

Ahmed Khattab, Ph.D.

CONTACT INFORMATION

EECE Department
Cairo University
Giza, Egypt, 12613

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Web: <http://eece.cu.edu.eg/~akhattab>

SUMMARY/CORE COMPETENCIES

Multifaceted career with 13-year track record of research and development in wireless communications/networking demonstrated by a filed US patent, 2 books and over 30 journal and peer-reviewed conference publications.

Expert in designing, optimizing, testing, and prototyping wireless communication systems including: Cognitive Radio Networks/IEEE 802.11 Protocol Family/Wireless Sensor Networks/Internet of Things (IoT).

Outstanding cross-layer implementation experience of the Wireless open-Access Research Platform (WARP).

Exceptional grasp of resource management and quality of service provisioning in cellular networks (B4G).

Vast multidisciplinary background in the physical and medium access layers, and congestion control.

EDUCATION

University of Louisiana, Lafayette, Louisiana USA

Ph.D. in Computer Engineering, GPA: 4.0/4.0, December 2011

- Dissertation: "Practical Distributed Opportunistic Spectrum Management in Cognitive Radio Networks"

Rice University, Houston, Texas USA

Master of Electrical Engineering (MEE), GPA: 4.03/4.0, December 2009

Cairo University, Egypt

M.Sc. Electronics and Communications Engineering, November 2004

- Thesis: "Channel-Aware Scheduling of Delay-Bounded Multimedia Traffic in Wireless Networks Beyond 3G"

B.Sc. Electronics and Communications Engineering (Honors), July 2002

POSITIONS

Cairo University, Egypt

Assistant Professor – EECE Department

July 2012 - Present

American University in Cairo (AUC), Egypt

Adjunct Assistant Professor – EE Department

September 2012 - Present

University of Louisiana, Lafayette, Louisiana USA

Postdoctoral Research Associate

January 2012 - May 2012

Forward Link - a CBM of America Division, Lafayette, Louisiana USA

Distributed Antenna Systems (DAS) and RF Design Engineer/Coop

May 2011 - August 2011

HONORS AND AWARDS

Best Student Paper Award of the IEEE Computer Society Chapter at the University of Louisiana at Lafayette, awarded 2010 and 2011.

IEEE WoWMoM student travel grant, awarded 2011.

NSF Travel Grant for IEEE ICCCN, awarded 2008.

Nominated for *Best Paper Award* in IEEE ICCCN 2008.

Texas Instruments Distinguished Endowed Fellowship, awarded 2005.

Rice University Graduate Fellowship, awarded 2005.

Egyptian President's Award of Excellence: Cairo University ECE Dept. (ranked top 1%), awarded 2001.

Cairo University Undergraduate Distinguished Student Award, awarded 1997-2002.

RESEARCH GRANTS **Integrated Monitoring System for Plant Disease Forecast**

~ **250,000 USD Funded by STDF: April 2015 - January 2018**

Interdisciplinary project to develop an integrated software/hardware platform to monitor different plant diseases, and realize an expert system to predict the outbreak of the diseases.

The Web of Objects (WoO) ~ 120,000 USD Funded by ITIDA: June 2012 - December 2014

Multinational grant (*25 industrial and academic partners from 5 countries situated on 4 continents*) outlines a network and services infrastructure for the Internet of Things (IoT) independent of proprietary protocols.

4G++: Advanced Performance Boosting Techniques in 4th Generation Wireless Systems

~ **120,000 USD Funded by NTRA: May 2012 - October 2013**

Provide protocol design principles and guidelines that can be used by the beyond 4G wireless industry to boost the user experience.

PUBLICATIONS

Patents

- [P1] “*System and Method for Randomized Antenna Allocation in Asynchronous MIMO Multi-hop Networks*,” Application No. 20090304096 (with A. Sabharwal and E. Knightly).

Books

- [B2] **A. Khattab**, D. Perkins, and M. A. Bayoumi, “*Cognitive Radio Networks: from Theory to Practice*,” Springer, 2013.
- [B1] **A. Khattab**, “*Multimedia Traffic Scheduling in Future Wireless Networks: A Channel-Aware Approach*,” LAP LAMBERT Academic Publishing, 2011.

Journal Papers

- [J11] M. Seliem, K. Elsayed, and **A. Khattab**, “*Optimized Neighbor Discovery for 6LoWPANs: Implementation and Performance Evaluation*,” Computer Networks, Elsevier, accepted, 2015. Impact Factor: 1.256
- [J10] **A. Khattab**, and M. A. Bayoumi, “*Standardization of Cognitive Radio Networking: A Comprehensive Survey*,” Annals of Telecommunications, Springer, 70(11): 465-477, December 2015. Impact Factor: 0.699
- [J9] **A. Khattab**, and Y. A. Fahmy, and A. A. Wahab, “*High Accuracy GPS-Free Vehicle Localization Framework via an INS-Assisted Single RSU*,” International Journal of Distributed Sensor Networks, Hindawi, May 2015. (doi:10.1155/2015/795036) Impact Factor: 0.665
- [J8] E. Amini, Z. Jeddi, **A. Khattab**, and M. A. Bayoumi, “*Performance Evaluation and Design Optimization for Flexible Multiple Instruction Multiple Data Elliptic Curve Cryptography Crypto Architecture*,” Journal of Low Power Electronics (JOLPE), 11(1):1-15 March 2015. Impact Factor: 0.485
- [J7] **A. Khattab**, D. Perkins, and M. A. Bayoumi, “*Design, Implementation and Characterization of Practical Distributed Cognitive Radio Networks*,” IEEE Trans. on Communications, 61(10):4139-4150, October 2013. Impact Factor: 1.992
- [J6] E. Amini, Z. Jeddi, **A. Khattab**, and M. A. Bayoumi, “*A Low-Power Parallel Architecture for Finite Galois Field $GF(2^m)$ Arithmetic Operations for Elliptic Curve Cryptography*,” Journal of Low Power Electronics (JOLPE), 8(4):440-451, August 2012. Impact Factor: 0.485
- [J5] **A. Khattab**, D. Perkins, and M. A. Bayoumi, “*Opportunistic Spectrum Access: From Theory to Practice*,” IEEE Vehicular Technology Magazine, 7(2):62-68, June 2012. Impact Factor: 1.75
- [J4] **A. Khattab**, D. Perkins, and M. A. Bayoumi, “*Probabilistic Framework for Opportunistic Spectrum Management in Cognitive Ad-hoc Networks*,” EURASIP Journal on Wireless Communications and Networking, 2011:188, November 2011. Impact Factor: 0.724
- [J3] **A. Khattab**, “*The Case for SIMO Random Access in Multi-antenna Multi-hop Wireless Networks*,” ACM/Springer Wireless Networks, 17(7):1649-1665, October 2011. Impact Factor: 0.961
- [J2] **A. Khattab**, J. Camp, C. Hunter, P. Murphy, A. Sabharwal, and E. Knightly, “*WARP: A Flexible Platform for Clean-Slate Wireless Medium Access Protocol Design*,” ACM SIGMOBILE Mobile Computing and Communications Review, 12(1):56-58, January 2008.
- [J1] K. Elsayed, and **A. Khattab**, “*Channel-Aware Earliest Deadline Due Fair Scheduling for Wireless Multimedia Networks*,” Wireless Personal Communications, Springer, 38(2):233-252, July 2006. Impact Factor: 0.653

Peer-Reviewed Conference Papers

- [C21] **A. Khattab**, “*On the Energy Efficiency of Opportunistic Access in Wireless Home Networks*,” in Proc. of IEEE Global Conference on Signal and Information Processing (GlobalSIP 2015), Orlando, FL, December 2015.
- [C20] N. Elgaml, H. Raafat, A. Halim, A. Abdeldayem, N. Mahmoud, **A. Khattab**, and A. H. Zahran, “*Experimental Evaluation of Opportunistic Access in Shared Contention-based Channels*,” in Proc. of International Conference on Electronics, Circuits, and Systems (ICECS), Cairo, Egypt, December 2015.
- [C19] **A. Khattab**, and M. A. Bayoumi, “*An Overview of IEEE Standardization Efforts for Cognitive Radio Networks*,” in Proc. of IEEE International Symposium on Circuits and Systems (ISCAS), Lisbon, Portugal, May 2015.
- [C18] H. Ali, **A. Khattab**, and M. Fikri, “*Energy-Efficient Cooperative Sensing for Cognitive Wireless Sensor Networks*,” in Proc. of IEEE International Conference on Energy Aware Computing Systems & Applications (ICEAC), Cairo, Egypt, March 2015.

- [C17] M. Elias, **A. Khattab**, and K. Elsayed, “CORB: Context-Aware Opportunistic Resource-Based Routing for Stationary Wireless Sensor Networks,” in Proc. of IEEE International Conference on Computing, Networking and Communications (ICNC), Anaheim, CA, February 2015.
- [C16] K. Q. AbdelFateel, K. Elsayed, **A. Khattab**, F. Digham, “Dynamic Spectrum Access for Primary Operators Exploiting LTE-A Carrier Aggregation,” in Proc. of IEEE International Conference on Computing, Networking and Communications (ICNC), Anaheim, CA, February 2015.
- [C15] **A. Khattab**, and M. A. Bayoumi, “The Challenges Towards Energy-Efficient Cognitive Radio Networking,” in Proc. of IEEE NEWCAS 2014, Trois-Rivieres, Canada, June 2014.
- [C14] B. Sharkawy, **A. Khattab**, and K. Elsayed, “Fault-Tolerant RPL Through Context Awareness,” in Proc. of IEEE World Forum on Internet of Things (WF-IoT), Seoul, Korea, March 2014.
- [C13] M. Seliem, K. Elsayed, and **A. Khattab**, “Performance Evaluation and Optimization of Neighbor Discovery Implementation Over Contiki OS,” in Proc. of IEEE World Forum on Internet of Things (WF-IoT), Seoul, Korea, March 2014.
- [C12] **A. Khattab**, and K. Elsayed, “Autonomous Opportunistic Spectrum Access in Distributed Femtocell Networks,” in Proc. of IEEE GLOBECOM’13, Atlanta, GA, December 2013.
Acceptance Rate: 37% out of 2272 submissions
- [C11] A. A. Wahab, **A. Khattab**, and Y. A. Fahmy, “Two-Way TOA with Limited Dead Reckoning for GPS-Free Vehicle Localization Using Single RSU,” in Proc. of IEEE Intelligent Transportation System Telecommunications (ITST 2013), Tampere, Finland, November 2013.
- [C10] A. Affi, K. Elsayed, and **A. Khattab**, “Interference-Aware Radio Resource Management Framework for the 3GPP LTE Uplink with QoS Constraints,” in Proc. of IEEE ISCC’13, Split, Croatia, July 2013.
- [C9] **A. Khattab**, D. Perkins, and M. A. Bayoumi, “Experimental Evaluation of Opportunistic Spectrum Access in Distributed Cognitive Radio Networks,” in Proc. of IEEE IWCMC, Limassol, Cyprus, August 2012.
Acceptance Rate: 35% out of 630 submissions
- [C8] **A. Khattab**, D. Perkins, and M. A. Bayoumi, “Rate-Adaptive Probabilistic Spectrum Management for Cognitive Radio Networks,” in Proc. of IEEE WoWMoM, Lucca, Italy, June 2011.
Acceptance Rate: 18.5% out of 173 submissions
- [C7] **A. Khattab**, “An Experimental Case for SIMO Random Access in Multi-hop Wireless Networks,” in Proc. of IEEE INFOCOM mini-conference 2010, San Diego, CA, March 2010.
Acceptance Rate: 24.06% out of 1575 submissions
- [C6] V. Mancuso, O. Gurewitz, **A. Khattab**, and E. Knightly, “Elastic Rate Limiting for Spatially Biased Wireless Mesh Networks,” in Proc. of IEEE INFOCOM 2010, San Diego, CA, March 2010.
Acceptance Rate: 17.5% out of 1575 submissions
- [C5] **A. Khattab**, A. Sabharwal, E. Knightly, “Fair Randomized Antenna Allocation in Asynchronous MIMO Multi-hop Networks,” in Proc. of IEEE ICCCN 2008, St. Thomas, US, August 2008. (**Best Paper Award Finalist**)
Acceptance Rate: 24.6% out of 399 submissions
- [C4] **A. Khattab**, and K. Elsayed, “Opportunistic Scheduling of Delay Sensitive Traffic in OFDMA-based Wireless Networks,” in Proc. of IEEE WoWMoM 2006, Buffalo-NY, June 2006.
Acceptance Rate: 33.33% out of 144 submissions
- [C3] **A. Khattab**, and K. Elsayed, “Opportunistic Subcarrier Management for Delay Sensitive Traffic in OFDMA-based Wireless Multimedia Networks,” in Proc. of the 14th IST Mobile & Wireless Communications Summit, Dresden, Germany, June 2005.
- [C2] **A. Khattab**, and K. Elsayed, “Channel-Quality Dependent Earliest Deadline Due Fair Scheduling Schemes for Wireless Multimedia Networks,” in Proc. of ACM MSWiM 2004, Venice, Italy, October 2004.
Acceptance Rate: 17.4% out of 121 submissions
- [C1] **A. Khattab**, A. Talaat, M. Abdulsalam, M. Elsayed, and A. Soliman, “A Programmable Baseband Chain for a GSM/DECT Fully Integrated CMOS RF Receiver,” in Proc. of IEEE ICEEC’04, Cairo, Egypt, Sept. 2004.
- [D7] F. Digham, K. Elsayed, **A. Khattab**, K. Qorany, “Estimation of Spectrum Demand in an LTE-Advanced Environment,” in IEEE GLOBECOM’14 - Industry Program, Austin, TX, December 2014.
- [D6] J. Camp, **A. Khattab**, C. Hunter, P. Murphy, A. Sabharwal, and E. Knightly, “Cross-Layer Rate Adaptation Using WARP,” ACM MobiCom, San Francisco, California, September 2008.
- [D5] J. Camp, **A. Khattab**, C. Hunter, P. Murphy, A. Sabharwal, and E. Knightly, “Cross-Layer Rate Adaptation Using WARP,” IEEE INFOCOM, Phoenix, Arizona, April 2008.
- [D4] **A. Khattab**, J. Camp, C. Hunter, P. Murphy, A. Sabharwal, and E. Knightly, “WARP: A Flexible Platform for Clean-Slate Wireless Medium Access Protocol Design,” ACM MobiCom, Montreal, Canada, Sep. 2007.

- [D3] **A. Khattab**, J. Camp, C. Hunter, P. Murphy, A. Sabharwal, and E. Knightly, “*Clean-Slate Mesh Protocol Design Using WARP*,” HOT/A: NSF Wireless Network PI Meeting, Chicago, Illinois, July 2007.
- [D2] J. Camp, **A. Khattab**, C. Hunter, P. Murphy, A. Sabharwal, and E. Knightly, “*Clean-slate Mesh Protocol Design using WARP*,” ACM MobiSys, San Juan, Puerto Rico, June 2007.
- [D1] P. Murphy, C. Hunter, J. Camp, **A. Khattab**, E. Knightly, and A. Sabharwal, “*Clean-slate Multi-hop Wireless Networks using WARP*,” IEEE INFOCOM, Anchorage, Alaska, May 2007.

INVITED TALKS &
TUTORIALS

“*Precision Agriculture in Egypt: Challenges and Opportunities*,” Hack4Egypt: Revolutionize Egypt’s ICT HEAT Sectors, Cairo, Egypt, December 2015.

“*Cognitive Wireless Sensor Network: Its Applications in Historical Site Health Monitoring*,” IEEE International Conference on Energy Aware Computing Systems & Applications (ICEAC), Cairo, Egypt, March 2015.

“*Wireless Sensor Networks*,” IEEE Interact with Today’s World (ITW 2014), Alexandria, Egypt, August 2014.

“*Introduction to Wireless Sensor Networks*,” ASRT Workshop on Wireless Sensor Networks Applications in Transportation, Agriculture, and Health-care, Cairo, Egypt, May 2014.

CONFERENCE
PRESENTATIONS

“*On the Energy Efficiency of Opportunistic Access in Wireless Home Networks*,” IEEE GlobalSIP 2015, Orlando, FL, December 2015.

“*Autonomous Opportunistic Spectrum Access in Distributed Femtocell Networks*,” IEEE GLOBECOM’13, Atlanta, GA, December 2013.

“*Experimental Evaluation of Opportunistic Spectrum Access in Distributed Cognitive Radio Networks*,” IEEE IWCMC 2012, Limassol, Cyprus, August 2012.

“*Rate-Adaptive Probabilistic Spectrum Management for Cognitive Radio Networks*,” IEEE WoWMoM 2011, Lucca, Italy, June 2011.

“*An Experimental Case for SIMO Random Access in Multi-hop Wireless Networks*,” IEEE INFOCOM 2010, San Diego, CA, March 2010.

“*Fair Randomized Antenna Allocation in Asynchronous MIMO Multi-hop Networks*,” IEEE ICCCN 2008, St. Thomas, US Virgin Islands, August 2008.

“*Opportunistic Scheduling of Delay Sensitive Traffic in OFDMA-based Wireless Networks*,” IEEE WoWMoM 2006, Buffalo, NY, June 2006.

PRIOR RESEARCH
EXPERIENCE

University of Louisiana, Lafayette, Louisiana USA

Research Assistant

August 2009 - December 2011

Probabilistic Spectrum Management in Distributed Cognitive Radio Networks

- Proposed a probabilistic framework and protocol specifications for opportunistic spectrum sensing and access that counter the unavoidable limitations of existing radio technologies.
- Analytically optimized the parameters of the proposed framework.
- Empirically demonstrated its superior performance via Wireless open-Access Research Platform (WARP).

The Case for SIMO Random Access in Multi-hop Wireless Networks

- Experimentally and analytically demonstrated the superior robustness of SIMO communications to uncoordinated interference compared to MIMO.
- Proposed simple modifications to the IEEE 802.11n PHY/MAC to enable multiple uncoordinated SIMO flows to concurrently share the medium and alleviate the IEEE 802.11n severe unfairness.

Rice University, Houston, Texas USA

Research Assistant

August 2005 - August 2009

Fair Randomized Antenna Allocation in Asynchronous MIMO Multi-hop Networks

- Experimentally demonstrated IEEE 802.11n multi-hop networks vulnerability to starvation.
- Presented a framework for randomized resource allocation in asynchronous CSMA networks.
- Proposed the first fair asynchronous multi-antenna MAC. (*US patent filed*)

Overhead-Free Congestion Control in Wireless Mesh Networks

- Experimentally demonstrated and analytically modeled CSMA behavior in multi-hop mesh networks as a distributed almost-strict priority system.

- Proposed overhead-free congestion control scheme for such systems.

WARP Platform CSMA MAC Implementation

- Implemented the basic CSMA protocol functionalities such as physical and virtual carrier sensing, and RTS/CTS four-way handshake.

Cairo University, Egypt

Research Assistant

August 2002 - August 2005

Channel-Aware Deadline Due Fair Scheduling for Wireless Multimedia Networks

- Introduced the channel-dependent earliest-due-date discipline for QoS provisioning for multimedia applications in beyond 3G cellular systems.

Opportunistic Scheduling of Delay Sensitive Traffic in OFDMA Wireless Networks

- Proposed one of the earliest joint opportunistic OFDMA subcarrier allocation and assignment schemes that satisfies the QoS delay constraints while maximizing the system throughput.

Bachelors Student (Senior Year Dissertation)

September 1997 - July 2002

Programmable Baseband Chain for a Fully-Integrated Multi-Standard CMOS RF Receiver

- Designed a reconfigurable baseband chain, with filter, amplifier, and analog to digital converter modules, that can be digitally programmed for dual GSM/DECT support.

TEACHING EXPERIENCE

Course Instructor

Cairo University, Egypt

May 2012 - Present

- ECPM 602: Fundamentals of Telecommunications Networks (F14, F15)
- ELC 629: Software-Defined Radio and Cognitive Radio Networks (S13, S14, S15)
- ELC 659/ELC 724: Wireless Sensor and Ad-hoc Networks (F12, F13, F14, F15)
- ELC 303-A: Computer Architecture (F12, F13, F14, F15)
- ELC 303-B: Object-Oriented Programming (S15)
- ELC 316: Logic and Computer Design (S13, S14)
- ELC N316: Digital Communications Principles (F14, S15, F15)
- ELC N406: Advanced Topics in Wireless Communications (F14, S15, F15)
- ELC N416: Information Theory and Coding (S14)
- CCEN 380: Seminar 2 (S14)

The American University in Cairo (AUC), Egypt

September 2012 - Present

- EENG 421: Fundamentals of Communications II (S 13)
- EENG 436: Mobile Communication Systems (F12, F13, F14, F15)

Teaching Assistant

University of Louisiana, Lafayette, Louisiana USA

August 2009 - December 2011

- EECE/CMPS 513: Computer Networks (F09, F10, S01, F11)
- EECE/CMPS 430: Computer Architecture (S11)

Rice University, Houston, Texas USA

August 2005 - August 2009

- ELEC 537: Communication Networks (F07)
- ELEC 437: Introduction to Communication Networks (F08)
- ELEC 241: Fundamentals of Electrical Engineering (F06)

Cairo University, Egypt

August 2002 - August 2005

- ELC 306-A: Analog Communications (F02, F03, F04)
- ELC 306-B: Digital Communications (S03, S04)
- ELC 202-A: Electric Circuits II (F03)
- ELC 202-B: Electric Circuits II (S04)
- ELC 325-3: Electric Communications Eng. (F02)

The American University in Cairo (AUC), Cairo, Egypt

Jan 2005 - May 2005

- Conduct tutorials, administrate labs, hold office hours, grade homework and exams.

PROFESSIONAL EXPERIENCE

Forward Link - a CBM of America Division, Lafayette, Louisiana USA

Distributed Antenna Systems (DAS) and RF Design Engineer/Coop

May 2011 - August 2011

Alcatel Egypt, Cairo, Egypt

Summer Intern at Radio Network Planning Division

August 2001 - September 2001

Vodafone Egypt, Cairo, Egypt

Summer Intern at Network Operation and Maintenance (NOM) Department

June 2001 - July 2001

PROFESSIONAL
SERVICES

Grant Proposal Reviewer

San Diego State University (SDSU) Research Foundation, USA.
Central Michigan University Internal Grant Committee, USA.
National Telecommunications Regulations Authority (NTRA), Egypt.

Guest Editor

International Journal of Distributed Sensor Networks (IJDSN) - Special Issue: From Wireless Sensors Networks to Internet of Things, 2015

Ph.D./M.Sc. Forum Co-chair and Track Co-chair

IEEE International Conference on Electronics, Circuits, and Systems (ICECS) - Cairo, Egypt, Dec. 2015
IEEE International Conference on Electronics, Circuits, and Systems (ICECS) - Abu Dhabi, UAE, Dec. 2013

Technical Program Committee Member

IEEE International Conference on Computer Communications and Networks (ICCCN) 2016, Hawaii, August 2016
IEEE International Conference on Communications (ICC) 2016, Kuala Lumpur, Malaysia, May 2016
IEEE Wireless Communications and Networking Conference (WCNC 2016), Doha, Qatar, April 2016
IEEE Global Communications Conference (GLOBECOM) 2015, San Diego, California, December 2015
IEEE World Forum on Internet of Things (WF-IoT) 2015, Milan, Italy, December 2015
IEEE International Conference on Computer Communications and Networks (ICCCN) 2015, Las Vegas, Nevada, August 2015
IEEE 5th International Conference on Energy Aware Computing Systems & Applications (ICEAC), Cairo, Egypt, March 2015
IEEE Global Communications Conference (GLOBECOM) 2014, Austin, Texas, December 2014
IEEE International Conference on Computer Communications and Networks (ICCCN) 2014, Shanghai, China, August 2014
IEEE Int'l Workshop on Real-Time Cyber-Physical Systems (RTCPS) 2014, Reno, Nevada, June 2014
IEEE International Conference on Engineering and Technology (ICET) 2014, Cairo, Egypt, April 2014
IEEE World Forum on Internet of Things (WF-IoT) 2014, Seoul, South Korea, March 2014
Sensor Network Signal and Information Processing (SNSIP), MIC-CSN 2013, Ruse, Bulgaria, 2013

Technical Reviewer for Journals/Conferences

Journals and Magazines: IEEE/ACM Transactions on Mobile Computing, IEEE Transactions on Wireless Communications, IEEE Transactions on Vehicular Technology, IEEE Transactions on Parallel and Distributed Systems, IEEE Journal on Selected Areas in Communications, IEEE Journal on Emerging and Selected Topics in Circuits and Systems, IEEE Vehicular Technology Magazine, IEEE Communications Letters, Ad Hoc Networks (Elsevier), Computer Communications (Elsevier), Measurement (Elsevier), Annals of Telecommunications (Springer); **Conferences:** IEEE INFOCOM 2006-2009, ACM MobiCom 2006-2009, ACM Sigmetrics 2007, WiOpt 2007, IEEE VTC-Fall'12, IEEE VTC-Spring'13, IEEE WCNC'13, IEEE WCNC'16, IEEE ICC'13, , IEEE ICC'15-16, IEEE GLOBECOM'07, IEEE GLOBECOM'13-14, IEEE PIMRC'13, IEEE ICCCN 2014-2016.

IEEE Computer Society student chapter at the University of Louisiana

Secretariat

August 2010 - December 2011

MEMBERSHIPS

IEEE, IEEE Communication Society, IEEE Computer Society

Member

August 2005 - Present

COMPUTER SKILLS

- Packages: MATLAB, Network Simulator (NS-2), iPerf, Xilinx Platform Studio, iBwave
- Programming Languages: C/C++, VB, and FORTRAN
- Operating Systems: Windows, Linux and MAC OS
- Professional user of MS and TeX based systems