'07)*, Hong Kong, 11-17 March 2007.
- Workshop on *Multi-Layer Modeling and Design of Multi-Hop Wireless Networks (MLMD'06)* held in conjunction with The *Twelfth International Conference on Parallel and Distributed Systems (ICPADS'06)*, Minneapolis, Minnesota, 12-15 July 2006.
- *64th IEEE Vehicular Technology Conference (VTC'06 Fall)*, Mobile Wireless Networks Track, Montreal, Canada, 25-28 September 2006.
- *Third International Conference on Quality of Service in Heterogeneous Wired/Wireless Networks (QShine'06)*, Waterloo, Ontario, Canada, 7-9 August 2006.

- *IEEE Global Communications Conference (Globecom'06)* Wireless Communications Symposium, San Francisco, CA, USA, December 2006.

- *Symposium on Next-Generation Mobile Networks* held in conjunction with *International Wireless Communication and Mobile Computing Conference (IWCMC'06)*, 3-6 July 2006, Vancouver, Canada.

- *Symposium on Wireless Local and Personal Area Networks* held in conjunction with *International Wireless Communication and Mobile Computing Conference (IWCMC'06)*, 3-6 July 2006, Vancouver, Canada.

- *First Wireless Euro-Mediterranean International Conference (WEMIC'06)*, Amman, Jordan, 27-29 March 2006 (http://www.just.edu.jo/ wireless/WEMIC/).

- *First International Workshop on Security and Pervasive Multimedia Environments (MultiSec'05)* (http://coitweb.uncc.edu/ zhliu/MultiSec'05) held in conjunction with IEEE International Symposium on Multimedia (ISM'05), 12-14 December 2005, Irvine, California, USA (http://ISM2005.eecs.uci.edu/).

- *International Symposium on Wireless Pervasive Computing 2006 (ISWPC'06)*, Phuket, Thailand, 16-18 January 2006 (http://www.iswpc.org/2006).

- *ACM International Workshop on Wireless Multimedia Networking and Performance Modeling (WMuNeP'05)*, Montreal, Canada, 13 October 2005 (http://www.dcc.ufmg.br/∼loureiro/wmunep05.html) held in conjunction with the *8th ACM/IEEE Int'l Symposium on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM'05)*.

- *Broadband Wireless Networking Symposium* held in conjunction with *Second Annual International Conference on Broadband Networks (BROADNETS'05)*, Boston, Massachusetts, USA, 3-7 October 2005.

- *IEEE WirelessCom'05 Symposium on Wireless LANs and Wireless PANs*, Hawaii, USA, 13-16 June 2005.

- *IEEE WirelessCom'05 Symposium on Radio Resource Management*, Hawaii, USA, 13-16 June 2005.

- *International Conference on Networking (IFIP NETWORKING'05)*, University of Waterloo, Waterloo, Ontario, Canada, May 2005.

- *IEEE International Conference on Communications (ICC'05)*, Seoul, Korea, May 2005.

- *IEEE Wireless Communications and Networking Conference (WCNC'05)*, New Orleans, LA, USA, March 2005.

- *International Conference on Computer and Information Technology (ICCIT'04)*, Dhaka, Bangladesh, December 2004.
- *IEEE Global Communications Conference (Globecom'04)*, Dallas, Texas, USA, December 2004
- *IEEE Wireless Communications and Networking Conference (WCNC'04)*, Atlanta, GA, USA, March 2004.
- *Workshop on Multihop Wireless Networks," (WMN'04)*, in conjunction with 23rd *IEEE International Performance, Computing and Communications Conference (IPCCC'04)*, Phoenix, Arizona, USA, 14-17 April 2004.
- *International Conference on Computer and Information Technology (ICCIT'03)*, Dhaka, Bangladesh, December 2003.
- *IEEE Global Communications Conference (Globecom'03)*, San Francisco, USA, December 2003.
- *IEEE Vehicular Technology Conference (VTC'03) (Fall)*, Orlando, Florida, USA, September 2002.
- *IEEE Vehicular Technology Conference (VTC'02) (Fall)*, Vancouver, Canada, September 2002.
- *International Conference on Computer and Information Technology (ICCIT'02)*, Dhaka, Bangladesh, December 2002.

4.7 Presentations

4.7.1 Tutorial Presentations

T25. **E. Hossain**, "Stochastic geometry-based modeling and analysis of 5G cellular networks," Half-day tutorial, presented in *IEEE Globecom 2017*, Singapore, 8 December 2017.

T24. **E. Hossain**, "Stochastic geometry-based modeling and analysis of 5G cellular networks," Half-day tutorial, presented in *IEEE PIMRC 2017*, Montreal, Canada, 8 October 2017.

T23. **E. Hossain**, "Stochastic geometry-based modeling and analysis of 5G cellular networks," Half-day tutorial, presented in *IEEE VTC 2017 - Fall*, Toronto, Canada, 24 September 2017.

T22. **E. Hossain**, "Stochastic geometry-based modeling and analysis of 5G cellular networks," Half-day tutorial, presented in *IEEE ICC 2017*, Paris, France, 21 May 2017.

T22. **E. Hossain**, "Stochastic geometry-based modeling and analysis of 5G cellular networks," Half-day tutorial, presented in *IEEE Globecom 2016*, Washington DC, USA, 8 December 2016.

T21. **E. Hossain**, "Stochastic geometry-based modeling and analysis of 5G wireless networks: A tutorial," Half-day tutorial, presented in *IEEE VTC 2016 - Fall*, Montreal, Canada, 18 September 2016.

T20. **E. Hossain** and M. Rasti, "Radio resource and interference management in 5G networks: A tutorial," Half-day tutorial, presented in *IEEE ICC 2016*, Kuala Lumpur, Malaysia, 27 May 2016.

T19. **E. Hossain**, "Evolution toward 5G cellular networks: Radio resource and interference management issues and approaches," Half-day tutorial, presented in *IEEE Globecom 2014*, Austin, TX, USA, 8 December 2014.

T18. **E. Hossain**, "Evolution towards 5G cellular networks: A radio resource and interference management perspective," Half-day tutorial, presented in *IEEE ICC 2014*, Sydney, Australia, 10 June 2014.

T17. **E. Hossain** and H. ElSawy, "Topology-aware modeling, analysis, and design of multi-tier cellular networks: A tutorial," half-day tutorial, presented in *IEEE Globecom 2013*, Atlanta, GA, USA, December 2013.

T16. **E. Hossain**, "Self-organizing small cell networks: A tutorial," half-day tutorial, presented in *IEEE ICC 2013)*, Budapest, Hungary, 9-13 June 2013.

T15. **E. Hossain** and L. B. Le, "Radio resource management in femtocell networks," half-day tutorial presented in *IEEE ICC 2012*, Ottawa, Canada, 10-15 June 2012.

T14. D. Niyato and **E. Hossain**, "A crash course on mobile cloud computing," half-day tutorial presented in *IEEE WCNC 2012)*, Paris, France, 1-4 April, 2012.

T13. D. Niyato, R. Q. Hu, **E. Hossain**, and Y. Qian, "Communications and networking for smart grid systems," half-day tutorial presented in *IEEE Globecom 2011)*, Houston, Texas, USA, 5-9 December 2011.

T12. **E. Hossain** and L. B. Le, "Interference management in femtocell networks," half-day tutorial presented in *IEEE Int. Symposium on Personal, Indoor, and Mobile Radio Communications (PIMRC'11)*, 11-14 September , Toronto, Canada.

T11. **E. Hossain** and D. Niyato, "Game theory for multiple access and resource allocation in wireless networks," half-day tutorial in *IEEE WCNC 2011)*, Quintana-Roo, Mexico, 28 March 2011.

T10. **E. Hossain** and Z. Han, "Application of game theory for designing cognitive radio networks," half-day tutorial presented in *IEEE ICC 2010*, Cape Town, South Africa, 23 May 2010.

T9. **E. Hossain** and Z. Han, "Game theory for cognitive radio networks," half-day tutorial presented in *IEEE Globecom 2009)*, Honolulu, Hawaii, USA, 30 November-4 December 2009.

T8. **E. Hossain**, "Cognitive radio networks: Key concepts, challenges, and practical approaches," half-day tutorial, *IEEE ICC 2009)*, Dresden, Germany, June 14-18, 2009.

T7. **E. Hossain**, "Cognitive radio networks based on dynamic spectrum access," half-day tutorial, *IEEE Vehicular Technology Conference (VTC'08-Fall)*, Calgary, AB, Canada, 21 September 2008.

T6. **E. Hossain**, "Dynamic spectrum management in cognitive radio networks," half day tutorial, *IEEE ICC 2008*, Beijing, China, May 23, 2008 (http://www.ieee-icc.org/tutorials.html)

T5. **E. Hossain** and W. Xiang, "Key topics in cognitive radio networks: Challenges, tasks, algorithms, and testbed," half-day tutorial, *IEEE Globecom 2007*, Washington, DC, USA, 26 November 2007.

T4. **E. Hossain**, "IEEE802.16/WiMAX-based broadband wireless networks: Protocol engineering, applications, and services," half-day tutorial, *Fifth Annual Conference on Communication Networks and Services Research (CNSR'07)*, Fredericton, New Brunswick, Canada, 14 May 2007.

T3. **E. Hossain**, "Cognitive wireless communication networks: An introduction," half-day tutorial, *IEEE WCNC 2007*, Hong Kong, 11 March 2007.

T2. **E. Hossain**, "Wireless Internet: Issues in protocols and architectures and enabling technologies," half-day tutorial, *IEEE Vehicular Technology Conference (VTC'02), (Fall)*, Vancouver, Canada, September 2002.

T1. V. K. Bhargava and **E. Hossain**, "Wireless personal communications - from analog cellular radio services to wireless Internet access," half-day tutorial, *International Conference on Communications, Computers and Devices (ICCCD'00)*, Kharagpur, India, December 2000.

4.7.2 Invited Talks

I59. "Computation offloading and activation of mobile edge computing servers: Minority game models," Sungkyunkwan University (SKKU), Korea, 11 December 2017.

I58. "Computation offloading and activation of mobile edge computing servers: Minority game models," Nanyang Technological University, Singapore, 07 December 2017.

I57. "Activation of mobile edge computing servers under user QoE constraint: A minority game model," Guangdong University of Technology, China, 24 October 2017.

I56. "Multi-tier drone cell network: A new frontier for 5G research," Department of Signals and Systems, Chalmers University, Sweden, 19 May 2017.

I55. "Non-orthogonal multiple access (NOMA) for 5G wireless," School of Electrical Engineering, KTH, Sweden, 18 May 2017.

I54. "Non-orthogonal multiple access (NOMA) for 5G wireless," Department of Signals and Systems, Chalmers University, Sweden, 17 May 2017.

I53. "On coalition-based cooperative packet delivery in vehicular delay-tolerant networks under uncertainty," 11th International Workshop on Communication Technologies for Vehicles, Halmstad, Sweden, 13 September, 2016.

I52. "On coalition-based cooperative packet delivery in vehicular delay-tolerant networks under uncertainty," Department of Signals and Systems, Chalmers University, Sweden, 12 September 2016.

I51. "Virtualization of 5G cellular networks as a hierarchical combinatorial auction," Department of Computer Science, University of Victoria, Canada, 24 June 2016.

I50. "Stochastic geometry modeling of large-scale wireless networks," Ryerson University, Toronto, Canada, 14 April 2016.

I49. "On interference modeling in random carrier-sense multiple access wireless networks," Trinity College Dublin, 02 December 2015.

I48. "On interference modeling in random carrier-sense multiple access wireless networks," University of Victoria, Canada, 23 November 2015.

I47. "5G cellular: Key enabling technologies and research challenges," University of Sao Paulo, Brazil, 12 November 2015.

I46. "Go green! Energy-efficient smart phones for 5G networks," Motorola Labs, Campinas, Brazil, 11 November 2015.

I45. "On interference modeling in random carrier-sense multiple access wireless networks," Universidade Federal do Rio de Janeiro (UFRJ), Brazil, 10 November 2015.

I44. "5G cellular: Key enabling technologies and research challenges," Pontifical Catholic University of Rio de Janeiro (PUC-Rio), Brazil, 09 November 2015.

I43. "Virtualization of 5G cellular networks as a hierarchical combinatorial auction," Department of Electrical and Computer Engineering, North Dakota State University, Fargo, ND, USA, 09 October 2015.

I42. "Evolution toward 5G networks: Research initiatives at the University of Manitoba," Huawei Canada Research Centre, Ottawa, Canada, 05 October 2015.

l41. "Virtualization of 5G cellular networks as a hierarchical combinatorial auction," Department of Computer Science, State University of New York at Stony Brook, 04 August 2015.

I40. "LTE/LTE-A radio analytics," MORR Transportation Consulting, Winnipeg, MB, Canada, 30 June 2015. http://home.cc.umanitoba.ca/ hossaina/index.htm

I39. "Backhauling 5G small cells: Challenges and potential approaches," Keynote talk, *IEEE Workshop on Next Generation Backhaul/Fronthaul Networks (BackNets 2015)*, in conjunction with IEEE ICC 2015, June 8, 2015, London, UK.

I38. "Stochastic geometry-based modeling and analysis of cognitive and energy harvesting D2D communication in cellular networks," University of Waterloo, Canada, 15 April 2015.

I37 "Evolution toward 5G cellular networks: Radio resource and interference management issues,? Centre for Communications Systems Research (CCSR), University of Surrey, Guildford, UK, 30 June 2014.

I36. "Evolution toward 5G cellular networks: Cognitive and energy harvesting-based D2D communication,? Telecommunications Technological Centre of Catalonia (CTTC), Castelldefels, Spain, 02 July 2014.

I35. "Evolution toward 5G cellular networks: Cognitive and energy harvesting-based D2D communication,? University of Aveiro, Portugal, 04 July 2014.

I34. "Stochastic geometry for modeling, analysis, and design of heterogeneous cellular wireless networks," University of Waterloo, Canada, 14 May 2013.

I33. "Modeling, analysis, and design of multi-tier and cognitive cellular wireless networks," National Chiao Tung University, Taiwan, 29 April 2013.

I32. "Modeling, analysis, and design of multi-tier and cognitive cellular wireless networks," Sungkyunkwan University, Korea, 26 April 2013.

I31. "Interference modeling in random carrier-sense multiuple access wireless networks," University of Calgary, Canada, 03 April 2013.

I30. "Dynamic spectrum access in cognitive radio networks," Multimedia University, Melaka, Malaysia, 27 February 2013.

I29. "On writing technical papers and publishing in IEEE Journals," Universiti Putra Malaysia (UPM), 28 February 2013.

I28. "Interference modeling in random carrier-sense multiple access wireless networks," MIMOS Berhad, Technology Park Malaysia, Kuala Lumpur, Malaysia, 26 February 2013.

I27. "Radio resource management in next generation hierarchical cellular wireless networks," Universiti Malaysia Perlis (UNIMAP), 25 February 2013.

I26. "Two-tier HetNets with cognitive femtocells in a multichannel environment: Modeling and analysis using stochastic geometry," *2012 Sendai International Workshop on Advanced Wireless Communication Technologies and Robust Networks*, Tohoku University, Japan, 21 December 2012.

I25. "Coalition-based packet delivery under uncertainty: A dynamic Bayesian coalitional game," *Connected-Vehicles Workshop*, University of Toronto, Canada, 17 August, 2012.

I24. "Interference modeling in random carrier-sense multiple access (CSMA) wireless networks: A stochastic geometry approach," Centre for Telecommunications Research, King's College London, University of London, 28 March, 2012.

I23. "Interference modeling in random carrier-sense multiple access (CSMA) wireless networks: A stochastic geometry approach," Department of Computer Science, University of Manitoba, Canada, 20 October 2011.

I22. "A modified hard core point process for interference modeling in random carrier-sense multiple access networks," Cooperative Wireless Communications Research Center, Sungkyunkwan University (SKKU), Korea, 03 June, 2011.

I21. "Channel assignment for throughput optimization in multi-channel multi-radio wireless mesh networks using network coding," Carleton University, Canada, 10 January, 2011.

I20. "Dynamic spectrum access in cognitive radio networks: Part II," Tohoku University, Sendai, Japan, 15 November, 2010.

I19. "Dynamic spectrum access in cognitive radio networks: Part I," Tohoku University, Sendai, Japan, 15 November, 2010.

I18. "Resource allocation and perturbation analysis for cognitive radios in dynamic spectrum access environment," School of Computer Engineering, Nanyang Technological University, Singapore, August 24, 2009.

I17. "Resource allocation and perturbation analysis for cognitive radios in dynamic spectrum access environment," Institute of Infocomm Research (I2R), Singapore, August 22, 2009.

I16. "A game theoretic modeling of multiple-seller and multiple-buyer spectrum trading in cognitive radio networks," Department of Electrical and Computer Engineering, McGill University, Montreal, Canada, July 22, 2009.

I15. "Radio technologies for wireless personal area networks," TRLabs Focus Group Meeting, Canada, March 11, 2009.

I14. "Resource allocation for cognitive radios in a dynamic spectrum access environment," Department of Electrical and Computer Engineering, University of Utah, UT, USA, 8 April 2009.

I13. "Resource allocation for cognitive radios in a dynamic spectrum access environment," Department of Electrical and Computer Engineering, University of Houston, TX, USA, 23 February 2009.

I12. "Resource allocation for cognitive radios in a dynamic spectrum access environment," Department of Electrical and Computer Engineering, University of Western Ontario, ON, Canada, 14 January 2009.

I11. "Cognitive radio MAC: Practical issues, potential approaches, and open problems," *Int. Workshop on Advances in Communications*, Victoria, BC, Canada, 21-23 September , 2008.

I10. "Vehicle-to-infrastructure and vehicle-to-vehicle communications in ITS: Game theory models," University of Sydney, Australia, June 23, 2008.

I9. "An adaptive communication platform based on WiFi and WiMAX for vehicle-to-roadside communications," University of New South Wales, Sydney, Australia, June 22, 2008.

I8. "Cognitive radio based on dynamic spectrum access," University of Queensland, Brisbane, Australia, June 16, 2008.

I7. "e-Health services based on heterogeneous wireless access," TR*Labs* Technology Showcase, Winnipeg, Canada, 20 November, 2007.

I6. "Spectrum trading: An economics of radio resource sharing in cognitive radio networks," Queen's University, Kingston, Ontario, Canada, 11 September 2007.

I5. "Fourth generation heterogeneous wireless access networks for e-health services: Architecture and radio resource management," TR*Labs* Open House, Winnipeg, Canada, 29 November 2006.

I4. "Sleep and wakeup strategies in solar-powered wireless sensor networks: Performance analysis and optimization," Department of Computer Science, University of Alberta, 27 April 2006.

I3. "End-to-end performance in a multi-hop wireless network for different hop-level ARQ policies," Department of Electrical and Computer Engineering, University of Toronto, 6 August 2004.

I2. "End-to-end performance in a multi-hop wireless network for different hop-level ARQ policies," Department of Electrical and Computer Engineering, University of Waterloo, 5 August 2004.

I1. "Teaching and research on "wireline" and "wireless" communication networks in Computer Engineering at UoM: An approach towards building a complete telecommunications program," *Canadian Conference on Computer & Software Engineering Education (C3SEE'2002)*, 16-17 May 2002, University of Manitoba, Winnipeg, Manitoba, Canada.

5 University Services

5.1 Department/Faculty Committee

- Member, Curriculum Development Committee for Computer Engineering
- Member, Engineering Library Committee

5.2 Graduate Thesis Examination

5.2.1 Ph.D. Thesis Examination Committee

- Utku Tefek, *Analysis and Design of Machine-Type Communication Networks Using Stochastic Geometry*, Ph.D. thesis, Department of Electrical and Computer Engineering, National University of Singapore, 2017 (**external examiner**)
- Mohd. Shabbir Ali, *Distributed Learning for Wireless Networks*, Ph.D. thesis, Telecom ParisTech, Universite Paris-Saclay, 2017 (**external examiner**).
- Md Mahmud Hasan, *Optimal Cybersecurity Placement Schemes for Smart City Infrastructures*, Ph.D. thesis, School of Electrical Engineering and Computer Science, University of Ottawa, 2017 (**external examiner**).
- Xin Ge, *Opportunistic Scheduling for Wireless Networks with Distributed Architectures*, Ph.D. thesis, Department of Electrical and Computer Engineering, University of British Columbia, 2016 (**external examiner**).
- Mohamed Ammar Al Masri, *Quality of Experience and Mobility-Aware Green Inter-Radio Access Technology Offloading*, Ph.D. thesis, Department of Electrical and Computer Engineering, University of Calgary, 2016 (**external examiner**).
- Vinay Chamola, *Network Planning for Green Cellular Networks*, Ph.D. thesis, Department of Electrical and Computer Engineering, National University of Singapore, Singapore, 2016 (**external examiner**).
- Mahmoud Sami, *Energy-Efficient Medium Access Control Strategy for Cooperative Wireless Networks*, Ph.D. thesis, Faculty of Engineering, Universiti Putra Malaysia, 2016 (**external examiner**).

- Ibrahim Mustapha, *A Reinforcement Learning Based Energy-Efficient Spectrum-Aware Clustering Algorithm for Cognitive Radio Wireless Sensor Network*, Ph.D. thesis, Faculty of Engineering, Universiti Putra Malaysia, 2016 (**external examiner**).

- Mehrnaz Afshang, *Interference Management and Device-to-Device Communications in Heterogeneous Cellular Networks*, Ph.D. thesis, School of Electrical and Electronic Engineering, Nanyang Technological University, 2016 (**external examiner**).

- Ejaj Ahmed, *Process State Synchronization for Mobility Support in Mobile Cloud Computing*, Ph.D. thesis, Faculty of Computer Science and Information Technology, Universiti Malaya, 2016 (**external examiner**).

- Md Whaiduzzaman, *Performance Enhancement Framework for Cloudlet in Mobile Cloud Computing*, Ph.D. thesis, Faculty of Computer Science and Information Technology, Universiti Malaya, 2015 (**external examiner**).

- Hieu Dang, *Adaptive Multiobjective Memetic Optimization: Algorithms and Applications*, Ph.D. thesis, Department of Electrical and Computer Engineering, University of Manitoba, 2015.

- Aizaz U. Chaudhry, *Spectrum Requirements for Interference-Free Wireless Mesh Networks*, Ph.D. thesis, Department of Systems and Computer Engineering, Carleton University, Canada, 2015 (**external examiner**).

- Ke Li, *On the Potential of MPT/MPR Wireless Networks*, Ph.D. thesis, Department of Computing Science, University of Alberta, Canada, 2015 (**external examiner**).

- Bahareh Nazari, *Contract Theory-Based Cooperative Relay Communication in Cellular Networks*, Ph.D. thesis, Faculty of Engineering & Information Technologies, University of Sydney, 2015 (**external examiner**).

- Jagadish Ghimire, *Heterogeneous Cellular Networks: From Resource Allocation to User Association*, Ph.D. thesis, Department of Electrical and Computer Engineering, University of Waterloo, Canada, 2015 (**external examiner**).

- Veria Havary-Nassab, *Effect of Mobility on the Sensing and Communication Performance of Mobile Sensor Networks*, Ph.D. thesis, Department of Electrical and Computer Engineering, University of Toronto, Canada, 2015 (**external examiner**).

- Yuan Pu, *Resource Allocation in Heterogeneous Networks Using Game Theory*, Ph.D. thesis, School of Electrical and Electronic Engineering Nanyang Technological University, Singapore, 2015 (**external examiner**).

- Parth Amin, *Self-Organized Radio Resource Management and Backhaul Dimensioning for Cellular Networks*, Department of Computer Science and Engineering Aalto University, Finland, 2014 (**external examiner**).
- Ali Mohammed Monssor Alsahag, *Packet Scheduling and OFDMA Based Adaptive Resource Allocation Algorithms for QoS Support in WiMAX Networks*, Ph.D. thesis, Universiti Putra Malaysia, Malaysia, Sept. 2014 (**external examiner**).
- Daniel Lockery, *Profiling Finger-Hand Function of Rheumatoid Arthritis Patients using a Telerehabilitation Gaming System*, Ph.D. thesis, Department of Electrical and Computer Engineering, University of Manitoba, Canada, 2014.
- Jaya Bharatha Rao Buloo Karavu, *Analysis of Spectrum Efficiency and Energy Efficiency of Heterogeneous Cellular Networks*, Ph.D. thesis, Department of Electrical and Computer Engineering, University of Calgary, Canada, 2014 (**external examiner**).
- Saeid Abolfazli Torghabeh, *A Lightweight Mobile Computing Framework for Resource-Intensive Mobile Application*, Ph.D. thesis, University of Malaya, Malaysia, June 2014 (**external examiner**).
- Atta Ur Rehman Khan, *Using Mobile Cloud Computing to Enrich Resource Constrained Smartphones*, Ph.D. thesis, University of Malaya, Malaysia, June 2014 (**external examiner**).
- Yaser Maddahi, *Bilateral Control of Base-Excited Hydraulic Manipulators Operating Under a Delayed and Lossy Network*, Ph.D. thesis, Department of Mechanical and Manufacturing Engineering, University of Manitoba, Canada, 2013.
- Tarek Khalifa, *Design and Analysis of Split and Aggregated Transmission Control Protocol (SA-TCP) for Smart Metering Infrastructure*, Ph.D. thesis, Department of Electrical and Computer Engineering, University of Waterloo, Canada, 2013 (**external examiner**).
- Hazem Gomaa, *Markov Chain Analysis of Web Cache Systems under TTL-based Consistency*, Ph.D. thesis, Department of Electrical and Computer Engineering, University of Calgary, Canada, 2013 (**external examiner**).
- Hamzeh Khazaei, *Performance Modeling of Cloud Computing Centers*, Ph.D. thesis, Department of Computer Science, University of Manitoba, 2013.
- Subir Biswas, *Establishing Security and Privacy in WAVE-Enabled Vehicular Ad-hoc Networks*, Ph.D. thesis, Department of Computer Science, University of Manitoba, 2012.

- Amir Hossein Meghdadi, *Fuzzy Tolerance Neighborhood Approach to Image Similarity in Content-Based Image Retrieval*, Ph.D. thesis, Electrical and Computer Engineering, University of Manitoba, 2012.

- Mohammad Faisal Uddin, *Design Methods for Optimal Resource Allocation in Wireless Networks*, Ph.D. thesis, Electrical and Computer Engineering, Concordia University, Canada, January 2012 (**external examiner**).

- Muhammad Ibrahim Channa, *A Reliable Routing Scheme for Post-Disaster Ad Hoc Communication Networks*, Ph.D. thesis, School of Engineering and Technology, Asian Institute of Technology, Thailand, October 2011 (**external examiner**).

- Bashar Jabbar Hamza, *A Seamless Vertical Handover Between UMTS and WLAN by Using mSCTP*, Ph.D. thesis, Department Computer and Communication Systems Engineering, Universiti Putra Malaysia, Malaysia, July 2011 (**external examiner**).

- Muhammad Mohsin Nazir, *Ecosystem Modeling for Self-Organizing Cooperative Cognitive Wireless Communication Networks*, Ph.D. thesis, School of Engineering and Technology, Asian Institute of Technology, Thailand, May 2011 (**external examiner**).

- Mohamed Salem, *Radio Resource Management in OFDMA-Based Cellular Relay Networks*, " Ph.D. thesis, Carleton University, Canada, January 2011 (**external examiner**).

- Changqin Huo, *Downlink Radio Resource Allocation Schemes in OFDMA-Based Cellular Systems*, Ph.D. thesis, University of Calgary, Canada, August 2010 (**external examiner**).

- Eng Hwee Ong, *A Generalized Cooperative and Cognitive Radio Resource Management Architecture for Future Wireless Networks*, Ph.D. thesis, The University of Newcastle, Australia, April 2010 (**external examiner**).

- M. Shamim Kaiser, *Neuro-Fuzzy Based Relay Selection and Fair Resource Allocation in Cognitive Cooperative Networks*, Ph.D. thesis, School of Engineering and Technology, Asian Institute of Technology, Thailand, April 2010 (**external examiner**).

- Arash Abadpour, *QoS-Constrained Information Theoretic Capacity Maximization in CDMA Systems*, Ph.D. thesis, Department of Electrical and Computer Engineering, University of Manitoba, Canada, 2009.

- Xiaofeng Bai, *Quality-of-Service and Performance Optimization in Broadband Wireless Access Networks – A Cross-Layer Study*, Ph.D. thesis, Department of Electrical and Computer Engineering, University of Western Ontario, Ontario, Canada, 2009 (**external examiner**).

- Xiao Qin Chen, *Accommodating Congestion and Fading in Mobile AD HOC Networks: Routing Protocol Design and Optimization*, Ph.D. thesis, College of Engineering and Computer Science, Australian National University, Australia, 2009 (**external examiner**).

- Kumudu S. Munasinghe, *A Unified Mobility Management Architecture for Interworked Heterogeneous Mobile Networks*, Ph.D. thesis, School of Electrical and Information Engineering, University of Sydney, Australia, 2008 (**external examiner**).

- Abdul Hasib, *Radio Resource Management in Multiservice Heterogeneous Wireless Networks*, Ph.D. thesis, Department of Electrical and Computer Engineering, University of Calgary, Canada, 2008 (**external examiner**).

- Mohammed Ziaur Rahman, *Paired Measurement Localization for Wireless Sensor Networks*, Ph.D. thesis, Department of Electrical and Computer Systems Engineering Monash University, Australia, 2008 (**external examiner**).

- Song Tao Mea Wang, *A Quest for High-Performance Peer-to-Peer Live Multimedia Streaming*, Ph.D. thesis, Edward S. Rogers Sr. Department of Electrical and Computer Engineering, University of Toronto, Canada, 2008 (**external appraiser**).

- Pratik Das, *A Quality of Heterogeneous Services with Distributed Resource Management for a WCDMA Uplink*, Ph.D. thesis, The University of Newcastle, Australia, April 2010 (**external examiner**).

- Abdelhamid Taha, *A Framework for Radio Resource Management in Heterogeneous Wireless Networks*, Ph.D. thesis, School of Computing & Department of Electrical and Computer Engineering, Queen's University, Canada, 2007 (**external examiner**).

- Ashikur Rahman, *A Controlled Flooding Approach to Efficient Routing in Ad Hoc Wireless Networks*, Ph.D. thesis, Department of Computing Science, University of Alberta, 2006 (**external examiner**).

- Jinfang Zhang, *Soft Handoff in MC-CDMA Cellular Networks Supporting Multimedia Services*, Ph.D. Thesis, Department of Electrical and Computer Engineering, University of Waterloo, 2004 (**external examiner**).

- Sajid Hussain, *Investigating iSCSI for IP Storage and Transport Protocols*, Ph.D. thesis, Department of Electrical and Computer Engineering, University of Manitoba, 2004.

- Chaim Hart Poskar, *Computational Intelligence in Rate Based Control for Data Networking*, Ph.D. thesis, Department of Electrical and Computer Engineering, University of Manitoba, 2002.

5.2.2 M.Sc. Thesis Examination Committee

- Md Nazmus Sadat, *Secure and Efficient Computation on Biomedical Data in a Distributed Environment*, Department of Computer Science, University of Manitoba, 2018
- Md Amirul Islam, *Dense Image Labeling Using Deep Learning*, Department of Computer Science, University of Manitoba, 2017
- Shujon Naha, *Zero-shot Learning for Visual Recognition Problems*, Department of Computer Science, University of Manitoba, 2016
- Ehsan Montazeri, *Predictive Hybrid Digital-Analog Coding for Correlated Sources*, Department of Electrical and Computer Engineering, University of Manitoba, 2016
- Somayah A. Albaradei, *Learning Mid-Level Features from Object Hierarchy for Image Classification*, Department of Computer Science, University of Manitoba, 2014
- Julian Benavides, *A Framework for Crowd-Sourced Social Network Data Collected over Bluetooth*, Department of Electrical and Computer Engineering, University of Manitoba, 2014.
- Mohammad Zahid Hossain, *Flockviz: A Visualization Technique to Facilitate Multi-dimensional Analytics of Spatio-temporal Cluster Data*, Department of Computer Science, University of Manitoba, 2014.
- Jason Richard Benjamin Taylor, *Wavelet-Based Blind Deconvolution and Denoising of Ultrasound Scans for Non-Destructive Test Applications*, Department of Electrical and Computer Engineering, University of Manitoba, 2012.
- Hong Zhang, *Identity Awareness on Vision-Based Multi-Touch Tabletop Systems*, Department of Computer Science, University of Manitoba, 2012.
- Shabnam Shahfar, *Near Images: A Tolerance Based Approach to Image Similarity and Its Robustness to Noise and Lightening*, Department of Electrical and Computer Engineering, University of Manitoba, 2011.
- Rouzbeh Maani, *Transforming Medical Imaging Applications into Collaborative PACS-based Telemedical Systems*, Department of Computer Science, University of Manitoba, 2010.
- Moazzam Khan, *Performance Evaluation of Security Implementation in IEEE 802.15.4 Beacon Enabled Networks*, Department of Computer Science, University of Manitoba, 2009.
- Muhi Khair, *Adaptive Bandwidth Allocation for Bridge Downlink Operation*, Department of Computer Science, University of Manitoba, 2008.

- Jianping Wang, *HOPNET: A Hybrid Ant Colony Optimization Routing Algorithm for Mobile Ad Hoc Network*, Department of Computer Science, University of Manitoba, 2008.

- Mohamed Y. A. Salem, *Evaluation of a Cartesian-Grid Based Numerical Method for Flow over Sphere*, M.Sc. thesis, Department of Mechanical and Manufacturing Engineering, University of Manitoba, 2008.

- Venkateswara Reddy, *Operator Controlled Obstacle Avoidance Telecontrolled Robotic Platform*, M.Sc. thesis, Department of Electrical and Computer Engineering, University of Manitoba, 2007.

- Aseosa Stephanie Osagie, *Evaluation of an Ant Colony Optimization Algorithm for Routing in MANETs*, M.Sc. thesis, Department of Computer Science, University of Manitoba, 2007.

- Ranjith Udayshankar, *Design of an IEEE 802.15.4 Compliant Slave/Slave Bridge to Support Inter-WPAN Communication Using CSMA-CA*, M.Sc. thesis, Department of Computer Science, University of Manitoba, 2007.

- Jun Fung, *Performance Evaluation on IEEE 802.15.4 Scatternet Sensor Networks*, M.Sc. thesis, Department of Computer Science, University of Manitoba, 2007.

- Fei Gao, *Analysing Mobile Softare Systems: Modeling and Performance Comparison*, M.Sc. thesis, Department of Computer Science, University of Manitoba, 2006.

- Arghavan Emami Forooshani, *Multiple Input Multiple Output (MIMO) Systems Channel Modeling and Analysis*, M.Sc. thesis, Department of Eelctrical and Computer Engineering, University of Manitoba, 2006.

- Rajasekaran Venugopal, *Modeling and Performance Analysis of TCP Traffic in a Bluetooth Scatternet*, M.Sc. thesis, Department of Computer Science, University of Manitoba, 2006.

- Todd Michael Phillips, *An Experimental Study of the Effects of Asymmetric Fuel Nozzles on the Stability of Turbulent Diffusion Flames*, M.Sc. thesis, Department of Mechanical and Manufacturing Engineering, University of Manitoba, 2006.

- Usha Chengan, *Traffic Matrix Estimation of an IP Network*, M.Sc. thesis, Department of Electrical and Computer Engineering, University of Manitoba, 2006.

- Xiao Huan Liu, *A Delay Pricing Scheme for Real-Time Delivery in Deadline-Based Networks*, M. Sc. thesis, Department of Computer Science, University of Manitoba, 2006.

- Shirley Mayadewi, *Dynamic Scheduling and Resource Allocation in the Forward Link of CDMA2000 1xEv-DV*, M.Sc. thesis, Department of Electrical and Computer Engineering, University of Manitoba, 2005.
- Qian Wang, *Reverse Link Scheduling and Rate Allocation Scheme for CDMA2000 1xEV-DV: An Alternative Approach*, M.Sc. thesis, Department of Electrical and Computer Engineering, University of Manitoba, 2005.
- Yuhong Li, *Improved Distributed File Transfer (DFT) on Internet*, M.Sc. thesis, Department of Electrical and Computer Engineering, University of Manitoba, 2005.
- Michael William Rennie, *Synthesis of a Service-Based Architecture Description Language*, M.Sc. thesis, Department of Computer Science, University of Manitoba, 2005.
- Gonapati Rajashekar Reddy, *Congestion Control by Sleep Management in Wireless Sensor Networks Using Bluetooth Technology*, M.Sc. thesis, Department of Computer Science, University of Manitoba, 2005.
- Kia Seong Teng, *QoS-Based Unicast Routing Algorithms for High Speed Internetworks*, M.Sc. thesis, Department of Computer Science, University of Manitoba, 2005.
- Shairmina Shafi, *Performance of a Beacon Enabled IEEE 802.15.4-Compliant Network*, M.Sc. thesis, Department of Computer Science, University of Manitoba, 2005.
- Hung Manh Dao, *The QoS-Capable DSLAM for Broadband Services Over the DSL Access Networks*, M.Sc. thesis, Department of Electrical and Computer Engineering, University of Manitoba, 2004.
- Shony Abraham, *Efficient Load Balancing Strategies on a Network of Computers: A Case Study with Two Scientific Computing Problems*, M.Sc. thesis, Department of Computer Science, University of Manitoba, 2004.
- Md Mostafizur Rahman, *A Multithreaded Algorithm for the Maximum Flow Problem*, M.Sc. thesis, Department of Computer Science, University of Manitoba, 2004.
- Lei Liang, *Mobile Agent-Based Routing in Ad-Hoc Mobile Networks*, M.Sc. thesis, Department of Computer Science, University of Manitoba, 2004.
- Kumaran Subramoniam, *Dynamic Multilateral Peering: An Efficient Mechanism for Controlled Resource Sharing*, M.Sc. thesis, Department of Computer Science, University of Manitoba, 2004.
- Ramandeep Bhinder, *Design and Evaluation of Request Distribution Schemes for Web-Server Clusters*, M.Sc. thesis, Department of Computer Science, University of Manitoba, 2002.

6 Projects and Research Grants

6.1 Research Projects

- *Robot-Assisted Space Telemetry (RAST)*, Sponsored by Office of the Vice-President Research (New Earth-Space Technologies Fund), University of Calgary (**ongoing**)
- *Enabling technologies for future software-defined and virtualized wireless networks*, Sponsored by Natural Sciences and Engineering Research Council of Canada (NSERC) Strategic Grant Program (**ongoing**)
- *Distributed and self-organizing heterogeneous wireless access networks: Design, analysis, and optimization*, Sponsored by Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grants Program (**ongoing**)
- *Development of a learning-based framework for traffic estimation and admission control in two-way radio communication systems*, Sponsored by Natural Sciences and Engineering Research Council of Canada (NSERC) ENGAGE Grants Program (**completed**)
- *Development of generalized MIMO channel models*, Sponsored by Natural Sciences and Engineering Research Council of Canada (NSERC) ENGAGE Grants Program (**completed**)
- *Scanning and detection of LTE radio signals with applications to traffic monitoring systems*, Sponsored by Natural Sciences and Engineering Research Council of Canada (NSERC) ENGAGE Grants Program (**completed**)
- *Radio resource management for spectrum and energy efficient design of 5G networks*, Sponsored by Natural Sciences and Engineering Research Council of Canada (NSERC) CRD Grants Program (**completed**)
- *Development of robust and energy-efficient medium access control mechanism for wireless sensor networks in residential buildings*, Sponsored by Natural Sciences and Engineering Research Council of Canada (NSERC) ENGAGE Grants Program (**completed**)
- *High-rate and reliable wireless transceiver for remote equipment control using advanced antenna technologies*, Sponsored by Natural Sciences and Engineering Research Council of Canada (NSERC) ENGAGE Grants Program (**completed**)
- *Resource management in multi-tier cellular wireless networks enhanced with peer-to-peer communications*, Sponsored by Natural Sciences and Engineering Research Council of Canada (NSERC) Strategic Grant Program (**completed**)

- *Design and engineering of "green" cellular wireless networks*, Sponsored by the University of Manitoba Research Grants Program (**completed**)
- *Co-existence and integration of wireless body-area sensor networks*, Sponsored by Telecommunications Research Labs (TR*Labs*), Winnipeg, and NSERC of Canada (**completed**)
- *Advanced transmission and resource management techniques for cooperative cellular wireless networks*, Sponsored by Natural Sciences and Engineering Research Council of Canada (NSERC) Strategic Grant Program (**completed**)
- *Dynamic spectrum access and management in next generation heterogeneous wireless access networks*, Sponsored by NSERC (**completed**)
- *Wireless body-area sensor networking platform for pervasive healthcare services*, Sponsored by TR*Labs*, Winnipeg, and NSERC (**completed**)
- *Vehicular telematics over WiFi and WiMax multihop networks*, Sponsored by AUTO21 Network of Centres of Excellence, University of Windsor, Canada (**completed**)
- *Experimental testbed for protocol engineering in infrastructure wireless mesh networks*, Sponsored by NSERC (**completed**)
- *Cognitive radio for biomedical devices and e-Health services*, Sponsored by TR*Labs*, Winnipeg, and NSERC (**completed**)
- *Dynamic channel allocation entity for in home wireless multimedia distribution*, Sponsored by TR*Labs*, Winnipeg, and NSERC (**completed**)
- *Protocol engineering for the future generation broadband wireless mobile networks*, Sponsored by NSERC (**completed**)
- *Telemedicine and health services based on broadband wireless access*, Sponsored by TR*Labs*, Winnipeg, Canada (**completed**)
- *Protocol architectures for high-performance and scalable wireless backbone for IEEE 802.11-based mesh networking*, Sponsored by TR*Labs*, Winnipeg, Canada (**completed**)
- *Heterogeneous wireless networking platform for vehicular communications*, Sponsored by the University of Manitoba Research Grants Program (**completed**)
- *Radio access systems design for future generation wireless networks*, Sponsored by NSERC (**completed**)
- *Cross-layer protocol optimization in wireless data networks*, Sponsored by TR*Labs*, Winnipeg, Canada (**completed**)

- *Call admission control in Diffserv wireless IP networks*, Sponsored by TR*Labs*, Winnipeg, Canada (**completed**)
- *Modeling and analysis of TCP performance in wireless networks*, Sponsored by TR*Labs*, Winnipeg, Canada (**completed**)
- *Congestion control in multi-hop wireless networks*, Sponsored by the University of Manitoba Research Grants Program (**completed**)
- *Radio link adaptation techniques for broadband wireless networks*, Sponsored by the University of Manitoba Research Grants Program (**completed**)

6.2 Research Grants

- NSERC SPG Grant, CND $50,000, 2017
- NSERC Engage Grant, CND $25,000, 2016
- NSERC Engage Grant, CND $25,000, 2015
- NSERC Discovery Grants Program Accelerator Supplements, CND $120,000, 2014
- NSERC Discovery Grant amounting to CND $300,000, as Primary Investigator, 2014
- NSERC Collaborative Research and Development (CRD) Grant (CRDPJ 461412-13) amounting to CND $170,500, as Primary Investigator, 2013
- NSERC ENGAGE Grant (EGP 451970-13) amounting to CND $25,000, as Primary Investigator, 2013
- NSERC ENGAGE Grant (EGP 451511-13) amounting to CND $25,000, as Primary Investigator, 2013
- NSERC Strategic Grant (STPGP 430285-2012) amounting to CND $456,000, as Primary Investigator, 2012
- University of Manitoba Research Grant amounting to CND $7,500, from the University of Manitoba, as Primary Investigator, 2011
- Project Grant of CND $53,400 from AUTO21, as Co-Investigator, 2010-2011
- Project Grants (as student scholarships) from TR*Labs*, Winnipeg, and Industrial Postgraduate Scholarship (IPS) from NSERC, Canada, for 3 projects, amounting to CND $72,000, as Primary Investigator, 2011
- Project Grants (as student scholarships) from TR*Labs*, Winnipeg, and Industrial Postgraduate Scholarship (IPS) from NSERC, Canada, for 3 projects, amounting to CND $72,000, as Primary Investigator, 2010

- Strategic Research Grant amounting to CND $152,000 (spanned over 3 years, 2009-2011) from NSERC, as Co-Investigator
- Discovery Grant amounting to CND $230,000 (spanned over 5 years, 2009-2013) from NSERC, as Primary Investigator, 2009
- Project Grants (as student scholarship and fellowship) amounting to CND $60,000 from TR*Labs*, Winnipeg, Canada, as Primary Investigator, 2009
- Project Grants (as student scholarships and fellowships) amounting to CND $36,000 from TR*Labs*, Winnipeg, Canada, as Primary Investigator, 2008
- Project Grant of CND $59,334 from AUTO21, as Co-Investigator, 2008-2009
- Research Tools and Instruments (RTI) Grant of CND $40,439 from NSERC, as Primary Investigator, 2007
- Project Grants (as student scholarships and fellowship) amounting to CND $33,000 from TR*Labs*, Winnipeg, Canada, as Primary Investigator, 2007
- Project Grant of CND $7,500 from University of Manitoba (URGP), 2007
- Project Grants (as student scholarships) amounting to CND $24,000 from TR*Labs*, Winnipeg, Canada, as Primary Investigator, 2006
- NSERC Discovery Grant amounting to CND $106,800 (spanned over 3 years, 2006-2008) from NSERC, as Primary Investigator, 2006
- Project Grants (as student scholarships) amounting to CND $24,000 from TR*Labs*, Winnipeg, Canada, as Primary Investigator, 2005
- University of Manitoba Research Grant amounting to CND $7,500, from the University of Manitoba, as Primary Investigator, 2004
- Project Grants (as student scholarships) amounting to CND $24,000 from TR*Labs*, Winnipeg, Canada, as Primary Investigator, 2004
- Project Grants (as student scholarships) amounting to CND $36,000 from TR*Labs*, Winnipeg, Canada, as Primary Investigator, 2003
- University of Manitoba Research Grant amounting to CND $7,500, from the University of Manitoba, as Primary Investigator, 2003
- NSERC Discovery Grant amounting to CND $84,000 (spanned over 4 years, 2002-2005) from NSERC, as Primary Investigator, 2002
- Project Grants (as student scholarships) amounting to CND $24,000 from TR*Labs*, Winnipeg, Canada, as Primary Investigator, 2002