Ahmed Helmy, Associate Professor
Founder and Director of the Wireless Mobile Networking Laboratory & the *NOMADS* Research Group
Computer and Information Science and Engineering (CISE) Department, University of Florida (UF)
E-mail: helmy@ufl.edu, Web page: http://www.cise.ufl.edu/~helmy

I. EDUCATION

- **Ph.D.** - Aug 1999. Advisor: Deborah Estrin, co-advisor: Sandeep Gupta, GPA: 3.97/4.0
    Department of Computer Science, University of Southern California (USC), Los Angeles
    Title: "*Systematic Test Synthesis for Multipoint Protocol Design*".
- **M.S.** - December 1995, Advisor: John Silvester, GPA: 4.0/4.0
    Department of Electrical Engineering, University of Southern California (USC), Los Angeles
    Major: Master of Science (non-thesis) in Electrical Engineering-Computer Networks (MSEECN)
- **M.S.** - July 1994, Engineering Mathematics (non-thesis), Cairo University, Egypt
- **B.S. -** July 1992, Distinction with highest honors (*summa cum laude*)
    Major: Electronics & Communications, Electrical Engineering Dept, Cairo University, Egypt

II. PROFESSIONAL APPOINTMENTS

- 8/06 – : *Associate Professor,* Computer and Information Science and Engineering (CISE) Dept,
    University of Florida (UF), Gainesville, FL
- 8/06 – : *Founder and Director,* Wireless Mobile Networking Laboratory, UF
- 8/06 – : Courtesy appointment with the Electrical and Computer Engineering Dept, UF
- 8/06 – 8/10: Courtesy appointment with the Dept of Electrical Engineering - Systems, USC
- 9/99 – 8/06: *Assistant Professor,* Department of Electrical Engineering - Systems,
    University of Southern California (USC), Los Angeles, CA
- 5/05 – 8/06: *co-Founder and co-Director*, Wireless and Sensor Networks Laboratory, USC
- 7/00 – 8/06: *Founder & Director,* Computer Networks Protocol Design & Testing Lab, USC
- 9/98 – 8/99: *Graduate Research Assistant and co-leader,* Computer Science Department, USC
    Project: STRESS. Supervisors: Prof. Deborah Estrin, Prof. Sandeep Gupta
- 9/96 – 9/98: *Graduate Research Assistant,* Information Sciences Institute (*ISI*), USC
    Project: *VINT* and the Network Simulator (*NS*-2). Supervisor: Prof. Deborah Estrin.
- 6/95–8/95&6/96–8/96: *Intern,* Network Systems Division, Silicon Graphics, Mountain View, CA
    Developed and implemented the Protocol Independent Multicast (*PIM-SM*)
- 9/95 – 6/96: *Graduate Research Assistant,* Computer Science Department, USC
- 10/92 – 7/94: *Teaching Assistant,* Engineering Mathematics Department, Cairo University, Egypt
- 4/93 – 7/94: *Software Design & Development Engineer*, Telecomp. Int'l Co, Cairo, Egypt.
- 9/92 – 9/93: *Graduate Research Assistant,* Electrical Engineering Dept, Cairo University, Egypt
- 9/92 – 1/94: *Teaching Assistant*, Electronics Department, American University in Cairo, Egypt

III. AWARDS AND ACHIEVEMENTS

- **Research Funding Awards:**
  - National Science Foundation (NSF) *CAREER* Award, June 2002 – May 2008.
  - NSF *NETS* Award, Oct 2008 – Sept 2013, NSF *NETS* Award, Sept 2004 – Sept 2008, NSF/NASA *STRESS* Award, October 2002 – October 2007.
  - Zumberge Award for Individual Research, USC, June 2000.
- **Research Papers & Competition Awards:**
  - Award winner in *ACM MobiCom* SRC: 3rd place 2007, 4th place 2008, top 5 finalist 2012.
  - Award winner in *ACM MobiCom WiNTECH* demo competition (2nd place prize), Sept 2010.
  - Best Paper Award, *IEEE MMNS (Conf on Mgmt of Multimedia Networks & Services)*, 2002.

- **Research Impact:**
  - Citation H-index = 41. Over 9,000 citations, Nov 2012. (Google Scholar)
  - Top 0.1% most cited in Computer Science, last 10 yrs, MS academic 2011/2012.
- **Service Awards:**
  - ACM Service Award: MSWiM 2011.
  - Service recognition for: IEEE Globecom 2010 - IEEE/ACM IWCMC 2009, 2010.
- **Mentoring and Teaching Awards:**
  - Doctoral Dissertation Advisor and Mentoring Award (nominee), UF Nov 2012.
  - Teaching excellence - dean's appreciation, UF: Spring 2008, Fall 2008, Spring 2009.
  - Rank 1st (of 39 faculty) in EE-USC merit review: 2004 & 2005. [5.0/5.0 teaching&research]
  - Teaching evaluations above 4.5/5 for all graduate courses at UF & USC: Sp 2000 – Sp 2012.
- **Other (Earlier Nominations & Achievements):**
  - Alfred P. Sloan Fellowship (nominee), September 2003.
  - Jr. Faculty Research Award (nominee), USC School of Engineering 2003 – 2004.
  - Top 10 (top 1%) in class of over 1000 graduating engineers, Cairo University, Egypt 1992.
  - Rank 2nd (top 0.01%) in nationwide graduation exam, with score of 99.5%, Kuwait 1987.

IV. PUBLICATIONS[*]

A. Refereed Journal Articles (published, accepted)

J1. W. Hsu, D. Dutta, A. Helmy, *TRACE*: "Structural Analysis of User Association Patterns in University Campus Wireless LANs", *IEEE Transactions on Mobile Computing (TMC)*, Vol. 11, No. 11, pp. 1734-1748, November 2012.

J2. W. Hsu, D. Dutta, A. Helmy, "*CSI:* A Paradigm for Behavior-oriented Profile-cast Services in Mobile Networks", *AdHoc Networks Journal–Elsevier*, Vol. 10, Iss. 8, pp. 1586-1602, Nov. 2012.

J3. G. Thakur, U. Kumar, W. Hsu. A. Helmy, "Gauging Human Mobility Characteristics and its Impact on Mobile Routing Performance", *Int'l Journal of Sensor Networks*, Vol. 11, Iss. 3, pp. 179-191, April 2012.

J4. J. Kim, A. Helmy, "Analyzing the Mobility, Predictability and Evolution of WLAN Users", *Int'l Journal of Autonomous and Adaptive Communications Systems*. In press. To appear.

J5. S. Wang, A. Helmy, "*BEWARE*: Background Traffic-Aware Rate Adaptation for IEEE 802.11", *IEEE/ACM Transactions on Networking (ToN)*, Vol. 19, Issue 4, pp. 1164-1177, August 2011.

J6. S. Begum, A. Helmy, S. Gupta, "Modeling the Interactions Between MAC and Higher Layers: A Systematic Approach to Generate High Level Scenarios from MAC Level Scenarios", *ACM Transactions on Modeling and Computer Simulation (TOMACS)*, Article Issue 1, Vol. 21, No. 7 (27 pages), pp. 7:1-7:27, December 2010.

J7. U. Kumar, G. Thakur, A. Helmy, "Proximity based trust advisor using encounters for mobile societies: Analysis of four filters", *Wireless Communications and Mobile Computing (WCMC) Journal,* Vol. 10, Issue 12, pp. 1605-1619, December 2010.

J8. W. Hsu, A. Helmy, "On Nodal Encounter Patterns in Wireless LAN Traces", *IEEE Transactions on Mobile Computing (TMC)*, Vol. 9, No. 11, pp. 1563-1577, November 2010.

J9. K. Seada, A. Helmy, *R2D2*: "Geographic Rendezvous-based Architectures for Emergency Data Dissemination", *Wireless Communications and Mobile Computing (WCMC) Journal,* Vol. 10,

Issue 9, pp. 1221-1237, September 2010.

J10. Y. Kim, A. Helmy, "*CATCH*: A Protocol Framework for *Cross-layer Attacker Traceback* in Mobile Multi-*Hop* Networks", *Ad Hoc Networks Journal – Elsevier*, Vol. 8, Issue 2, pp. 193-213, March 2010.

J11. W. Hsu, T. Spyropoulos, K. Psounis, A. Helmy, *TVC*: "Modeling Spatial and Temporal Dependencies of User Mobility in Wireless Mobile Networks", *IEEE/ACM Transactions on Networking (ToN)*, Vol. 17, No. 5, pp. 1564-1577, October 2009.

J12. S. Tanachaiwiwat, A. Helmy, "Encounter-based Worms: Analysis and Defense", *Ad Hoc Networks Journal – Elsevier*, Volume 7, Issue 7, pp. 1414-1430, September 2009.

J13. M. Zuniga, K. Seada, B. Krishnamachari, A. Helmy, "Efficient Geographic Routing over Lossy Links in Wireless Sensor Networks", *ACM Transactions on Sensor Networks (TOSN)*, Vol. 4, No. 3, Article 12 (33 pages), pp. 12:1-12:33, May 2008.

J14. K. Nahm, A. Helmy, C.-C. Kuo, "Cross-layer Interaction of TCP and Ad Hoc Routing Protocols in Multihop 802.11 Networks", *IEEE Transactions on Mobile Computing (TMC)*, Vol. 7, Issue 4, pp. 458 - 469, April 2008.

J15. K. Seada, A. Helmy, R. Govindan, "Modeling and Analyzing the Correctness of Geographic Face Routing under Realistic Conditions", *Ad Hoc Networks Journal - Elsevier*, Vol. 5, Issue 6, pp. 855-871, August 2007.

J16. K. Seada, A. Helmy, "Efficient and Robust Geocasting Protocols for Sensor Networks", *Computer Communications Journal – Elsevier,* Vol. 29, Issue 2, pp. 151-161, January 2006.

J17. A. Helmy, S. Gupta, "*FOTG*: Fault Oriented Stress Testing of Multicast Routing", *IEEE Communications Letters*, Vol. 9, No. 4, pp. 375-377, April 2005.

J18. A. Helmy, S. Garg, P. Pamu, N. Nahata, "*CARD*: A Contact-based Architecture for Resource Discovery in Ad Hoc Networks", *ACM Mobile Networks and Applications (MONET) Journal*, Vol. 10, Issue 1, pp. 99-113, February 2005. [Acceptance rate: 22% of 60 submissions].

J19. N. Sadagopan, B. Krishnamachari, A. Helmy, "Active Query Forwarding in Sensor Networks (*ACQUIRE*)", *Ad Hoc Networks Journal - Elsevier*, Vol. 3, Issue 1, pp. 91-113, January 2005. [Acceptance rate: 12%].

J20. A. Helmy, "Contact-extended Zone-based Routing for Transactions in Ad Hoc Networks", *IEEE Transactions on Vehicular Technology*, Vol. 54, No. 1, pp. 307-319, January 2005.

J21. K. Seada, A. Helmy, S. Gupta, "A Framework for Systematic Evaluation of Multicast Congestion Control Protocols", *IEEE Journal on Selected Areas in Communications (JSAC)*, Volume 22, Issue 10, pp. 2048- 2061, December 2004. [Nominated for best paper award at USC EE, 2005].

J22. F. Bai, N. Sadagopan, B. Krishnamachari, A. Helmy, "Modeling Path Duration Distributions in MANETs and their Impact on Routing Performance", *IEEE Journal on Selected Areas in Communications (JSAC)*, Vol. 22, No. 7, pp. 1357-1373, September 2004. [Acceptance rate: 18% (15 of 82)] [Nominated for best paper award at USC EE Dept, 2005].

J23. A. Das, D. Dutta, A. Helmy, "A Low-state Packet Marking Framework for Approximate Fair Bandwidth Allocation", *IEEE Communications Letters*, Vol. 8, No. 9, pp. 588-590, Sept 2004.

J24. D. Son, A. Helmy, B. Krishnamachari, "The Effect of Mobility-induced Location Errors on Geographic Routing in Mobile Ad Hoc and Sensor Networks: Analysis and Improvement using Mobility Prediction", *IEEE Transactions on Mobile Computing (TMC)*, Vol. 3, No. 3, pp. 233-245, July 2004 [Acceptance rate: 25%].

J25. F. Bai, G. Bhaskara, A. Helmy, "Building the Blocks of Protocol Design and Analysis — Challenges and Lessons Learned from Case Studies on Mobile Ad hoc Routing and Micro-Mobility Protocols", *ACM Computer Communications Review (CCR), Special issue on Science of Networking Design*, Vol. 34, No. 3, pp. 57 – 69, July 2004. [Acceptance rate: 15% of 40].

J26. A. Helmy, M. Jaseemuddin, Ganesha Bhaskara, "Multicast-based Mobility: A Novel Architecture for Efficient Micro-Mobility", *IEEE Journal on Selected Areas in Communications (JSAC),* Vol. 22, No. 4, pp. 677-690, May 2004. [Acceptance rate: 25% of 60 submissions].

J27. A. Helmy, S. Gupta, D. Estrin, "The *STRESS* Method for Boundary-point Performance Analysis of End-to-end Multicast Timer-Suppression Mechanisms", *IEEE/ACM Transactions on Networking*, Volume 12, Issue 1, pp. 44-58, February 2004. [Acceptance rate '03: 18% of 439].

J28. A. Helmy, "*CAPTURE*: location-free Contact-Assisted Power-efficienT qUery REsolution for Sensor Networks", *ACM Mobile Computer and Communications Rev. (MC2R), Sp. issue on Wireless PAN/Sensor Networks*, vol. 8, No. 1, pp. 27-47, Jan '04. [Acceptance rate: 22% of 35].

J29. Y. Kim, J. Lee, A. Helmy, "Impact of Location Inconsistencies on Geographic Routing in Wireless Networks", *ACM Mobile Computer and Communications Rev (MC2R), Sp. issue on Wireless PAN/Sensor Networks*, vol. 8, No. 1, pp. 48-60, Jan '04. [Acceptance rate: 22% of 35].

J30. F. Bai, N. Sadagopan, A. Helmy, "The *IMPORTANT* Framework for Analyzing the Impact of Mobility on Performance of Routing for Ad Hoc Networks", *Ad Hoc Networks Journal - Elsevier*, Vol. 1, Issue 4, pp. 383 - 403, November 2003. [Acceptance rate: 12%] [Nominated for best paper award at USC EE Dept, 2004].
Top 25 most requested articles (*Ad Hoc Networks Journal*) for Jan-Dec'03 & Jan– Mar'04.

J31. A. Helmy, "Mobility-Assisted Resolution of Queries in Large-Scale Mobile Sensor Networks (*MARQ*)", *Computer Networks Journal - Elsevier, Special issue on Wireless Sensor Networks*, Vol. 43, Issue 4, pp. 437-458, November 2003. [Acceptance rate: 24% of 25 submissions].

J32. A. Helmy, "Small Worlds in Wireless Networks", *IEEE Communications Letters*, Vol. 7, No. 10, pp. 490-492, October 2003.

J33. A. Helmy, M. Jaseemuddin, G. Bhaskara, "Efficient Micro-Mobility using Intra-domain Multicast-based Mechanisms (*M&M*)", *ACM SIGCOMM Computer Communications Review (CCR)*, Volume 32, Number 5, pp. 61-72, November 2002.

J34. L. Breslau, D. Estrin, K. Fall, S. Floyd, J. Heidemann, A. Helmy, P. Huang, S. McCanne, K. Varadhan, Y. Xu, H. Yu, "Advances in Network Simulation", *IEEE Computer*, vol.33, No.5, pp. 59-67, May 2000. [Top 65 most cited papers in computer science in 2000 (Citeseer Jul '03)].

Refereed Short Articles in Periodical Journals (ACM SIGMOBILE MC2R & ACM SIGCOMM CCR)

J35. G. Tuncay, G. Benincasa, A. Helmy, "Autonomous and Distributed Recruitment and Data Collection Framework for Opportunistic Sensing", *ACM MC2R*, to appear. [Top 5, finalist in *ACM MobiCom* Student Research Competition (SRC)].

J36. S. Moon, A. Helmy, "Contact rule-based Decision for Mobile Social Networking Testbeds", *ACM Mobile Computer and Communications Rev (MC2R)*, Vol. 15, No. 4, pp. 49-51, Oct 2011.

J37. U. Kumar, G. Thakur, A. Helmy, "Proximity-based Trust-advisor using Encounters", *ACM Mobile Computer and Communications Rev (MC2R)*, Vol. 14, No. 4, pp. 22-24, October 2010.

J38. S. Moon, A. Helmy, "Spectral Analysis of Periodicity and Regularity for Mobile Encounters in Delay Tolerant Networks", *ACM Mobile Computer and Communications Review (MC2R)*, Vol. 14, No. 4, pp. 37-39, October 2010.

J39. J. Kim, A. Helmy, "Analyzing Mobility Evolution in WLAN Users: How predictable are we?",

ACM Mobile Computer and Communications Rev (MC2R), Vol. 14, No. 3, pp. 10-12, July 2010.

J40. S. Moghaddam, A. Helmy, "Modeling of Internet Usage in Large Mobile Societies Using Self-Organizing Maps", *ACM Mobile Computer and Communications Review (MC2R)*, Vol. 14, No. 4, pp. 13-15, October 2010.

J41. S. Wang, A. Helmy, "Background Traffic-Aware Rate Adaptation for IEEE 802.11: Implementation and Test-bed Experimental Results", *ACM Mobile Computer and Communications Review (MC2R)*, Vol. 13, Issue 3, pp. 46-50, Jul. 2009. [Top 4, finalist in *ACM MobiCom* Student Research Competition (SRC)].

J42. J. Kim, A. Helmy, "The Challenges of Accurate Mobility Prediction for Ultra Mobile Users", *ACM Mobile Computer and Communications Rev (MC2R)*, V. 13, Issue 3, pp. 58-61, Jul. 2009.

J43. U. Kumar, N. Yadav, A. Helmy, "Gender-based Feature Analysis in Campus-wide WLANs", *ACM Mobile Computer and Communications Review (MC2R)*, Vol. 12, Issue 1, pp. 40-42, January 2008. [Winner of the 3rd place prize of the *ACM MobiCom* Student Research Competition (*SRC*). Rated in top 10% of over 33 submissions].

J44. W. Hsu, D. Dutta, A. Helmy, "Profile-Cast: Behavior-Aware Mobile Networking", *ACM Mobile Computer and Communications Review (MC2R)*, Vol. 12, Issue 1, pp. 52-54, January 2008. [Among the top 5 submissions to the *ACM MobiCom* SRC competition. Rated in the top ~13% submissions].

J45. W. Hsu, D. Dutta, A. Helmy, "On the Structure of User Association Patterns in Wireless LANs", *ACM Mobile Computer and Communications Review (MC2R)*, Vol. 11, No. 2, pp. 67-68, April 2007.

J46. W. Hsu, K. Merchant, H. Shu, C. Hsu, A. Helmy, "Weighted Way Mobility Model and its Impact on Ad Hoc Networks", *ACM Mobile Computer and Communications Review (MC2R)*, Vol. 9, No. 1, pp. 59-63, January 2005.

J47. J. Faruque, A. Helmy, "Gradient-Based Routing in Sensor Networks", *ACM Mobile Computer and Communications Review (MC2R)*, Vol. 7, No. 4, pp. 50-52, October 2003.

J48. K. Seada, A. Helmy, R. Govindan, "On the Effect of Location Inaccuracy on Geographic Face Routing in Wireless Networks", *ACM MC2R*, Vol. 7, No. 4, pp. 61-63, October 2003.

J49. N. Nahata, P. Pamu, S. Garg, A. Helmy, "Efficient Resource Discovery for Large Scale Ad hoc Networks using Contacts", *ACM SIGCOMM CCR*, Vol. 32, No. 3, pp. 32, July 2002.

J50. K. Dantu, S. Kapadia, R. Sinha, A. Helmy, "Modeling of Mobility-Induced Losses in MANETs (*MILMAN*)", *ACM SIGCOMM CCR* Vol. 32, No. 3, pp. 30, July 2002.

B. Books, Edited Books & Book Chapters

B1. W. Hsu, D. Dutta, A. Helmy, "Data-driven Behavior-aware Mobile Social Networking", Book chapter in 'The Art of Wireless Sensor Networks'. Ed. H. Ammari. Invited October 2011. To appear 2012/2013.

B2. W. Hsu, F. Bai, A. Helmy, "Mobility Modeling for Vehicular Networks", Book chapter in a book by Chapman & Hall/CRC, (Ed. A. Boukerche). Invited Jul 2009. To appear in 2012/2013.

B3. Y. Kim, A. Helmy, "Attacker Trace-back in Wireless and Mobile Networks", Book Chapter (Chapter 5), Handbook on Security and Networks, Eds. Y. Xiao, F. Li, H. Chen, by World Scientific Publishing Co., ISBN: 978-981-4273-03-9, March 2011.

B4. S. Tanachaiwiwat, A. Helmy, "Worm Propagation and Interaction in Mobile Networks", Book Chapter (Chapter 6), Handbook on Security and Networks, Eds. Y. Xiao, F. Li, H. Chen, by

World Scientific Publishing Co., ISBN: 978-981-4273-03-9, March 2011.

B5. W. Hsu, A. Helmy, "Trace-based Analysis of Mobile User Behaviors for Opportunistic Networks", Book Chapter in the book "Mobile Opportunistic Networks: Architectures, Protocols and Applications", published by Auerbach Publications, Taylor & Francis Group, CRC Press, ISBN: 978-1-4200-6012-6, February 2011.

B6. S. Tanachaiwiwat, A. Helmy, "Analysis of Worm Interactions: In Wired and Wireless Networks", Book published by VDM Verlag, ISBN 978-3-639-15653-9, May 2009.

B7. F. Bai, A. Helmy, "The *IMPORTANT* Framework for Analyzing and Modeling the Impact of Mobility in Wireless Adhoc Networks", Book Chapter in the book "Wireless Ad Hoc and Sensor Networks", Springer, October 2006, ISBN: 978-0-387-25483-8.

B8. F. Bai, A. Helmy, "A Survey of Mobility Modeling and Analysis in Wireless Adhoc Networks", Book Chapter in the book "Wireless Ad Hoc and Sensor Networks", Springer, October 2006, ISBN: 978-0-387-25483-8.

B9. K. Seada, A. Helmy, "Geographic Services for Wireless Networks", Book Chapter in the "Handbook of Algorithms for Wireless Networking and Mobile Computing" published by Chapman & Hall/CRC, pp. 343-364, January 2006, (Ed. A. Boukerche) ISBN: 1-58488-465-7.

B10. K. Seada, A. Helmy, "Geographic Routing in Sensor Networks", Chapter in the Encyclopedia of Sensors, American Scientific Publishers, Volume 4, pp. 193-204, 2006, ISBN: 1-58883-056-X (Set), ISBN: 1-58883-060-8 (Volume 4).

B11. S. Ghandeharizadeh, A. Helmy, B. Krishnamachari, F. Bar, T. Richmond, "Data Management Techniques for Continuous Media In Ad-Hoc Networks of Wireless Devices", Chapter, Encyclopedia of Multimedia, B. Furht (Ed.), Springer 2006, XXIII, ISBN: 978-0-387-24395-5.

B12. S. Ghandeharizadeh, A. Helmy, B. Krishnamachari, F. Bar, T. Richmond, "Data Discovery, Routing and Traffic Patterns", Book chapter, Encyclopedia of Multimedia, Furht, Borko (Ed.), Springer, Fall 2006, XXIII, Hardcover, ISBN: 978-0-387-24395-5.

B13. S. Ghandeharizadeh, A. Helmy, B. Krishnamachari, F. Bar, T. Richmond, "Placement of Continuous Media in Ad-Hoc Networks of Devices", Chapter, Encyclopedia of Multimedia, Furht, Borko (Ed.), Springer, Fall 2006, XXIII, Hardcover, ISBN: 978-0-387-24395-5.

B14. S. Ghandeharizadeh, A. Helmy, B. Krishnamachari, F. Bar, T. Richmond, "Mobility Modeling and Design for Mobility", Chapter, Encyclopedia of Multimedia, B. Furht (Ed.) Springer, 2006.

B15. Edited Book/Proceedings: A. Helmy, B. Jennings, L. Murphy, T. Pfeifer (Eds.), "Autonomic Management of Mobile Multimedia Services", Springer, LNCS4267, ISBN-13:978-3-540-47654-4, October 2006. (Proceedings of the 9th IFIP/IEEE Int'l Conf on Management of Multimedia and Mobile Networks and Services, MMNS).

B16. A. Helmy, "Efficient Resource Discovery in Wireless AdHoc Networks: Contacts Do Help", Book Chapter in "Resource Management in Wireless Networking", Springer, Series: Network Theory and Applications V. 16, 2005 (Eds: M. Cardei, I. Cardei, D. Zhu), ISBN:0-387-23807-7.

Edited Conference Proceedings

B17. Proceedings of the 4th ACM International Workshop on Hot topics in Planet-scale Measurement (*HotPlanet*), in conjunction with *ACM MobiSys*, June 2012.

B18. Proceedings of the 6th ACM workshop on Challenged networks (*CHANTS*), in conjunction with *ACM MobiCom*, Sept 2011.

B19. Proceedings of the 14th ACM international conference on Modeling, analysis and simulation of wireless and mobile systems (*MSWiM*), October 2011.

B20. Proceedings of the 6th *ACM International Wireless Communications and Mobile Computing Conference* (*IWCMC*), ACM, July 2010.

B21. Proceedings of the 11th *IEEE Global Internet Symposium* (in conjunction with *IEEE INFOCOM*), April 2008.

C. Refereed Conference Publications (published, accepted)

C1. U. Kumar, A. Helmy, "Discovering Trustworthy Social Spaces", *ACM SenSys – PhoneSense (Int'l Workshop on Sensing Applications on Mobile Phones)*, November 2012.

C2. A. Almutairi, M. Somaiya, S. Moghaddam, S. Ranka, A. Helmy, "A Global Local Modeling of Internet Usage in Large Mobile Societies", *ACM MSWiM – PM^{2}HW^{2}N*, October 2012.

C3. G. Thakur, P. Hui, A. Helmy, "A Framework for Realistic Vehicular Network Modeling using Planet-scale Public Webcams", *ACM MobiSys - HotPlanet (Workshop on Hot topics in Planet-Scale Measurements)*, June 2012.

C4. G. Thakur, P. Hui, A. Helmy, "Modeling and Characterization of Urban Streets' Vehicular Mobility Using Web Cameras", *IEEE INFOCOM – NetSciCom (Workshop on Network Science for Communication Networks)*, March 2012.

C5. G. Thakur, P. Hui, A. Helmy, "Spatial and Temporal Analysis of Planet Scale Vehicular Imagery Data", *IEEE International conference on Data Mining workshop on Spatial and Spatio-Temporal Data Mining (ICDM - SSTDM)*, December, 2011.

C6. S. Moghaddam, A. Helmy, "Multidimensional Modeling and Analysis of Wireless Users Online Activity and Mobility: A Neural-networks Map Approach", *ACM MSWiM (14th International Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems)*, Nov. 2011. [Acceptance rate: 23%]

C7. S. Moghaddam, A. Helmy, "*SPIRIT*: A Simulation Paradigm for Realistic Design of Mature Mobile Societies", *IEEE IWCMC (Int'l Conf. on Wireless Communications and Mobile Computing)*, pp. 232-237, July 2011.

C8. G. Thakur, U. Kumar, A. Helmy, W. Hsu, "On the Efficacy of Mobility Modeling for DTN Evaluation: Analysis of Encounter Statistics and Spatio-Temporal Preferences", *IEEE IWCMC (Int'l Conf. on Wireless Communications and Mobile Computing)*, pp. 510-515, July 2011.

C9. J. Kim, A. Helmy, "The Evolution of WLAN User Mobility and Its Effect on Prediction", *IEEE IWCMC (Int'l Conf. on Wireless Communications and Mobile Computing)*, pp. 226-231, July 2011.

C10. S. Moon, A. Helmy, "Design and Implementation of Mobile Networking Testbeds with Personality Profiles", *IEEE IWCMC Workshop on Multihop Wireless Network Testbeds and Experiments*, pp. 220-225, July 2011. [Acceptance rate: 35%]

C11. S. Moghaddam, A. Helmy, "Spatio-temporal Modeling of Wireless Users Internet Access Patterns Using Self-Organizing Maps", *IEEE INFOCOM (Int'l Conference on Computer Communications,* mini-conf), pp. 496-500, April 2011. [Acceptance rate: 23%].

C12. G. Thakur, M. Sharma, A. Helmy, "*SHIELD*: Social sensing and Help In Emergency using mobiLe Devices", *IEEE GlobeCom (Global Communications Conference)*, pp. 1-5, Dec 2010. [Acceptance rate: 27% for full presentations].

C13. S. Moon, A. Helmy, "Understanding periodicity and regularity of nodal encounters in mobile networks: A spectral analysis", *IEEE GlobeCom*, Dec 2010. [Rate: 27% for full presentations].

C14. S. Moghaddam, A. Helmy, "Internet Usage Modeling of Large Wireless Networks Using Self Organizing Maps", *IEEE Workshop on Scenarios for Network Evaluation Studies (SCENES)*, in conjunction with *IEEE MASS*, pp. 612 - 617 , Nov. 2010. [Acceptance rate: 16%].

C15. S. Moghaddam, A. Helmy, S. Ranka, M. Somaya, "Data-driven Co-clustering Model of Internet Usage in Large Mobile Societies", *ACM MSWiM (13th International Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems)*, pp. 248 - 256, Oct 2010. [Typical acceptance for MSWiM: 20%].

C16. U. Kumar, A. Helmy, "Extract: Mining Social Features from WLAN Traces: A Gender-Based Case Study", *ACM MSWiM*, pp. 240 - 247, Oct 2010.

C17. G. Thakur, A. Helmy, W. Hsu, "Similarity Analysis and Modeling in Mobile Societies: The missing link", *ACM MobiCom CHANTS Workshop (on Challenged Networks)*, pp. 13 - 20, September 2010.

C18. U. Kumar, G. Thakur, A. Helmy, "*PROTECT*: Proximity-based Trust-advisor using Encounters for Mobile Societies", (invited), *ACM IWCMC (6th Int'l Wireless Communications and Mobile Computing Conference)*, pp. 636 - 645, July 2010.

C19. J. Faruque, A. Helmy, "*TABS*: Link Loss Tolerant Data Routing Protocol for Multi-hop Wireless Sensor Networks", *IEEE Int'l Conf. on Sensor Networks, Ubiquitous and Trustworthy Computing (SUTC)*, pp. 11 - 18, June 2010.

C20. U. Kumar, A. Helmy, "Human behavior and Challenges of anonymizing WLAN traces", *IEEE Globecom (Global Communications Conference)*, pp. 1-6, November 2009.

C21. J. Kim, A. Helmy, "The Challenges of Accurate Mobility Prediction for Ultra Mobile Users", *Eurosis Modeling and Simulation (ESM) Conference*, pp. 297-301, October 2009.

C22. S. Begum, A. Helmy, S. Gupta, "Modeling and Test Generation for Worst-Case Performance Evaluation of MAC Protocols for Wireless Ad Hoc Networks", *IEEE/ACM MASCOTS (Int'l Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems)*, September 2009. [Acceptance rate: 20%].

C23. S. Wang, A. Helmy, "*BEWARE*: Background Traffic-Aware Rate Adaptation for IEEE 802.11", *Extended (plenary session) paper at IEEE WoWMoM (9th International Symposium on a World of Wireless, Mobile and Multimedia Networks)*, pp. 1-12, June 2008. [Acceptance rate of the plenary session: **7**% (13 of 181 submissions)] [Overall acceptance rate: 20%].

C24. J. Faruque, A. Helmy, "PBS: A Virtual Grid Architecture for Gradient-Based Active Querying in Sensor Networks", *ACM/IEEE Int'l Symposium on Collaborative Technologies and Systems (CTS), on Distributed Collaborative Sensor Networks (DCSN)*, pp. 9-18, May 2008.

C25. U. Kumar, A. Helmy, "Gender-based Grouping of Mobile Student Societies", *IEEE/ACM IPSN Int'l Workshop on Mobile Device and Urban Sensing (MODUS)*, April 2008.

C26. W. Hsu, D. Dutta, A. Helmy, "*Profile-Cast*: Behavior-Aware Mobile Networking", *IEEE WCNC (Wireless Communications and Networking Conference)*, pp. 3033-3038, March 2008.

C27. W. Hsu, T. Spyropoulos, K. Psounis, A. Helmy, *TVC:* "Modeling Time-variant User Mobility in Wireless Mobile Networks", *IEEE INFOCOM (Int'l Conference on Computer Communications)*, pp.758-766, May 2007. [Acceptance rate: 17%].

C28. F. Bai, A. Helmy, "Impact of Mobility on Mobility-Assisted Last Encounter Based Routing Protocols", *IEEE SECON (IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks)*, pp. 461-470, June 2007. [Acceptance: 20%].

C29. W. Hsu, D. Dutta, A. Helmy, "Mining Behavioral Groups in Large Wireless LANs", *ACM*

MobiCom (Int'l Conference on Mobile Computing and Networking), (short paper), pp. 338-341, September 2007. [In the top 11% of 233 submissions].

C30. S. Tanachaiwiwat, A. Helmy, "On the Performance Evaluation and Prediction of Encounter-based Worm Interactions Based on Node Characteristics", *ACM MobiCom CHANTS Workshop (on Challenged Networks)*, pp. 67 – 74, September 2007.

C31. S. Tanachaiwiwat, A. Helmy, "Worm Interactions in Encounter-Based Networks: Modeling and Realistic Analysis", *IEEE Int'l Computer Engineering Conf (ICENCO)*, December 2007.

C32. S. Begum, S. Gupta, A. Helmy, "Performance Analysis of Wireless MAC Protocols using a Search-based Framework", *IEEE MASCOTS (15th Int'l Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems)*, pp. 95-102, Oct. 2007.

C33. S. Tanachaiwiwat, A. Helmy, "Modeling and Analysis of Worm Interactions (War of the Worms)", *IEEE BroadNets* (*Int'l Conf on Broadband Communications, Networks & Systems)*, pp. 649-658, September 2007.

C34. S. Tanachaiwiwat, A. Helmy, "Computer Worm Ecology in Encounter-based Networks", *IEEE BroadNets*, pp. 535-543, September 2007.

C35. S. Tanachaiwiwat, A. Helmy, "Analyzing the Interactions of Self-Propagating Codes in Multi-hop Networks", *ACM SSS (8th Int'l Symposium on Stabilization, Safety, and Security of Distributed Systems)*, (short paper), pp. 582 - 581, November 2006.

C36. S. Wang, A. Helmy, "Performance Limits and Analysis of Contention-based IEEE 802.11 MAC", *IEEE LCN (IEEE Conference on Local Computer Networks)*, pp.418–425, Nov. 2006.

C37. Y. Kim, A. Helmy, "Attacker traceback with cross-layer monitoring in wireless multi-hop networks", *Proceedings of the ACM SASN (4th ACM Workshop on Security of ad hoc and sensor networks)*, pp. 123-134, October 2006.

C38. S. Tanachaiwiwat, A. Helmy, "Encounter-based Worms: Analysis and Defense", *IEEE Workshop on Wireless Mesh Networks (WiMesh)*, pp. 170-172, September 2006.

C39. W. Hsu, A. Helmy, "On Nodal Encounter Patterns in Wireless LAN Traces", *IEEE International Workshop on Wireless Network Measurement (WiNMee)*, 11 pages, April 2006. [Nominated for best paper award at USC EE Dept, 2006].

C40. W. Hsu, A. Helmy, "On Modeling User Associations in Wireless LAN Traces on University Campuses", *IEEE International Workshop on Wireless Network Measurement (WiNMee)*, 10 pages, April 2006.

C41. K. Nahm, A. Helmy, C.-C. Kuo, "TCP over Multihop 802.11 Networks: Issues and Performance Enhancement", *ACM MobiHoc (6thACM International Symposium on Mobile Ad Hoc Networking and Computing)*, pp. 277-287, May 2005. [Acceptance rate: 14% of 281 submissions].

C42. S. Ebrahimi, A. Helmy, S. Gupta, "TCP vs. TCP: a Systematic Study of Adverse Impact of Short-lived TCP Flows on Long-lived TCP Flows", *IEEE INFOCOM (Int'l Conference on Computer Communications)*, pp. 926-937, March 2005. [Acceptance rate: 17% of 1419 submissions] [Nominated for best paper award at USC EE, 2005].

C43. A. Das, D. Dutta, A. Helmy, A. Goel, J. Heidemann, "Low State Fairness: Lower Bounds and Practical Enforcement", *IEEE INFOCOM (Int'l Conference on Computer Communications)*, pp. 2436-2446, March 2005. [Acceptance rate: 17%].

C44. C. Li, W. Hsu, B. Krishnamachari, A. Helmy, "A Local Metric for Geographic Routing with Power Control in Wireless Networks", *IEEE SECON (Conference on Sensor and Ad Hoc*

Communications and Networks), pp. 229 - 239, September 2005. [Acceptance rate: 27% of 202].

C45. Y. Kim, A. Helmy, "*SWAT*: *S*mall *W*orld-based *A*ttacker *T*raceback in Ad-hoc Networks", *IEEE/ACM Mobiquitous Conference*, pp. 85-96, Jul 2005. [Acceptance rate: 35% of 127].

C46. S. Tanachaiwiwat, A. Helmy, "Correlation analysis for alleviating effects of inserted data in wireless sensor networks", *IEEE/ACM Mobiquitous Conf*, pp. 97-108, Jul 2005. [Rate: 35%].

C47. J. Faruque, K. Psounis, A. Helmy, "Analysis of Gradient-based Routing Protocols in Sensor Networks", *IEEE/ACM DCOSS (Int'l Conference on Distributed Computing in Sensor Systems)*, pp. 258 - 275, June 2005. [Acceptance rate: 28% of 85 submissions].

C48. K. Seada, M. Zuniga, A. Helmy, B. Krishnamachari, "Energy-Efficient Forwarding Strategies for Geographic Routing in Lossy Wireless Sensor Networks", *ACM SenSys (ACM Conference on Embedded Networked Sensor Systems)*, pp. 108-121, November 2004. [Acceptance: 14% of 145] [Nominated for best paper award at USC EE Dept, 2005].

C49. K. Seada, A. Helmy, R. Govindan, "On the Effect of Localization Errors on Geographic Face Routing in Sensor Networks", *IEEE/ACM IPSN (International Symposium on Information Processing in Sensor Networks)*, pp. 71-80, April 2004. [Acceptance rate: 33% of 150] [Nominated for best paper award at USC EE Dept, 2004].

C50. J. Faruque, A. Helmy, "*RUGGED*: RoUting on finGerprint Gradients in sEnsor Networks", *IEEE Int'l Conf on Pervasive Services (ICPS)*, pp.167-177, July 2004. [Acceptance rate: 36%].

C51. R. Chitradurga, A. Helmy, "Analysis of Wired Short Cuts in Wireless Sensor Networks", *IEEE Int'l Conference on Pervasive Services (ICPS)*, pp. 179-188, July 2004. [Acceptance rate: 36%].

C52. S. Tanachaiwiwat, P. Dave, R. Bhindwale, A. Helmy, "Location-centric Isolation of Misbehavior and Trust Routing in Energy-constrained Sensor Networks", *IEEE Workshop on Energy-Efficient Wireless Communications and Networks (EWCN), IEEE IPCCC*, pp. 463-470, April 2004.

C53. F. Bai, N. Sadagopan, A. Helmy, "*BRICS*: A Building-block approach for analyzing RoutIng protoCols in Ad Hoc Networks - A Case Study of Reactive Routing Protocols", *IEEE ICC (Int'l Conf on Communications)*, Vol. 6, pp. 3618-3622, June 2004. [Acceptance rate: 29%].

C54. K. Seada, A. Helmy, "*Rendezvous Regions*: A Scalable Architecture for Service Location and Data-Centric Storage in Large-Scale Wireless Networks", *IEEE/ACM IPDPS Int'l Workshop on Algorithms for Wireless, Mobile, Ad Hoc and Sensor Networks (WMAN)*, pp. 218 – 225, April 2004. [Acceptance: 32% of 60] [Recommended by the referees as one of the best papers].

C55. G. Bhaskara, A. Helmy, "TCP over Micro-mobility Protocols: Systematic Ripple Effect Analysis", *IEEE VTC (Vehicular Technology Conference)*, Vol. 5, pp. 3095 - 3099, Sept 2004.

C56. K. Seada, A. Helmy, "Efficient Geocasting with Perfect Delivery in Wireless Networks", *IEEE WCNC (Wireless Communications and Networking Conference)*, pp. 2551 - 2556, March 2004.

C57. D. Son, A. Helmy, B. Krishnamachari, "The Effect of Mobility-induced Location Errors on Geographic Routing in Ad Hoc Networks: Analysis and Improvement using Mobility Prediction", *IEEE WCNC (Wireless Communications and Networking Conference)*, pp. 189-194 March 2004.

C58. N. Sadagopan, F. Bai, B. Krishnamachari, A. Helmy, "*PATHS*: analysis of PATH duration Statistics and their impact on reactive MANET routing protocols", *ACM MobiHoc (ACM International Symposium on Mobile Ad Hoc Networking and Computing)*, pp. 245-256, June 2003. [Acceptance rate: 15% of 189 submissions].

C59. F. Bai, N. Sadagopan, A. Helmy, "*IMPORTANT*: A framework to systematically analyze the

Impact of Mobility on Performance of RouTing protocols for Adhoc NeTworks", *IEEE INFOCOM (22nd Joint Conference of the IEEE Computer and Communications Societies)*, pp. 825-835, San Francisco, CA, April 2003. [Acceptance rate: 20% of 1078 submissions] [Paper selected to the *Ad Hoc Networks Journal* for fast-track publication from INFOCOM's best].

C60. A. Helmy, "*TRANSFER:* Transactions Routing for Ad-hoc Networks with eFficient EneRgy", *IEEE GlobeCom (Global Telecom. Conf)*, pp. 398-404, December 2003. [Acceptance: 27%].

C61. G. Bhaskara, A. Helmy, S. Gupta, "Micro Mobility Protocol Design and Evaluation: A Parameterized Building Block Approach", *IEEE VTC (Vehicular Technology Conference), Symposium on IP Mobility*, pp. 2019 – 2024 October 2003. [Acceptance rate: 19% of 76].

C62. Y. Kim, J. Lee, A. Helmy, "Impact of Location Inconsistencies on Geographic Routing in Wireless Networks", *ACM MobiCom MSWiM Workshop (on Modeling, Analysis, Simulation of Wireless Mobile Systems)*, pp.124-127, Sept 2003. [Acceptance rate: 15% of 103].

C63. N. Sadagopan, B. Krishnamachari, A. Helmy, "The *ACQUIRE* Mechanism for Efficient Querying in Sensor Networks", *IEEE ICC SNPA Workshop (on Sensor Network Protocols and Applications)*, pp. 149-155, May 2003. [Acceptance: 37%].

C64. A. Helmy, S. Garg, P. Pamu, N. Nahata, "Contact Based Architecture for Resource Discovery (*CARD*) in Large Scale MANets", *IEEE/ACM IPDPS WMAN Workshop (on Wireless, Mobile and Ad Hoc Networks)*, pp. 219-227, Apr 2003. [Acceptance: 29%] [Paper selected for forwarding to the *ACM MONET Journal* for review and publication].

C65. A. Das, D. Dutta, A. Helmy, "Fair Stateless Aggregate Marking using Active Queue Management Techniques", *IEEE MMNS (the 5th Int'l Conference on Management of Multimedia Networks and Services)*, pp. 211-223, Santa Barbara, CA, October 2002. (*Winner of The Best Paper Award*).
[Ranked 1st of 76 submissions, review scores '5.0/5.0, 5.0/5.0, 5.0/5.0'. Acceptance rate: 33%].

C66. A. Helmy, "Architectural Framework for Large-Scale Multicast in Mobile Ad Hoc Networks", *IEEE ICC (International Conference on Communications),* Vol. 4, pp. 2036-2042, April 2002.

C67. A. Helmy, "State Analysis and Aggregation Study for Multicast-based Micro Mobility", *IEEE ICC (International Conference on Communications)*, Vol. 5, pp. 3301-3306, April/May 2002.

C68. K. Seada, A. Helmy, "Fairness Evaluation Experiments for Multicast Congestion Control Protocols", *IEEE GlobeCom (Global Communications Conference)*, Vol. 3, pp. 2614-2618, November 2002. [Acceptance rate: 30%].

C69. K. Seada, S. Gupta, A. Helmy, "Systematic Evaluation of Multicast Congestion Control Protocols", *SCS SPECTS Performance Evaluation of Computer and Telecommunications*, pp. 857-867, July 2002.

C70. A. Helmy, "A Multicast-based Protocol for IP Mobility Support", *ACM SIGCOMM NGC Workshop (2nd International Workshop on Networked Group Communication)*, Palo Alto, CA, ACM press, pp. 49-58, November 2000. [Acceptance rate: 24% of 49 submissions].

C71. A. Helmy, S. Gupta, D. Estrin, A. Cerpa, Y. Yu, "Systematic Performance Evaluation of Multipoint Protocols", *IFIP FORTE/PSTV (Formal Description Techniques & Protocol Specification, Testing, and Verification)*, pp. 187-202, October 2000. [Acceptance: 34% of 63].

C72. A. Helmy, D. Estrin, S. Gupta, "Systematic Testing of Multicast Routing Protocols: Analysis of Forward and Backward Search Techniques", *IEEE ICCCN (Int'l Conference on Computer Communications and Networks, IC3N)*, pp. 590-597, October 2000.

C73. D. Estrin, M. Handley, A. Helmy, P. Huang, D. Thaler, "A Dynamic Bootstrap Mechanism for

Rendezvous-based Multicast Routing", *IEEE INFOCOM (19th Joint Conference of the IEEE Computer and Communications Societies)*, Vol. 3, pp. 1090-1098, March 1999. [Acceptance rate: 30% of 600 submissions].

C74. A. Helmy, D. Estrin, S. Gupta, "Fault-oriented Test Generation for Multicast Routing Protocol Design", *IFIP FORTE/PSTV*, pp. 93-109, Paris, November 1998. [Acceptance rate: 30% of 85].

C75. A. Helmy, D. Estrin, "Simulation-based '*STRESS*' Testing Case Study: A Multicast Routing Protocol", *IEEE MASCOTS (6th Int'l Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems)*, Montreal, Canada, pp. 36-43, July 1998.

Refereed Conference Papers (Based on M.S., internships or semester projects):

C76. S. Wang, Y. Chen, T. Lee, A. Helmy, "Performance Evaluations for Hybrid IEEE 802.11b and 802.11g Wireless Networks", *IEEE IPCCC (24th International Performance Computing and Communications Conference)*, April 2005. [Acceptance rate: 32% of 115 submissions].

C77. S. Begum, S. Wang, B. Krishnamachari, A. Helmy, "*ELECTION*: Energy-efficient and Low-latEncy sCheduling scheme for wIreless sensOr NeTworks", *IEEE LCN (IEEE Conference on Local Computer Networks)*, November 2004. [Acceptance rate: 29% of 141 submissions].

C78. Y. Lu, H. Lin, Y. Gu, A. Helmy, "Towards Mobility-Rich Performance Analysis of Routing Protocols in Ad Hoc Networks: Using Contraction, Expansion and Hybrid Models", *IEEE ICC (Int'l Conf on Communications)*, Vol. 7, pp. 4346-4352, June 2004. [Acceptance rate: 29%].

C79. C. Shete, S. Sawhney, S. Herwadka, V. Mehandru, A. Helmy, "Analysis of the Effects of Mobility on the Grid Location Service in Ad Hoc Networks", *IEEE ICC (International Conference on Communications)*, Vol. 7, pp. 4341-4345, Paris, France, June 2004. [Acceptance rate: 29%].

C80. Y. Kim, V. Sankhla, A. Helmy, "Efficient Traceback of DoS Attacks using Small Worlds in MANET", *IEEE VTC (Vehicular Technology Conference)*, Vol. 6, pp. 3979-3983, Sept 2004.

C81. W. Hsu, K. Merchant, H. Shu, C. Hsu, A. Helmy, "Preference-based Mobility Model and the Case for Congestion Relief in WLANs using Adhoc Networks", *IEEE VTC (Vehicular Technology Conference)*, pp. 2962-2966, September 2004.

C82. S. Sharma, V. Alatzeth, G. Grewal, S. Pradhan, A. Helmy, "A Comparative Study of Mobility Prediction Schemes for GLS Location Service", *IEEE VTC*, Vol. 5, pp. 3125-3129, Sept 2004.

C83. D. Bhattacharjee, A. Rao, C. Shah, M. Shah, A. Helmy, "Empirical Modeling of Campus-wide Pedestrian Mobility: Observations on the USC Campus", *IEEE VTC*, pp. 2887 - 2891, September 2004.

C84. K. Nahm, A. Helmy, C.-C. J. Kuo, "On the Interaction between MAC and Transport Layers for Media Streaming in 802.11 Ad-hoc Networks", *SPIE ITCOM*, October 2004.

C85. F. Bai, A. Helmy, "Comparative Analysis of Algorithms for Tree Structure Restoration in Sensor Network", *IEEE Workshop on Energy-Efficient Wireless Communications and Networks (EWCN), with the IEEE IPCCC Conference*, pp. 385-392, April 2004.

C86. S. Begum, M. Sharma, A. Helmy, S. Gupta, "Systematic Testing of Protocol Robustness: Case Studies on Mobile IP and MARS", *IEEE LCN (IEEE Conference on Local Computer Networks)*, Florida, pp. 369-380, November 2000.

Refereed Extended Abstracts (Conference Posters, Demos, Whitepapers):

C87. G. Tuncay, G. Benincasa, A. Helmy, "Autonomous and Distributed Recruitment and Data Collection Framework for Opportunistic Sensing", SRC, *ACM MobiCom*, Aug 2012.

C88. G. Tuncay, S. Moon, A. Helmy, "Mobile Social Networking Testbed", *IEEE INFOCOM*, Apr, 2012.

C89. U. Kumar, A. Helmy, "Discoverying Trustworthy Social Spaces", *IEEE INFOCOM*, Apr, 2012.

C90. S. Moghaddam, Y. Parthasarathy, A. Dobra, A. Helmy, "Efficient Large-scale Data-driven Network Mining", *IEEE INFOCOM*, Apr, 2012.

C91. S. Moon, A. Helmy, "Embedding Friendship Contact Profiles in Mobile Nodes: Towards Realistic Mobile Social Networking Test Beds", SRC, *ACM MobiCom,* Sept 2011.

C92. S. Moghaddam, A. Helmy, S. Ranka, "Behavior-aware Traffic Modeling of Mobile Internet: An Information Theoretic Co-clustering Approach", *ACM MobiCom,* Sept 2011.

C93. G. Thakur, P. Hui, A. Helmy, "*GlobalSense*: A Framework for Studying Planet-Scale Vehicular Mobility", demo, *ACM MobiCom,* Sept 2011.

C94. A. Helmy, S. Ranka, "Large-scale Profile-based Behavioral Modeling, Networking and Computing", (white paper), *NSF Workshop on Pervasive Computing at Scale*, Jan 2011. [Acceptance rate: 24%, 57 of 229].

C95. S. Moon, A. Helmy, Demo: "Mobile Testbeds with an Attitude", *ACM MobiCom WiNTECH* [winner of the 2nd place prize], *ACM MobiCom*, Sept 2010, *IEEE GlobeCom*, Dec 2010.

C96. J. Kim, A. Helmy, Poster: "Analyzing Mobility Evolution in WLAN Users: How predictable are we?", *ACM MobiCom*, student research competition (SRC), Sept 2010. [SRC rate: 28%].

C97. U. Kumar, G. Thakur, A. Helmy, Poster: "Proximity-based Trust-advisor using Encounters", *ACM MobiCom*, SRC entry, Sept 2010. [Acceptance rate for SRC: 28%, 17 of 60].

C98. S. Moghaddam, A. Helmy, Poster: "Modeling of Internet Usage in Large Mobile Societies Using Self-Organizing Maps", *ACM MobiCom*, SRC entry, Sept 2010. [SRC rate: 28%].

C99. S. Moon, A. Helmy, Poster: "Spectral Analysis of Periodicity and Regularity for Mobile Encounters in Delay Tolerant Networks", *ACM MobiCom*, Sept 2010.

C100. U. Kumar, G. Thakur, W. Hsu, A. Helmy, Poster: "Practical Profile-based DTN Routing in Mobile Social Networks", *IEEE ICNP*, October 2009.

C101. S. Wang, A. Helmy, Poster: "BeWare: Wireless MAC rate adaptation Analysis and Testing", *ACM MobiCom*, Sept 2008. [Selected as one of the four SRC finalists for presentation].

C102. U. Kumar, A. Helmy, Poster: "How Private are WLAN traces?", *IEEE ICNP*, Oct 2008.

C103. G. Bhaskara, S. Gupta, A. Helmy, Poster: "Topology Generation for Protocol Design and Testing", *IEEE ICNP*, October 2008.

C104. J. Kim, A. Helmy, Poster: "The Challenges of Accurate Mobility Prediction for Ultra Mobile Users", *IEEE ICNP*, October 2008, *ACM MobiCom*, Sept 2008.

C105. S. Moon, U. Kumar, J. Kim, W. Hsu, A. Helmy, Demo: "Visualization and Representation of Mobile Network Users", *IEEE SECON*, pp. 588 - 590, Jun 2008, *IEEE ICNP* (Poster), Oct 2008.

C106. U. Kumar, S. Moon, W. Hsu, A. Helmy, Demo: "Visualization and Representation of Mobile Network Users", *IEEE INFOCOM*, April 2008.

C107. U. Kumar, N. Yadav, A. Helmy, Poster: "Gender-based Feature Analysis in Campus-wide WLANs", *ACM MobiCom*, Sept 2007. [among the best 3 posters at MobiCom 2007].

C108. W. Hsu, D. Dutta, A. Helmy, Poster: "Profile-Cast: Behavior-Aware Mobile Networking", *ACM MobiCom*, Sept 2007. [among the best 5 posters at MobiCom 2007].

C109. S. Tanachaiwiwat, A. Helmy, Demo: "Proof-of-Concept Worm Interactions via Mobile Devices", *ACM MobiCom CHANTS Workshop*, Sept 2007.

C110. J. Kim, Y. Du, M. Chen, A. Helmy, Poster: "Comparing Mobility and Predictability of VoIP and WLAN Traces", *ACM MobiCom Crawdad Workshop*, Sept 2007.

C111. U. Kumar, N. Yadav, A. Helmy, Poster: "Analyzing Gender-gaps in Mobile Student Societies: Method and Data Manipulation", *ACM MobiCom Crawdad Workshop*, Sept 2007.

C112. W. Hsu, D. Dutta, A. Helmy, Poster: "Structure of User Associations in Wireless LANs", *ACM MobiCom*, Sept 2006 [among the best posters at MobiCom 2006] [Also accepted to the Student Research Competition (SRC)].

C113. S. Tanachaiwiwat, A. Helmy, Poster: "Encounter-based Worms: Analysis and Defense", *IEEE SECON*, Sept 2006.

C114. W. Hsu, A. Helmy, Poster: "Principal Component Analysis of User Association Patterns in Wireless LAN Traces", *IEEE INFOCOM*, April 2006.

C115. W. Hsu, A. Helmy, Poster: "Capturing User Friendship in WLAN Traces", *IEEE INFOCOM*, April 2006.

C116. Y. Kim, A. Helmy, Poster: "Attacker Traceback and Countermeasure with Cross-layer Monitoring in Wireless Multi-hop Networks", *IEEE INFOCOM*, April 2006.

C117. S. Tanachaiwiwat, A. Helmy, Poster: "VACCINE: War of the Worms in Wired and Wireless Networks", *IEEE INFOCOM*, April 2006.

C118. S. Begum, A. Helmy, S. Gupta, Poster: "A Framework for Modeling, Test Generation and Performance Evaluation of Wireless AdHoc and Sensor MAC Protocols", *IEEE INFOCOM*, April 2006.

C119. W. Hsu, A. Helmy, Poster: "Encounter-based message broadcasting in ad hoc networks with intermittent connectivity", *ACM MobiHoc*, May 2005.

C120. K. Nahm, A. Helmy, C. Kuo, Poster: "Improving Stability and Performance of Multihop 802.11 Networks", *ACM MobiHoc*, May 2005.

C121. K. Merchant, W. Hsu, H. Shu, C. Hsu, A. Helmy, Poster: "Weighted Way Mobility Model and its Impact on Ad Hoc Networks", *ACM MobiCom,* Sep 2004. [Among the best posters at *MobiCom*].

C122. F. Bai, A. Helmy, Poster: "The Impact of Mobility on the Mobility-Assisted Information Diffusion Protocol", *IEEE INFOCOM*, March 2005.

C123. Y. Kim, A. Helmy, Poster: "*SWAT*: Small World-based Attacker Traceback in Ad-hoc Networks", *IEEE INFOCOM*, March 2005.

C124. K. Nahm, A. Helmy, C. Kuo, Poster: "The impact of probe traffic scale on the stability of multihop 802.11 networks", *IEEE INFOCOM*, March 2005.

C125. S. Ebrahimi, A. Helmy, S. Gupta, Poster: "A Systematic Simulation-based Study of Adverse Impact of Short-lived TCP Flows on Long-lived TCP Flows", *ACM SIGCOMM,* August 2004.

C126. J. Faruque, K. Psounis, A. Helmy, Poster: "Analysis of Gradient-based Routing Protocols in Sensor Networks", *ACM SIGCOMM,* August 2004.

C127. D. Bhattacharjee, A. Rao, C. Shah, M. Shah, A. Helmy, Poster: "Trace-based Mobility Modeling for Campus-wide Mobile Ad-hoc Networks", *ACM SIGCOMM,* August 2004.

C128. G. Grewal, S. Pradhan, S. Sharma, V. Alatzeth, A. Helmy, Poster: "A Comparative Study of

Mobility Prediction Schemes for Grid Location Service", *ACM SIGCOMM,* August 2004.

C129. A. Das, D. Dutta, A. Goel, J. Heidemann, A. Helmy, Poster: "Lower Bounds for Approximate Fairness", *ACM SIGCOMM,* August 2004.

C130. J. Faruque, A. Helmy, Poster: "Gradient-Based Routing in Sensor Networks", *ACM MobiCom,* Sept 2003. [Selected among the best posters at *MobiCom* 2003. Selection rate: 20% of 39].

C131. K. Seada, A. Helmy, R. Govindan, Poster: "On the Effect of Location Inaccuracy on Geographic Face Routing in Wireless Networks", *ACM MobiCom*, Sept 2003. [Selected among the best posters at *MobiCom* 2003. Selection rate: 20% of 39].

C132. K. Seada, A. Helmy, Poster: "*RRs*: A Scalable Architecture for Service Location and Data-Centric Storage in Large-Scale Wireless Networks", *ACM MobiCom*, Sept 2003.

C133. S. Wang, A. Helmy, Poster: "Effects of Small Transfers and Traffic Patterns on Performance and Cache Efficacy of Ad Hoc Routing", *ACM MobiCom*, September 2003.

C134. D. Son, J. Park, A. Helmy, Poster: "Mobility-Induced Location Errors and its Effect on Geographic Routing in Ad Hoc Networks", *ACM MobiCom*, September 2003.

C135. A. Das, D. Dutta, A. Helmy, Poster: "A Low-state Packet Marking Framework for Approximate Fair Bandwidth Allocation", *IEEE ICNP*, Nov 2003.

C136. S. Begum, S. Gupta, A. Helmy, Poster: "An Error Oriented Test Generation (*EOTG*) Framework for Wireless Adhoc MAC Protocols, *IEEE ICNP*, November 2003.

C137. S. Tanachaiwiwat, P. Dave, R. Bhindwale, A. Helmy, Poster: "Insecure Location Avoidance and Routing on Trust in Location-aware Sensor Networks", *IEEE ICNP*, November 2003.

C138. J. Faruque, A. Helmy, Poster: "Routing on Information Gradients in Sensor Networks", *IEEE ICNP*, November 2003.

C139. S. Wang, A. Helmy, Poster: "Effects of Small Transfers and Traffic Patterns on Performance and Cache Efficacy of On-Demand Ad Hoc Routing", *IEEE ICNP*, November 2003.

C140. K. Seada, A. Helmy, R. Govindan, Poster: "On the Effect of Localization Errors on Geographic Face Routing in Sensor Networks", *ACM SenSys*, pp. 312-313, November 2003.

C141. S. Tanachaiwiwat, P. Dave, R. Bhindwale, A. Helmy, Poster: "Secure Locations: routing on trust and isolating compromised sensors in location-aware sensor networks", *ACM SenSys*, pp.324-5, November 2003.

C142. K. Seada, A. Helmy, Poster: "Rendezvous Regions: A Scalable Architecture for Service Provisioning in Large-Scale Mobile Ad Hoc Networks", *ACM SIGCOMM*, August 2003.

C143. N. Nahata, P. Pamu, S. Garg, A. Helmy, Poster: "Efficient Resource Discovery for Large Scale Ad hoc Networks using Contacts", *ACM SIGCOMM*, Aug 2002. [Acceptance rate: 30% of 79].

C144. K. Dantu, S. Kapadia, R. Sinha, A. Helmy, Poster: "Modeling of Mobility-Induced Losses in MANETs (*MILMAN*)", *ACM SIGCOMM,* Aug 2002. [Acceptance rate: 30% of 79].

D. Internet Protocol Standards - IETF RFCs and Drafts

Internet Standards (IETF RFCs) and Proposed RFCs:

R1. D. Estrin, D. Farinacci, A. Helmy, D. Thaler, S. Deering, V. Jacobson, M. Handley, C. Liu, P. Sharma, L. Wei, "Protocol Independent Multicast - Sparse Mode (*PIM-SM*): Protocol Specification" ver. 2, *RFC 2362 of the Internet Engineering Task Force (IETF), Inter-Domain Multicast Routing (IDMR) Group*, June 1998. [A. Helmy one of four primary authors].

R2. D. Estrin, D. Farinacci, A. Helmy, D. Thaler, S. Deering, V. Jacobson, M. Handley, C. Liu, P. Sharma, L. Wei, "Protocol Independent Multicast - Sparse Mode (*PIM-SM*): Protocol Specification", *RFC 2117 of the Internet Engineering Task Force (IETF), Inter-Domain Multicast Routing (IDMR) Group*, June 1997. [A. Helmy one of four primary authors].

R3. D. Estrin, D. Farinacci, A. Helmy, D. Thaler, S. Deering, V. Jacobson, M. Handley, C. Liu, P. Sharma, L. Wei, "Protocol Independent Multicast (*PIM*): Motivation and Architecture", *Proposed RFC of the IETF, Inter-Domain Multicast Routing (IDMR) Group*, October 1996.

R4. D. Estrin, D. Farinacci, A. Helmy, V. Jacobson, L. Wei, "Protocol Independent Multicast - Dense Mode (*PIM-DM*): Protocol Specification", *Proposed IETF RFC for IDMR Internet Engineering Task Force (IETF), Inter-Domain Multicast Routing (IDMR) Group*, September 1996.

IETF Internet Drafts:

R5. A. Helmy, "Protocol Independent Multicast-Sparse Mode (PIM-SM): Implementation Document", *Internet-Draft of the IDMR/MBone Deployment (Mboned) Group,* January 1997.

R6. A. Helmy, D. Thaler, D. Estrin, L. Wei, "Protocol Independent Multicast-Sparse Mode (PIM-SM): Deployment Guidelines", *Internet-Draft of the IETF/Mboned Group*, December 1996.

R7. A. Helmy, D. Thaler, D. Estrin, "PIM Multicast Border Router (PMBR) specification for connecting PIM-SM domains to a DVMRP Backbone", *Internet-Draft of IDMR*, September 1996.

R8. S. Deering, W. Fenner, D. Estrin, A. Helmy, D. Farinacci, L. Wei, M. Handley, V. Jacobson, D. Thaler, "Hierarchical PIM for Inter-Domain Multicast Routing", *Internet-Draft of IDMR*, Dec 95.

R9. S. Deering, W. Fenner, D. Estrin, A. Helmy, D. Farinacci, L. Wei, M. Handley, V. Jacobson, D. Thaler, "Interoperability Mechanisms for PIM and DVMRP", *Internet-Draft of IDMR*, Dec 1995.

E. Technical Reports and Other Publications

Unrefereed Technical Reports and Posters:

T1. W. Hsu, A. Helmy, "*IMPACT*: Investigation of Mobile-user Patterns Across University Campuses using WLAN Trace Analysis", *USC-CS-TR-05-858*, August 2005.

T2. A. Helmy, "*PARSe*: Power-efficient Architecture for Resource-discovery and Small-transfers in Large-Scale Ad Hoc Networks", *USC-CS-TR-02-780*, July 2002.

T3. N. Sadagopan, B. Krishnamachari, A. Helmy, "The Acquire Mechanism for Efficient Querying in Sensor Networks", Poster at the Annual Research Review at the CENS Center, October 2003.

T4. A. Helmy, "Resource Discovery, Query Resolution and Rendezvous in Large-Scale Wireless Networks", Poster at NSF ECS Workshop on Sensor Networks and Systems, CENS, Sept 2003.

T5. A. Helmy, D. Estrin, S. Gupta, "STRESS Testing using Reduced Reachability Analysis: A Case Study for a Multicast Routing Protocol", *USC-CS-TR-98-690*, December 1998.

T6. S. Bajaj, L. Breslau, D. Estrin, K. Fall, S. Floyd, P. Haldar, M. Handley, A. Helmy, J. Heidemann, P. Huang, S. Kumar, S. McCanne, R. Rejaie, P. Sharma, S. Shenker, K. Varadhan, H. Yu, Y. Xu, D. Zappala, "Virtual InterNetwork Testbed (*VINT*): Status and Research Agenda", *USC-CS-TR-98-678*, June 1998.

Independent News Journals and News Commentaries:

T7. Featured Article "Shortcuts lighten wireless load", *LLC Technology Research News Journal (TRN)*, (trnmag.com), Iss 86, Aug 02. Also, *ACM TechNews*, Vol 4, Iss 391, August 26, 2002. Featuring: A. Helmy, "Small Large-Scale Wireless Networks: Mobility-Assisted Resource Discovery", *USC-CS-TR-02-770*, July 2002.

T8. Featured Article "Multicast promises lighter wireless Internet", *LLC TRN*, (trnmag.com), Issue 1, June 21, 2000. Featuring: A. Helmy, "Multicast-based Architecture for IP Mobility: Simulation Analysis and Comparison with Basic Mobile IP", *ACM SIGCOMM NGC* Workshop, 2002. C70]

T9. TRN News Journal. "Multicast in large, mobile ad hoc networks", (Commentary), Sept 2001.

F. Main Tool Development and Software Contributions

- The *iTrust* mobile application for trust establishment [https://code.google.com/p/itrust-uf/]
  This mobile app maintains statistics of encountered (nearby) devices and locations, and provides filtered homophily-based recommendations of potential trusted communications based on encounter-based secure keys. Releases: Nokia N810 June 2010, Android June 2011.

- The *TVC* realistic mobility modeling tool: [http://nile.cise.ufl.edu/TVC_model]
  The software provides the time varying community (*TVC*) model, that was based on analysis of extensive traces from libraries of wireless networks measurements. Released May 2007.

- The *MobiLib* library of mobile networks traces: [http://www.cise.ufl.edu/~helmy/MobiLib]
  This is a community-wide library of wireless networks measurements, simulation modules and test-suite benchmarks, that aims to serve as a main reference for future research on wireless networks. The measurements are collected from university campuses, and are used for realistic mobility and traffic modeling in wireless mobile networks. Current library participants include several top universities; UF, USC, Dartmouth, UCSD, MIT, Gatech, UIUC, UCLA, etc. Downloaded hundreds of times by researchers in the field.

- The *IMPORTANT* mobility modeling and analysis tool: [http://nile.cise.ufl.edu/important]
  This package provides a tool for simulating various mobility models for mobile ad hoc networks, currently supporting group (*RPGM*), freeway (*FW*), Manhattan (*MH*), and Random (*RWP*) mobility models. It also provides a suite of tools to facilitate analysis of mobility characteristics, link statistics and protocol simulation traces. It is as part of my NSF CAREER project.
  The tool is currently integrated with the network simulator (*NS-2*) (released in Jan '04 and Aug '05) and contributed to the *NS-2* simulation package. The *IMPORTANT* mobility tool has been heavily cited (over 1000 times) in recent literature published in leading conferences and journals.

- The *STRESS* systematic testing method: [http://www.cise.ufl.edu/~helmy/stress-page.html]
  This work a tool for automatic test synthesis for networking protocols, implementing novel topology synthesis and fault-oriented test generation algorithms. The method has been used in over 15 published case studies on various protocols, and supports testing of multicast routing protocols, multicast congestion control, reliable multicast, Mobile IP, micro-mobility protocols, geographic routing in wireless networks and MAC protocols for ad hoc networks. I provided the basic concepts for the method, developed the test synthesis algorithms and implemented the initial version for the tool.

- The Network Simulator (*NS-2*): [http://www.isi.edu/nsnam/vint]
  NS-2 is one of the most commonly used simulators in networking research. *NS-2* has been used by hundreds of universities and research institutes around the world (cited over 1100 times) for protocol evaluation and analysis, and has been cited in thousands of publications and studies. I was one the main architects on the original *VINT* team to develop and implement the *NS-2* simulator (in collaboration mainly with D. Estrin, S. Floyd, S. McCanne, L. Breslau, K. Fall, J. Heidemann). I was the main developer of the multicast protocols (*PIM-SM*, *PIM-DM*, *DVMRP*), LAN models, selective loss, scenario generation, and multicast stress testing (*STRESS*).

- PIM-SM Daemon (*pimd*): [http://www.cise.ufl.edu/~helmy/projects.html#pim]
  I was the original designer and developer of *pimd*; the reference implementation of the Protocol Independent Multicast - Sparse Mode (*PIM-SM*), according to the PIM-SM-v2 specification RFCs 2117 and 2362 (cited over 1200 times). The code was the reference for the SGI Irix and SunOS implementations, and was/is used by numerous vendors (e.g., Silicon Graphics (SGI), Cisco, Sun) and researchers for using, interoperability testing and to study multicast routing. *PIM-SM* is the Internet standard for multicast routing.

V. RESEARCH FUNDING: GRANTS AND CONTRACTS

At the University of Florida

G1.   National Science Foundation (NSF) – *NeTS ANET* (Aware Networks) – sole PI
"Interest-Aware Delivery for Future Mobile Social Networks: A *TRACE*-driven Approach"
Award Amount: $352,000. Date: Oct 1, 2008 – Sept 30, 2013.

G2.   Cisco – sole PI
"Human-Centric Networking: Interest-centric delivery via user profiling for future social networks"
Award Amount: $87,750. Date: Summer 2008. (project continued until summer 2012)

G3.   National Science Foundation *(NSF)* – *CAREER* (sole PI) [continuation of G6]
"*Adaptive Architecture for Multicast Service Support in Large-Scale Mobile Ad Hoc Networks: Design and Evaluation Framework*"
Award Amount: $93,200. Duration: August 2006 – June 2008.

G4.   National Science Foundation *(NSF)* – *NeTS NOSS* [continuation of G5]
 "*ACQUIRE*: Data Centric Active Querying in Sensor Networks"
Award Amount: $258,000 (A. Helmy's share). Duration: August 2006 – September 2008.

At the University of Southern California

G5.   National Science Foundation (*NSF*) – *NeTS NOSS* (co-PI with B. Krishnamachari, USC)
"*ACQUIRE*: Data Centric Active Querying in Sensor Networks"
Award Amount: $750,000. Duration: September 2004 – September 2007 (A. Helmy's share 50%).
 (Acceptance rate: 9% of 161 proposal submissions)

G6.   National Science Foundation (*NSF*) – *CAREER* (sole PI)
"*Adaptive Architecture for Multicast Service Support in Large-Scale Mobile Ad Hoc Networks: Design and Evaluation Framework*"
Award Amount: $375,000. Duration: June 2002 – May 2007.
[*Highly Recommended*. Award rate: 17% of over 2300. Highly recommended rate: below 10%]

G7.   National Science Foundation (*NSF*) - CISE, HDCCSR program (co-PI with S. Gupta, USC)
(Joint with *NASA* - HDCP) "*Obtaining Highly Dependable Communication Protocols*"
Award Amount: $640,000. Duration: September 2002 – August 2007 (A. Helmy's share 50%).

G8.   Intel research Grant/Award (sole PI)
"*Efficient Provisioning for Services in Large-scale Wireless-Wired Networks*"
Award amount: $191,000. Duration: December 2002 – December 2004.

G9.   Pratt & Whitney UTC Institute for Collaborative Engineering – PWICE (co-PI)
"*Networked Wireless Multimedia and Gaming for Aircraft Diagnosis and Repair*"
Award Amount: $750,000. Duration: December 2002 – December 2005 (A. Helmy's share 20%).
Co-PIs: S. Narayanan, R. Zimmerman, A. Ortega, C. Papadopoulos, USC

G10.   *DARPA* – Next Generation Internet (NGI)
"*STRESS: Systematic Testing of protocol Robustness by Evaluation of Synthesized Scenarios*"
Award Amount: $745,000. Duration: June 1998 – June 2002 (A. Helmy's share 33.33%).
Co-PIs: Sandeep Gupta, Deborah Estrin, USC

G11.   Zumberge Award for Individual Research - USC (sole PI)
"*Power-aware Wireless Routing (PoWeR) Protocols*"
Award Amount: $15,000. Duration: June 2000 – June 2001.

G12.   Nortel Networks (sole PI)
        "*M&M: Multicast-based Mobility*"
        Award Amount: $50,000. Duration: February 2000 – February 2001.

G13.   Hewlett-Packard Equipment Grant (sole PI)
        "*Computer Networks Design and Testing (ProTest) Laboratory*"
        Award Amount $63,000. Date: July 2000 (Award rate: 20% of submitted proposals).

G14.   Siemens AG - Germany (sole PI)
        "*Testing and Verification of Network Security Protocols*"
        Award Amount: $12,000. Duration: April 2004 – December 2004.

 Other: internal or laboratory grants/awards at UF and USC, student internships, travel grants:

G15.   UF Computer and Information Science and Engineering (CISE) Department
        "Wireless Mobile Networks Laboratory"
        Award Amount: $100,000. Date August 2006.

G16.   Intel Equipment Grant (with C.S. Raghavendra, to the networking group)
        "*Computer networks eduction and research*"
        Award Amount: $200,000 (20 PCs, 20 IXP boards). Date: July 2002 (A. Helmy's share 50%)

G17.   Intel Equipment (with B. Krishnamachari) + Engineering Dean's Grant (with R. Govindan)
         "*Wireless and Sensor Networks Laboratory*"
        Award Amount: $22,000 (130 sensors+15 stargate nodes) Date: May 2005 (Helmy's share 40%)

G18.   USC Electrical Engineering – Systems (sole PI)
        "*Computer Networks Design and Testing (ProTest) Laboratory*"
        Award Amount: $60,000. Date September 1999.

G19.   Funded collaborative student internships (selected): Intel ('04, '06, '07), Siemens ('04),
        Qualcomm ('05, '06, '07), Smart Dust ('05), USC Information Science Institute (ISI) ('07, '08,
        '09), Google ('07), Cisco ('08), Deutsche Telecom (T-labs) ('10, '11), Florida Institute for
        Human & Machine Cognition (IHMC) ('11), Amazon ('10, '12), IBM research ('11), Disney
        research ('12).

        Student travel grants (selected): ACM SICOMM ('02, '04), IEEE INFOCOM ('99, '05, '07, '12),
        ACM MobiCom ('03, '07, '09, '10, '12), IEEE ICNP ('08, '09), IEEE GlobeCom ('10), IEEE
        MASS ('10), IEEE ICDM ('11), IEEE MilCom ('12), ACM SenSys ('04, '12), ACM MobiSys
        ('12).

VI. STUDENT SUPERVISION, MENTORING AND TEACHING

Doctoral (Ph.D.) Students and Dissertations Supervised - (including 4 female students)

1. **Debojyoti Dutta:** (Fall '01 - Summer '04), [co-advisor with A. Goel and J. Heideman], USC
   Topic: "Low-state Mechanisms to Protect the Network from Greedy and Malicious Agents".
   Ph.D. May 2004. Post Doctoral researcher, USC ('04-'06), Cisco ('07-).

2. **Karim Seada:** (Fall '00 - Summer '05), USC
   Topic: "Robustness of Geographic Protocols in Wireless Ad Hoc and Sensor Networks".
   Ph.D. May 2005. Smart Dust ('05), Nokia Research ('05-'11), Huawei Innovation ('11-).

3. **Fan Bai:** (Spring '00 - Summer '05), USC
   Topic: "Mobility Modeling and Analysis in Wireless Ad Hoc and Sensor Networks".
   Ph.D. June 2005. Currently at General Motors Research Labs, Detroit, MI.

4. **Narayanan Sadagopan:** (Fall '01 - Summer '05), [co-chair with B. Krishnamachari], USC
   Topic: "Mathematical Techniques for Optimizing Data Gathering in Sensor Networks".
   Ph.D. May 2005. Yahoo! Research Labs ('05-'12), Netflix ('12-).

5. **Kitae Nahm:** (Fall '02 - Spring '05), [co-advisor with C-C. Jay Kuo], USC
   Topic: "On the Scale of Probe Traffic for Transport Protocols".
   Ph.D. Spring 2005. Samsung, Irvine, CA ('05-'08), Microsoft ('08-).

6. **Yongjin Kim:** (Fall '02 - Summer '06), USC
   Topic: "Traceback for DoS Attack Detection using Small Worlds in Mobile Adhoc Networks"
   Ph.D. July 2006. Currently at QualComm, Security Division, San Diego, CA.

7. **Jabed Faruque:** (Fall '01 - Spring '07), USC
   Topic: "Gradient-based Routing in Sensor Networks".
   Ph.D. May 2007. Currently at Cisco, CA.

8. **Shamim Begum:** (Spring '01 - May '09), [co-advised by Sandeep Gupta], USC
   Topic: "Worst Case Performance Evaluation of MAC Protocols for Wireless Ad Hoc Networks ".
   Ph.D. Jan 2009. At Intel, Portland, OR.

9. **Ganesha Bhaskara:** (Spring '03 - Fall '09), [co-advised by Sandeep Gupta], USC
   Topic: "Systematic Testing of Protocols using Automatic Stress Topology Synthesis".
   Ph.D. November 2009. At the Information Sciences Institute (ISI), USC.

10. **Shirin Ebrahimi:** (Fall '02 - May '09) [co-advised by Sandeep Gupta], USC
    Topic: "Systematic Testing of Performance and Robustness for Transport Protocols with Congestion Control".
    Ph.D. Jan 2009. Currently at Microsoft, Redmond, WA.

11. **Sapon Tanachaiwiwat:** (Spring '03 - Fall '07), USC
    Topic: "Analysis of Worm Propagation and Interactions in Wired and Wireless Networks"
    Ph.D. Fall 2007. Currently at Innovative Scheduling, Inc, Gainesville, FL.

12. **Shao-Cheng Wang:** (Fall '02 - Summer '08) Started at USC, graduated from UF
    Topic: " A Unified Framework For Performance Analysis of Contention-based Wireless MAC: Case Studies on QoS, Heterogeneity and Rate-adaptation In 802.11".
    Ph.D. Summer 2008. Intel ('08-'11), Broadcom ('11-).

13. **Wei-jen Hsu:** (Spring '04 - Summer '08) Started at USC, graduated from UF
    Topic: ""Behavioral Analysis, User Modeling, and Protocol Design based on Large-scale Wireless Network Traces"
    Ph.D. Summer 2008. Currently with Cisco, San Jose, CA.

14. **Sungwook Moon:** (Summer '07 - Fall '11), UF
    Topic: "Mobile Encounters: Pattern Analysis and Profile-based Mobile Networking Testbeds".
    Ph.D. Fall 2011. Currently at Microsoft, Redmond, WA.

15. **Udayan Kumar:** In progress (Fall '08 – Fall '12), UF
Topic: "Analyzing Social Markers from Mobile Network Traces based on Location, Mobility and Proximity".
Ph.D. Fall 2012.

16. **Saeed Mughaddam:** In progress (Spring '09 – Fall '12), UF
Topic: "Big Data Mining of Mobile On-line Activity and Network Traffic in Behavior-aware Protocol Design".
Ph.D. Fall 2012.

17. **Gautam Thakur:** In progress (Spring '09 – Fall '12), UF
Topic: "Data-Driven Modeling of Large-scale Mobile Networks: Community and Vehicular Mobility".
Ph.D. Fall 2012.

18. **Jeeyoung Kim:** In progress (Summer '07 – Spring '13), UF
Topic: "Predictability and Evolution of User Mobility in Wireless Networks".
Ph.D. Spring 2013 (Expected).

19. **Yibin Wang:** In progress (Summer '08 -), UF [Expected graduation Fall '13]
Topic: "Ranking the Mobile Society" (tentative).
Passed Ph.D. quals exam Sp '10.

20. **Guliz Tuncay:** In progress (Fall '11 -), UF.
Topic: "Profile-based Participatory Sensing and Networking".
Passed Ph.D. quals exam Sp '11.

Ph.D. Student Awards (Selected):

- Guliz Tuncay: ISOC scholarship, Grace Hopper celebration of women in computing 2012 – nominated for UFIC outstanding international student award 2012.
- Udayan Kumar: Ph.D. Gator Engineering attribute award for creativity 2012 – nominated for UFIC outstanding international student award 2011.
- Saeed Moghaddam: UFIC outstanding international student award 2011.
- Shao-Cheng Wang: UF fellowship 2006-2008 – teaching award USC 2006.
- Wei-Jen Hsu: UF fellowship 2006-2008 - USC dean fellowship 2004-2006, nominated for the best paper award in EE, USC, 2006.
- Shirin Ebrahimi: nominated for the best paper award in EE, USC, 2005.
- Karim Saeda: nominated for the best paper award in EE, USC, 2004 (for 2 papers) and 2005.
- Fan Bai: nominated for the best paper award in EE, USC, 2003 and 2004.
- Narayanan Sadagopan: research student of the year award in computer science, USC, 2003-2004.

Master Theses Supervised

- **Udayan Kumar:** Graduation date: July 2008, UF
Topic: "Gender-based Analysis in Wireless Network Traces"

- **Rohan Chitradurga:** Graduation date: September 2004, USC
Topic: "Analysis of Wired Short Cuts in Wireless Sensor Networks"

- **Vishal Sankhla:** Graduation date: November 2004 [co-advised by Clifford Neuman], USC
Topic: "Establishing Security Associations using Small Worlds of Trust in Ad Hoc Networks"

- **Ganesha Bhaskara:** Graduation date: June 2002, USC
Topic: "Multicast based Micro-Mobility Protocol: Design and Evaluation"

Examination Committees

- *Ph.D. students advising at U Florida:* Wei-Jen Hsu, Shao-Cheng Wang, Sungwook Moon, Jeeyoung Kim, Yibin Wang, Udayan Kumar, Saeed Mughaddam, Gautam Thakur, Guliz Tuncay.

- *Ph.D. Dissertation Defense Committees* - as advisor or co-advisor - to 17 students:
  At UF: 1. Wei-Jen Hsu (Aug '08), 2. Shao-Cheng Wang (Aug '08), 3. Sungwook Moon (Dec '11), 4. Udayan Kumar (Oct '12), 5. Saeed Moghaddam (Nov '12), 6. Gautam Thakur (Nov '12).

  At USC: 1. Ganesha Bhaskara (Nov '09, co-chair with S. Gupta), 2. Shamim Begum (Jan '09, co-chair with S. Gupta), 3. Shirin Ebrahimi-Taghizadeh (Jan '09, co-chair with S. Gupta), 4. Sapon Tanachaiwiwat (September '07), 5. Jabed Faruque (May '07), 6. Yongjin Kim (July '06), 7. Kitae Nahm (Jan '05, co-advisor with C.-C. Jay Kuo (advisor)), 8. Karim Seada (May '05), 9. Fan Bai (June '05), 10. Narayanan Sadagopan (May '05, co-chair with Bhaskar Krishnamachari), 11. Debojyoti Dutta (May '04, co-advisor with Ashish Goel (advisor) and John Heidemann).

- *Ph.D. Dissertation Proposal (Candidacy/Quals) Committee* as advisor/co-advisor to 18 students:
  At UF: Jeeyoung Kim (April '12), Gautam Thakur (April '12), Udayan Kumar (December '11), Saeed Moghaddam (June '11), Sungwook Moon (Dec '10), Shao-Cheng Wang (Feb '08), Wei-Jen Hsu (Jan '08).

  At USC: Ganesha Bhaskara (May '07), Shirin Ebrahimi (May '07), Shamim Begum (May '06), Sapon Tanachaiwiwat (Jul '06), Jabed Faruque (Jan '06), Yongjin Kim (Dec '05), Karim Seada (April '04), Fan Bai (November '04), Narayanan Sadagopan (Dec '03, co-chair with Bhaskar Krishnamachari), Kitae Nahm (June '03, co-advisor with C.-C. J. Kuo), Debojyoti Dutta (May '03, co-advisor with Ashish Goel (advisor) and John Heidemann).

- *Ph.D. Dissertation Defense Committee Member* (non-advisor) to:
  Abdullah Almutairi (7/12, advisor: S. Ranka), Tao Li (3/12, advisor: S. Chen), Chunglae Cho (9/11, advisor: Y. Xia), Ming Zhang (11/10, advisor: S. Chen), Xin Li (5/06, advisor: R. Govindan), N. Vanitchanant (11/05, advisor: J. Silvester), Mitali Singh (11/05, advisor: V. Prasanna), Yu He (5/05, advisor: C. Raghavendra), Di-Fa Chang (3/05, advisors: R. Govindan, J. Heidemann), Khushboo Shah (3/05, advisor: E. Jonkheere), Hui Zhang (3/05, advisors: R. Govindan, A. Goel), Xuan Chen (4/04, advisor: J. Heidemann), Kun-chan Lan (12/03, advisor: J. Heidemann), Lei Huang (12/02, advisor: C.-C. Jay Kuo), S. Hwang (12/02, advisor: K. Kesselman), Amy Hughes (9/02, advisor: Joe Touch), Ya Xu (8/02, advisors: Deborah Estrin and John Heidemann), Hongsuda Tangmunarunkit (6/02, advisor: Ramesh Govindan).

- *Ph.D. Dissertation Proposal (Qualification) Committee Member* to:
  X. Liu (9/12, advisor: A. Li), T. Dinh (4/12, advisor: M. Thai), A. Almutairi (1/12, advisor: S Ranka), C Cho (9/10, advisor: Y. Xia), M Zhang (2/10, advisor: S. Chen), K Yedavali (3/06, advisor: B. Krishnamachari), A Pathak (2/06, adv: V Prasanna), S Yoon (11/05, adv: C Shahabi), Y Kim (10/05, advisor: R Govindan), S Kapadia (9/05, adv: B Krishnamachari), M Zuniga (8/05, adv: B Krishnamachari), L Huang (5/05, adv: B Boehm), T Spyropoulos (5/05, adv: K Psounis), G Lu (1/05, adv: B Krishnamachari), F Stann (10/04, adv: J Heidemann), Y Wang (5/04, adv: J Silvester, J Touch), X Li (5/04, adv: R Govindan), Y He (12/03, adv: C Raghavendra), R Roshandel (12/03, adv: N Medvidovic), D Chang (11/03, adv: R Govindan, J Heidemann), M Singh (11/03, adv: V Prasanna), MS Quasem (10/03, adv: S Gupta), A Bakshi (9/03, adv: V. Prasanna), M Mikic-Rakic (8/03, adv: N Medvidovic), H Zhang (4/03, adv: A Goel, R Govindan), S Cho (3/03, adv: A Goel), J Kim (1/03, adv: D Lee), S Kumarasamy (9/02, adv: S Gupta, M Breuer), X Chen (8/02, adv: J Heidemann), K Lan (5/02, adv: J Heidemann), N Vanitchanant (1/02, adv: J Silvester), S Hwang (12/01, adv: K Kesselman), D Kang (11/01, adv: J Gaudiot), Y Xu (9/01, adv: D Estrin, J Heidemann), K Shah (8/01, adv: E Jonkheere), L. Huang (5/01, adv: C Kuo), H Tangmunarunkit (3/01, adv: R Govindan), J Jeong (9/00, adv: M Dubois), A Chankhunthod (8/00, advisor: P Danzig).

- *M.S. Thesis Defense Committee - as advisor - to 4 students:*
  Udayan Kumar (July '08), Vishal Sankhla (Nov '04), Rohan Chitradurga (Sept '04), Ganesha Bhaskara (June '02).

- *M.S. Thesis Defense Committee Member* to: Xiaoyang Gao (Jun 11, advisor: S Ranka), Divya Devaguptapu (Oct03, advisor: B Krishnamachari).

- *Mentor to M.S. students (without thesis):*
  - Jigyasa Yadav, M.S., UF. Project: Trust & SOS (now at Qualcomm).
  - Radhika Apte, M.S., UF. Project: Trust & SOS.
  - Upanita Goswami, M.S., UF. Project: Aware & Trust. (now at RIM)
  - Marco Zuniga, M.S., USC. Project: Realistic Geographic Routing (finished Ph.D. with Prof. Krishnamachari, USC. '06-'08 Xerox research, '08-'10 post-doc DERI, '10-'12 Univ. Duisburg-Essen, '12- Assistant Prof. at TU (Technology Univeristy) Delft-Netherlands)
  - Meeta Sharma, M.S., USC. Project: STRESS (continued Ph.D. at Harvard)
  - Shyam Kapadia, M.S., USC. Project: MILMAN, Vehicular networking (finished Ph.D. with Prof. Krishnamachari & Ghandeharizadeh, USC. Now at Cisco)
  - Ojiakonobi Udezue, M.S., USC. Project: STRESS (now at Microsoft)
  - Tarik Khan, M.S., USC. Project: STRESS (finished Ph.D. from Arizona)
  - Prachi Jain, M.S., USC. Project: STRESS.

- *M.S. (non-thesis) Advisor* to 47+ students at USC and UF (6 female students):
  Meeta Sharma (F'99-F'00) [PhD at Harvard], Tarek Khan (Sp'00-Sp'01) [PhD from Arizona], Oji Udezue (Sp'00-Sp'01) [Microsoft], H Shah (F'00-F'01), Prachi Jain (F'00-F'01), Vishal Asthana (Sp'01-Sp'02), P Pamu (F'01-F'02), N Nahata (Sp'02-F'02), S Garg (F'02-Sp'03), K Dantu (F'01-F'02) [PhD USC, Postdoc Harvard], Shyam Kapadia (F'01-F'02) [PhD USC, Cisco], Joshua Train (Sp'02-Sp'03), Baharak Shademan (Sp'02-F'02), Abhimanyu Das (F'01-F'02) [PhD USC], S Sawhney (F'02-S'03), V Mehandru (Sp'03), S Herwadkar (Sp'03), C Shete (Sp'03), Y Gu (Sp'03), H Lin (S'03), Y Lu (Sp'03), P Dave (Sp'03), R Bhindwale (Sp'03), J Lee (Sp'03), Dongjin Son (Sp'03) [PhD USC], J Park (Sp'03), S Sharma (Sp'03-Sp'04), C Shah (Sp'04), V Alatzeth (F'03–S'04), G Grewal (F'03–S'04), D Bhattacharjee (F'03–Sp'04), A Rao (F'03–Sp'04), K Merchant (Sp'04-Sp'05), M Shah [Eng. Degree S'05], Marco Zuniga (F'01-F'04) [PhD at USC], Nikhil Yadav (Sp'07-Sp'08), Upanita Goswami (Sp'10-Su'11), Jigyasa Yadav (Sp'11-Sp'12), Radhika Apte (Sp'11-Su'12).

- *Undergraduate Projects Supervised*
  - Philip Weinberg, Spring 2011, UF: Senior project title: Geo Puzzle
  - Tobias Work, Spring 2009, UF: Senior project title: Mobile Application for Measurement and Sharing of Vehicle's Acceleration.

Teaching Record

- *At the University of Florida:*

I have taught the following courses at UF (new courses introduced and developed marked with '*'):

- ▪ * CIS 6930 Wireless Mobile Networks Design and Analysis
  - Spring '07 - Spring '08

- ▪ * CIS 4930 / 6930 Mobile Networking

  - Spring '09 - Spring '10 - Spring '11 - Spring '12.

- ▪ CNT 5106C Computer Networks: Fall '08 - Fall '09 – Fall '12.

- ▪ CEN 4500C Computer Networks Fundamentals: Fall '07.

- ▪ CNT 4007 Computer Networks Fundamentals: Fall '11.

I have established the Wireless Mobile Networks Laboratory at the Computer and Information Science and Engineering (CISE) Dept at UF. The laboratory was established by funds to A. Helmy from NSF, Intel, and UF. The laboratory includes computer servers for extensive simulations and analyses, handheld mobile devices for ad hoc, mesh and encounter-based networking, and wireless motes for sensor networking. The laboratory also houses one of the most extensive wireless measurements libraries (*MobiLib*). I have received the Dean's teaching excellence appreciation for CIS6930 - Spring 2008, CNT5106C - Fall 2008, CIS4930/6930 - Spring 2009.

- *At the University of Southern California:*

I have taught the following courses at USC (new courses introduced and developed marked with '*'):

- ▪ EE-555 Broadband Networks Architecture (F'99,S/F'00,F'00,F'01,F'02,S/F'03,S/F'04,S/F'05,S'06)

- ▪ * EE-599: Special Topics 'Internet Protocol Design, Simulation and Testing' (Fall '00).

- ▪ * EE-499: Introductory Computer and Wireless Networking Laboratory (Spring '02)

- ▪ * EE-599: Wireless Networking, Design & Analysis Laboratory (Spring '03, Spring '04).

- ▪ * EE-579: Wireless and Mobile Networks Design and Laboratory (Spring '05, Spring '06). [This is the regular version of the 499 and 599 earlier Labs.]

I was the sole founder and director of the 'Wireless Networking Design and Analysis Laboratory'; the first and instructional wireless networking laboratory at USC. I have established the laboratory using individual funding grants from HP (equipment grant), USC Zumberge award, and Intel (equipment grant), among others. This laboratory supports the instruction of the EE499, EE599 and EE579 courses.

I received 'Faculty Honor Roll on Teaching' (evaluation above 4.5/5) for the courses:
EE-555:Sp'00,F'00, F'01,F'02,Sp'03,F'03,Sp'04,F'04,Sp'05,F'05,Sp'06. EE-599: F'00, Sp'03, Sp'04.
EE-499: Sp'02. EE-579: Sp'05,Sp'06.

Teaching Evaluations

	Course Number	Course Title	Semester	Number of Students	Evaluation (out of 5)
28	CIS-6930	Mobile Networking	Spring 2012	20	4.70
	CIS-4930				**5.00**
27	CNT-4007	Computer Networks Fundamentals	Fall 2011	37	4.47
26	CIS-6930	Mobile Networking	Spring 2011	34	4.63
	CIS-4930				**5.00**
25	CIS-6930	Mobile Networking	Spring 2010	22	4.53
	CIS-4930				**5.00**
24	CNT-5106	Computer Networks	Fall 2009	143	4.90
23	CIS-4930/6930	Mobile Networking	Spring 2009	14	**5.00**
22	CNT-5106	Computer Networks	Fall 2008	93	4.68
21	CIS-6930	Wireless Mobile Networks Design and Analysis	Spring 2008	10	**5.00**
20	CEN-4500	Computer Networks Fundamentals	Fall 2007	34	3.75
19	CIS-6930	Wireless Mobile Networks Design and Analysis	Spring 2007	10	4.89
18	EE-579	Wireless and Mobile Networks Design and Laboratory	Spring 2006	19	4.79
17	EE-555	Broadband Networks Architecture	Spring 2006	72	4.85
16	EE-555	Broadband Networks Architecture	Fall 2005	31	4.82
15	EE-579	Wireless and Mobile Networks Design and Laboratory	Spring 2005	15	4.75
14	EE-555	Broadband Networks Architecture	Spring 2005	41	4.60
13	EE-555	Broadband Networks Architecture	Fall 2004	26	4.70
12	EE-599	Wireless and Mobile Networks Design and Laboratory	Spring 2004	25	4.75
11	EE-555	Broadband Networks Architecture	Spring 2004	83	4.76
10	EE-555	Broadband Networks Architecture	Fall 2003	30	4.73
9	EE-555	Broadband Networks Architecture	Spring 2003	29	4.66
8	EE-599	Wireless Networking Design and Analysis Laboratory	Spring 2003	24	4.63
7	EE-555	Broadband Networks Architecture	Fall 2002	17	4.71
6	EE-499	Introductory Computer and Wireless Networking Laboratory	Spring 2002	20	4.89
5	EE-555	Broadband Networks Architecture	Fall 2001	58	4.59
4	EE-599	Special Topics on Internet Protocol Design, Simulation and Testing	Fall 2000	18	4.65
3	EE-555	Broadband Networks Architecture	Fall 2000	80	4.62
2	EE-555	Broadband Networks Architecture	Spring 2000	56	4.53
1	EE-555	Broadband Networks Architecture	Fall 1999	89	4.20

VII. SERVICES

University and Departmental Services

- *At the University of Florida* (Fall 2006 – present)
    1. Member of the faculty advisory committee of the (college level) Institute for Networked Autonomous Systems (INAS), Mar 2012-present.
    2. Co-chair of the strategic planning and faculty search/hiring committee at the College of Engineering (including the CISE, ECE and ISE departments; called Information Technology (IT) area), Fall 2009, Spring 2010, Summer 2010, Fall 2010, Spring 2011.
    3. Chair of the industrial advisory board (IAB) committee, CISE Dept, Fall 2011, Spring 2012.
    4. Chair of the Colloquium committee for the Barr Systems distinguished lecture series, CISE department, Summer 2007 - Summer 2011. Committee member since Summer 2007.
    5. Chair of the Colloquium committee for the departmental seminar series, CISE department, Summer 2007 - Summer 2011. Committee member since Summer 2007.
    6. Advisor and instructor for the seminar course at CISE department, Fall 2008 - Sp 2011.
    7. Reviewer of college level research seed grant proposals Fall 2010.
    8. CISE ad hoc committee on the merit pay process, Spring 2007.
    9. Member of the CISE faculty awards and recognition committee, Fall 2012.
    10. Member of the CISE curriculum committee, Fall 2012.
    11. Member of the CISE committee on faculty and student awards, Fall 2007 through Spring 2012.
    12. Member of the CISE Steering Committee, since Summer 2007.
    13. Member of the joint CISE/ECE Computer Engineering Curriculum Committee, Fall '06 - Fall '09
    14. Founder and Director of the Mobile Networking Laboratory at CISE, starting Fall 2006

- *At the University of Southern California* (Fall 1999- Summer 2006)
    1. Chair of the Computer Engineering (CENG) Ph.D. screening exam reform committee, Fall 2004, Spring 2005, Summer 2005, Fall 2005.
    2. Computer Engineering (CENG) Ph.D. screening exam coordinator Fall 2003 to Spring 2006.
    3. co-Founder and co-Director of the Wireless and Sensor Networks Laboratory since May 2005.
    4. Founder and director of the Wireless Networks Design and Testing Laboratory since July 2000.
    5. Examiner for EE-555 'Broadband Networks Architecture' CENG screening exam since Fall '02.
    6. Networks Curriculum Committee (Spring '04, Fall '04).
    7. CENG MS degree committee (F '04, S '05). Electrical Engineering retreat (Dec '05).
    8. CENG curricular issues committee for Networks courses (Spring '04, Fall '04, Spring '05).
    9. Computer Engineering placement exam committee (Spring '02, Fall '02, Spring '03, Fall '03)
    10. USC Zumberge Research Awards Committee (Spring '04, Fall '04 reviewer, Fall '05 reviewer).
    11. USC Networking Faculty Recruitment Committee since Spring '01.
    12. USC Mobile Media Institute (MMI) meetings Summer '04, Fall '04, Spring '05.
    13. ITP Advisory Committee, Spring '03, Fall '03.
    14. USC Networks Planning Committee: Research directions and strategic planning. (Fall '00, Spring '01, Fall '01, Spring '02, Fall '02, Spring '03)
    15. Computer Engineering Screening and Electrical Engineering Screening Committees since Sp '00.
    16. USC Networking Curricular Committee (Spring '00, Spring '01, Fall '01, Spring '02, Spring '03)
    17. Strategic planning, research retreats of School of Engineering, EE, CENG (Sp '00, Sp '01).
    18. Strategic Planning Subcommittee for the Computer Engineering Division (Fall '00, Spring '01).
    19. Networks, Operating Systems, and Security Committee (Fall '00, Spring '01, Fall '01).
    20. School of Engineering (SoE) Computer Committee (Fall '00, Spring '01, Fall '01).

NSF Review Panels and Workshops

- NSF – China workshop on international collaboration in environmental and health sensing, Yellow Mountains/Shanghai, Huangshan, China. (Aug 2012).

- NSF workshop on Networking research collaboration, Istanbul, Turkey. (June 2012)
- NSF NeTS Network Systems, Jan 2012. (panelist, reviewer).
- NSF workshop on Pervasive Computing at Scale (PeCS), Seattle, WA, Jan 2011.
- NSF wireless (sensor) networks, April 2010. (panelist, reviewer).
- NSF CAC workshop on Autonomic Computing, Gainesville, FL, Sept 2007.
- NSF NETS NOSS workshop on Sensor Networks, Harvard University, Boston, MA, Oct 2005.
- NSF ECS Workshop on Integrative Hybrid Complex Systems (*IHCS*), UCLA, April 2005.
- NSF ECS Workshop on Wireless Networked Sensor Systems, Sept '03 & Oct '04 (*NETS NOSS*)
- NSF ANIR proposal reviewer 2003.
- NSF special engineering projects on sensor networks and systems, June 2002 (panelist, reviewer).
- NSF networking research (NR), May 2001. (panelist, reviewer).

Conference Committees and Services

Chairing
- *ACM SIGMOBILE* general workshop coordination chair for all the workshops of the *ACM MobiCom, MobiHoc, MobiSys, and SenSys* Conferences 2007, 2008, 2009, 2010, 2011.
- *ACM MobiCom*: Finance chair, Oct 2013.
- *ACM MobiSys Hop Planet Workshop*: General co-Chair, June 2012.
- *ACM MSWiM (Int'l Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems):* General Chair, Miami, FL, October 2011.
- *ACM MobiCom CHANTS (Workshop on Challenged Networks)*: Technical program co-Chair, Las Vegas, NV, September 2011.
- *ICST/ACM AdhocNets (Int'l Conference on Ad Hoc Networks):* Technical program co-Chair, Paris, France, September 2011.
- *IEEE GlobeCom (Global Communications Conference):* Chair and coordinator of the keynote plenary panel on Sensor Networks, Miami, FL, December 2010.
- *IEEE/ACM IWCMC (International Wireless Communications and Mobile Computing Conference):*
    - General co-chair, Caen, France, July 2010.
    - Honorary program chair, Istanbul, Turkey, July 2011.
- *IEEE SECON (Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks):* Poster/Demo session co-Chair, Salt Lake City, UT, June 2011.
- *IEEE MASS (International Conference on Mobile Ad-hoc and Sensor Systems):* TPC Vice Chair for Protocols and Cross-Layer Technologies, San Francisco, CA, November 2010.
- *IEEE ICNP (International Conference on Network Protocols):*
    - Poster session Chair and Ph.D. forum Chair, Princeton, NJ, October 2009.
    - Local arrangement co-Chair, Orlando, FL, October 2008.
- *IEEE INFOCOM Global Internet (GI) workshop* co-Chair, Phoenix, AZ, April 2008.
- *IEEE/ACM HiPC (International Conf on High Performance Computing):* Chair of the mobile networks track, Bangalore, India, December 2007.
- *IEEE/IFIP MMNS (9th International Conference on Management of Multimedia and Mobile Networks and Services)* Technical program co-Chair, October 2006.
- *IEEE ICPADS (International Conference on Parallel and Distributed Systems)*: Program Vice-Chair for Wireless, Mobile, Sensor Networks and Computing tracks, December 2006.

Technical Program Committee (TPC) member (unless otherwise stated)
- *IEEE INFOCOM:* TPC 2008, 2009, 2010, 2011, 2013.
- *ACM CHANTS:* TPC 2011, 2012.
- *ACM MobiCom WinTech:* TPC 2012.
- *IEEE ICNP (Int'l Conf on Network Protocols):* TPC 2005, 2006, 2007, 2008, 2009, 2010, 2011.

- *IEEE SECON:* TPC 2007, 2008, 2009, 2010.
- *ACM MSWiM:* Tutorials 2009, 2010. Session chair 2010.
- *IEEE WoWMoM:* TPC 2010, 2011.
- *IEEE MASS:* TPC 2010. Session chair 2010. *SCENES MASS Workshop*: TPC 2009, 2010.
- *IEEE WCNC:* Session chair (2 sessions) 2008. *ACM/IEEE CTS:* Session chair, 2008.
- *IEEE LANMAN (Workshop on Local and Metropolitan Area Networks)* 2008.
- *IEEE WiVec (Int'l Symposium on Wireless Vehicular Communications)* 2007.
- *IEEE WiNMee (Int'l Wkshp on Wireless Networks Measurements)*: TPC, session chair April 2006
- *IEEE/ACM Mobiquitous (Conf on Mobile & Ubiquitous Systems)*: Invited lead panelist, Jul 05
- *IEEE INFOCOM*: Session chair, March 2005. IEEE/ACM DCOSS: Session chair, July 2005.
- *IEEE/ACM SANPA (Int'l Workshop on Sensor and Actor Network Protocols and Applications)*: TPC and Special session organizer/chair, August 2004.
- *ACM MobiCom VANet Workshop (on Vehicular AdHoc Networks)* Oct 2004.
- *IEEE BroadNets* (*Broadband Wireless Networking Symposium),* Oct 2004.
- *IEEE BASENETS (Workshop on Broadband Advanced Sensor Networks),* October 2004.
- *IEEE WCNC (Wireless Communications and Networking Conference)*, March 2004.
- *IEEE ASWN (Workshop on Applications and Services in Wireless Networks)* July 2004.
- *IEEE MWCN (Int'l Conf on Mobile and Wireless Communication Networks)* October 2004.
- *Med-Hoc-Net (Annual Mediterranean Ad Hoc Networking Workshop)* June 2004.
- *IEEE/ACM IPDPS WMAN (Int'l Workshop on Algorithms for Wireless, Mobile, Ad Hoc and Sensor Networks)* 2002, 2003, 2004.
- *IEEE EWCN (Wkshp on Energy-Efficient Wireless Comm and Networks)*, with *IPCCC* Apr 2004
- *IEEE/ACM HiPC (International Conference on High Performance Computing)*, Dec 2004.
- *IEEE SNPA (Int'l Wkshp on Sensor Network Protocols and Applications) with IEEE ICC* May 03
- *IEEE VTC (Vehicular Technology Conf) symposium on IP Mobility*, Fall 2003.
- *IEEE MMNS (Int'l Conf on Management of Multimedia Networks and Services)* 2001, 02, 03, 04
- *IEEE GlobeCom SAWN (Symposium on Ad Hoc Wireless Networks)*, Dec 2001.

Editorial Boards and Reviewing

- Associate Editor for the *IEEE Transactions on Mobile Computing (TMC)*, starting March 2012.
- Area Editor of Networking for the *IEEE Computer*, starting Jan 2010.
- Area Editor for the *Ad Hoc Networks Journal – Elsevier*, March 2007 - March 2011.
- Member of the International Advisory Board for the *IEEE/ACM IWCMC (International Wireless Communications and Mobile Computing Conference)*, since 2010.
- Editor for the *ACM Sigmobile Mobile Communications and Computer Review (MC2R)*, 2009.
- Member of the Editorial Board for the *Ad Hoc Networks Journal - Elsevier*, November 2004 - March 2007.

Reviews for Journals:
- *IEEE/ACM Transactions on Networking (ToN)* 1997, 1998, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010.
- *IEEE Transactions on Mobile Computing (TMC)* 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011.
- *ACM Transactions on Sensor Networks (TOSN)* 2006, 2008, 2009, 2010.
- *ACM Baltzer Wireless Networking (WINET) Journal* 2003, 2004, 2005, 2007, 2010, 2011.
- *IEEE Communications Letters Journal* 2003, 2004, 2006, 2010.
- *Ad Hoc Networks Journal – Elsevier* 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011.
- *ACM Communications* 2009.
- *IEEE Journal on Selected Areas in Communications (JSAC)* 2001, 2003, 2004, 2005, 2007.

- *IEEE Transactions on Vehicular Technology (TVT)* 2003, 2004, 2006, 2010.
- *IEEE Transactions on Parallel and Distributed Systems (TPDS)* 2006, 2009.
- *Journal of Wireless Communications and Mobile Computing (WCMC)* 2006, 2008.
- *IEEE Transactions on Wireless Communications* 2006, 2007.
- *ACM Baltzer Mobile Networks and Applications (MONET) Journal* 2003, 2004, 2005.
- *IEEE Transactions on Parallel and Distributed Systems (TPDS)* 2004, 2005, 2006.
- *Journal on Parallel and Distributed Computing – El Sevier (JPDC)* 2004, 2005.
- *Computer Networks Journal - Elsevier* 2003, 2004, 2005.
- *IEEE Computer* 2004, 2011.
- *ACM SIGMOBILE Mobile Computing and Communications Review (MC2R)* 2003, 2004.
- *IEEE Wireless Communications Magazine* 2003.
- *IEEE Transactions on CAD (TCAD)* 2000.
- *IEEE Journal of High Speed Networking (JHSN)* 2000.

Reviews for Conferences and Workshops:
- *IEEE INFOCOM Conference* 1997, 1999, 2002, 2003, 2004, 2005, 2007, 2008, 2009, 2010, 2011, 2013.
- *ACM Chants* 2011, 2012.
- *ACM WinTech* 2012.
- *IEEE ICNP Conference* 2006, 2007, 2008, 2009, 2010.
- *IEEE SECON Conference* 2007, 2008, 2009, 2010.
- *ACM MobiCom Conference* 2007.
- *ACM SenSys Conference* 2006.
- *IEEE WoWMoM Conference* 2010.
- *IEEE Global Internet (GI) Workshop* 2007, 2009.
- *IEEE UbiComp Conference* 2008.
- *IFIP Networking Conference* 2007.
- *IEEE WCNC Conference* 2007.
- *IEEE WinMee Workshop (on Wireless Networks Measurements)* 2006.
- *IEEE WiVec Symposium (Wireless Vehicular Networks)* 2007.
- *ACM SIGCOMM Conference* 1997, 1998, 1999, 2004, 2005.
- *IEEE ICC Conference* 2001, 2002, 2003, 2004.
- *IEEE GlobeCom Conference* 2001 - *IEEE VTC Conference* 2003 - *IEEE MILCOM Conf* 2003.
- *ACM SIGMETRICS* 2003. *ACM SIGCOMM CCR* 2004.
- *IEEE Wireless Communications and Networking Conference (WCNC)* 2004
- *IEEE IPCCC Wkshp on Energy-Efficient Wireless Comm and Networks* 2004.
- *IEEE International Conference on Parallel and Distributed Systems (ICPADS)* 2004.
- *Med-Hoc-Net Conference* 2004.
- *IEEE MMNS* 2001, 2002, 2003, 2004.
- *IEEE ASWN Workshop (on Apps and Services in Wireless Networks)* 2004.
- *IEEE MWCN Conf (Mobile and Wireless Communication Networks)* 2004.
- *IEEE BroadNets Symposium (Broadband Wireless Networking)* 2004.
- *IEEE BASENETS Workshop (on Broadband Advanced Sensor Networks)* 2004.
- *IEEE/ACM IPDPS WMAN Workshop (on Ad hoc networks)* 2002, 2003, 2004.
- *ACM SOSP Conference* 2003. *IEEE IC3N Conference* 2000.

Grant proposal reviewer (aside from NSF):
- Qatar National Research Fund (QNRF), 2007, 2008.

- ORAU (Oak Ridge Associated Universities) awards, Engineering/Applied science, 2007.
- Science foundation Ireland (SFI), 2007.

Membership
- Senior Member of the IEEE (Institute of Electrical and Electronics Engineers):
  - Member of the IEEE Computer Society
  - Member of the IEEE Communications Society
- Senior Member of the ACM (Association for Computing Machinery):
  - Member of the the ACM SIGMOBILE (Special Interest Group on Mobility of Systems, Users, Data, and Computing)
  - Member of the ACM SIGCOMM (Special Interest Group on Data Communication)

Other Community, Outreach Services
- Judge in the Science Fair, Lincoln Middle school, Gainesville, FL, 2006, 2011, 2012.
- Volunteer, Joseph Williams Elementary school, Gainesville, FL, 2007, 2008, 2009, 2010, 2011, 2012.
- Volunteer, Lincoln Middle School robotics team, Gainesville, FL 2011, 2012.

VIII. SELECTED TALKS and PRESENTATIONS

Invited Talks, Keynotes and Tutorials
- "Data-Driven Design of Mobile Social Netowrking: the case of Mobile Health Applications [Cyber-Physical vs. Cyber-Social Systems]", Invited talk at the NSF – China collaboration workshop, Yellow Mountain/Shanghai, China, Aug 2012.
- "Data-driven design for Wireless, Mobile and Embedded Systems", Invited panel chair and speaker, NSF – Middle East collaboration workshop, Istanbul, Turkey, Jun 2012.
- "Data-driven Mobile Social Networking":
  - Invited keynote at the IEEE INFOS, May 2012.
  - Invited talk at Cairo Univ., Jun 2012.
  - Invited talk at Nile Univ., Jul 2012.
  - Invited talk at Egypt Japan Univ. for Science and Technology (EJUST), Jul 2012.
- "*Data-driven* Mobile Social Networking (The Next Frontier: Behavioral Spaces)". Invited talk at KACST (King Abdul-Aziz City for Science and Technology), Riyadh, Saudi, Sept. 2011.
- "*Data-driven* Behavior-based Networked Mobile Communities". Invited talk at T-labs/TU-Berlin, Germany, (host: Dr. Pan (Ben) Hui), July 2011.
- "Data-driven Behavior-based Modeling and Design of Networked Mobile Societies: A Paradigm Shift for Future Social Networking". Invited talk:
  - Computer Science Department, University of Cincinnati, OH, Feb. 2011.
  - Electrical and Computer Engineering Dept, WING group, University of Florida, Feb. 2011.
- "Data-driven Behavioral Modeling of Mobile Users for Analysis, Simulation and Design of Future Mobile Social Networks", Tutorial presentation at the *ACM MSWiM Conference*, Bodrum, Turkey, October 2010.
- "Data-driven Modeling and Design of Networked Mobile Societies: A Paradigm Shift for Future Social Networking":
  - Keynote presentation at the *ACM IWCMC Conference*, Caen, France, July 2010.
  - Invited talk at Paris 6 University (LIP6), Paris, France, June 2010.

- "Mobility Modeling for Future Mobile Network Design and Simulation", Invited talk at Kuwait University, March 2010.
- "Profile-cast: Interest-aware Networking in Mobile Societies", Invited talk at Kuwait University, March 2010.
- "Mobility Modeling for Future Mobile Network Design and Simulation":
  - Invited tutorial talk at *ACM MSWiM (Int'l Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems)*, Tenerife, Canary Islands, Spain, October 2009.
  - Invited tutorial talk at *ACM IWCMC Int'l Wireless Communications and Mobile Computing Conference)*, Leipzig, Germany, June 2009
- "Trace-driven Context-aware Mobile Networks: Towards Mobile Social Networks", Invited seminar talk at the following universities:
  - American University of Beirut (AUB), Lebanon, June 2009
  - Lebanese American University (LAU), Beirut, Lebanon, June 2009
  - Nile University, Egypt, July 2009
- "Human-Centric Networking: Interest-centric delivery via user profiling for future social networks". Invited talk at Cisco research, San Jose, CA, Jan 2008.
- "Wireless Measurements; Data Collection and Research: The *MobiLib* Experience (Trace-driven context-aware protocol design)". Invited talk at the ACM MOBICOM Crawdad workshop, Montreal, Canada, Sept 2007.
- "Socially-Aware Survivable Mobile Networks: Behavior-Aware DTN (Trace-based Analysis and Protocol Design)", Invited talk at the IEEE Computer Communications Workshop, Pittsburgh (host: Prof. T. Znati), Feb 2007.
- "Design and Analysis of Future Mobile Networks: Realistic Mobility Modeling & Socially-Aware Mobile Networks"
  - University of Florida, EE Dept (host: Prof. M. Fang), April 2007.
  - University of Florida Industrial Board Meeting, CISE Dept, March 2007.
- "Towards Building Robust Mobile Networks: Robust Geographic Routing and Mobility Modeling", Invited seminar talk at the following universities:
  - Massachusetts Institute of Technology (*MIT*) (host: Prof. Dina Katabi), MA, June 2005.
  - University of California at Santa Barbara (host: Prof. Kevin Almeroth), CA, June 2005.
  - Boston University (hosts: Prof. Ibrahim Matta, Prof. Azer Bestavros), MA, June 2005.
  - University of California - Riverside (hosts: Profs. S. Krishnamurthy, M. Faloutsos), Nov 2005.
  - University of Oregon (host: Prof. R. Rejaie), Feb 2006.
  - University of California at Merced (host: Prof. A. Cerpa), March 2006.
  - Northeastern University (host: Prof. N. McGruer), March 2006.
  - University of Florida (host: Prof. S. Chen), April 2006.
- "Designing Applications for Future Mobile Networks: Location-based Services and Context-Aware Networking", University of California at Riverside (hosts: S. Krishnamurthy, M. Faloutsos), March 2006.
- "Research Directions in Wireless Ad Hoc and Sensor Networks: Mobility Modeling and Robust Geographic Routing", Invited seminar talk at the following universities:
  - University of Illinois at Urbana – Champaign (host: Prof. Nitin Vaidya), IL, June 2004.
  - University of Maryland, College Park (host: Prof. Samrat (Bobby) Bhattacharjee), June 2004.

- Center for Embedded Networked Sensing (*CENS*), University of California - Los Angeles (UCLA) (host: Prof. Deborah Estrin), May 2004.
  - Georgia Institute of Technology (host: Prof. Mostafa Ammar), Atlanta, GA, March 2004.
  - University of California at Irvine (*UCI*) (host: Prof. A. El-Tawil), May 2005.
- "Mobility Modeling for Wireless Networks" Invited tutorial at the *IASTED Int'l Conference on Communications and Computer Networks*, Marina Del Ray, October 2005.
- "Security, Cooperation and Safety in Mobile Ubiquitous Networks", Invited panel talk at the *IEEE/ACM Mobiquitous (Int'l Conf. on Mobile and Ubiquitous Systems)*, San Diego, July 2005.
- "Understanding and Utilizing Multi-Dimensional Correlations in Sensor Networks: A Protocol Design Perspective", Invited Keynote talk at the *3rd ACM Senmetrics (Int'l Workshop on Measurement, Modeling, and Performance Analysis of Wireless Sensor Networks)*, July 2005.
- "Multicast-based Architecture for IP Mobility: Analysis and Comparison with Mobile IP", invited presentation at Nortel Networks Wireless Forum Oct '00 and IEC Forum Oct '00.
- 'IP Multicast', invited tutorial, IP-mobility group, Nortel Networks, in Dallas, TX, March 2000.
- "*STRESS*: Systematic Testing of Robustness by Examination of Synthesized Scenarios", invited talk at University of California - Irvine (*UCI*) and University of Southern California, April 1999.

Other Selected Project and Paper Presentations

- Six total presentations (with the research group) at IEEE INFOCOM, Orlando, FL, Apr 2012.
- Plenary panel, two paper presentations and a demo at IEEE GlobeCom, Miami, FL, Dec. 2010.
- Two paper presentations at ACM MSWiM, Bodrum, Turkey, October 2010.
- Eight total presentations at ACM MobiCom and associated workshops, Chicago, IL, Sept 2010: one workshop paper, five poster presentations (including three SRC presentations), two demos.
- Two poster (SRC) presentations at ACM MobiCom, San Francisco, CA, September 2008.
- Nine total presentations at ACM MobiCom and associated workshops, Montreal, Canada, September 2007: short paper, workshop paper, six posters (2 SRCs 3rd &5th place), one demo.
- "Designing Robust Wireless Mobile Networks", Invited talk and Demo at University of Florida CISE Dept for visiting faculty and students, Nov. 2006. At the Industrial Advisory Board (IAB) Meeting, Feb 2007. At a visit for the human-machine interaction (HMI) Institute, Sept. 2007.
- "ACQUIRE: Active Querying in Sensor Networks", Project and poster presentation at the *NSF NETS NOSS* PI meeting, Harvard, October 2005. [Also, Project and poster presentation at the NSF CENS center annual research review, UCLA, October 2005.]
- "Low State Fairness: Lower Bounds and Practical Enforcement", paper presentation at *IEEE INFOCOM*, March 2005.
- Five poster presentations at *ACM SIGCOMM*, Aug 2004.
- Three paper presentations at IEEE ICC, June 2004.
- "A Plan for Empirical Evaluation of Dependability Using the *STRESS* Approach", Project presentation, NSF/NASA PI meeting on dependable computing/communications, June 2004.
- "On the Effect of Localization Errors on Geographic Face Routing in Sensor Networks", Presentation at the IEEE/ACM *IPSN*, Berkeley, CA, April 2004.
- "The Effect of Mobility-induced Location Errors on Geographic Routing Analysis and Improvement using Mobility Prediction", Paper presentation at IEEE WCNC, March 2004.
- "Transactions Routing for Ad-hoc NetworkS with eFficient EneRgy", IEEE GlobeCom Dec '03.
- Two poster presentations at ACM SenSys, UCLA, Nov 2003.

- "Impact of Location Inconsistencies on Geographic Routing in Wireless Networks", Paper presentation at the *ACM MOBICOM MSWIM* Workshop, San Diego, Sept 2003.
- Five poster presentations at *ACM MOBICOM*, San Diego, Sept 2003.
- "Resource Discovery, Query Resolution & Rendezvous in Large-Scale Wireless Networks: Architectural Design & Analysis", presentation at NSF ECS Workshop on Wireless Networked Sensor Systems, at the Center for Embedded Networked Sensing (CENS) at UCLA, Sept 8, 2003.
  "*PATHS*: Analysis of PATH Duration Statistics and their impact on reactive MANET routing protocols", Paper presentation at ACM *MobiHoc*, Annapolis, MD, June 3, 2003.
- "Contact Based Architecture for Resource Discovery (*CARD*) in Large Scale MANets", Paper presentation at the IEEE/ACM IPDPS *WMAN* workshop, April 26, 2003.
- "Highly Dependable Communication Protocols", NSF/NASA PI meeting, Mountain View, Feb03
- "Service Provisioning in Large-scale Infrastructure-less Wireless Networks", project presentation to Intel research during a visit to the wireless networking laboratory at USC, Nov. 2002.
- "Sensor Networks for On-board Information Technology", project presentation to Pratt&Whitney visit to IMSC, USC, Nov. 2002.
- "STRESS: Ad hoc Wireless MAC and Multicast Congestion Control", project presentation at the DARPA NMS PI meeting, Atlanta, GA, October 22, 2001 and San Diego, CA, April 2, 2001.
- "A Multicast-based Protocol for IP Mobility Support", paper presentation at ACM Sigcomm-Networked Group Communication (NGC) 2000 workshop, Stanford University, Nov 9, 2000.
- "STRESS: Systematic Testing of Robustness by Examination of Synthesized Scenarios", project presentation at DARPA Next Generation Internet (NGI) PI meeting, Oct '98, Dec '99.

- **Most Cited Publications**: *h-index*=41. Total citations >9,000 (Google scholar, Nov '12)

Rank	Citations	Authors	Title
1	1162	D Estrin, D Farinacci, A Helmy, D Thaler, S Deering, V Jacobson, …	Protocol independent multicast-sparse mode (PIM-SM): Protocol specification
2	1148	L Breslau, D Estrin, K Fall, S Floyd, J Heidemann, A Helmy…	Advances in network simulation (NS-2)
3	733	S Deering, D Estrin, D Farinacci, M Handley, A Helmy, V Jacobson, …	Protocol Independent Multicast Sparse Mode (PIM-SM): Motivation and Architecture
4	667	F Bai, N Sadagopan, A Helmy	IMPORTANT: A framework to systematically analyze the Impact of Mobility on Performance of RouTing protocols for Adhoc NeTworks
5	335	K Seada, M Zuniga, A Helmy, B Krishnamachari	Energy-efficient forwarding strategies for geographic routing in lossy wireless sensor networks
6	283	F Bai, N Sadagopan, A Helmy	The IMPORTANT framework for analyzing the Impact of Mobility on Performance Of RouTing protocols for Adhoc NeTworks
7	233	N Sadagopan, F Bai, B Krishnamachari, A Helmy	PATHS: analysis of PATH duration statistics and their impact on reactive MANET routing protocols
8	210	N Sadagopan, B Krishnamachari, A Helmy	The ACQUIRE mechanism for efficient querying in sensor networks
9	208	F Bai, A Helmy	A survey of mobility models in wireless adhoc networks Protocol
10	206	D Estrin, D Farinacci, A Helmy, V Jacobson, L Wei	Protocol independent multicast version 2, dense mode specification
11	194	A Helmy	Small worlds in wireless networks
13	165	W Hsu, T Spyropoulos, K Psounis, A Helmy	Modeling time-variant user mobility in wireless mobile networks
12	164	K Seada, A Helmy, R Govindan	On the effect of localization errors on geographic face routing in sensor networks
14	147	K Nahm, A Helmy, C. Kuo	TCP over multihop 802.11 networks: issues and performance enhancement
15	136	N Sadagopan, B Krishnamachari, A Helmy	Active query forwarding in sensor networks
16	135	F Bai, N Sadagopan, B Krishnamachari, A Helmy	Modeling path duration distributions in MANETs and their impact on reactive routing protocols
17	126	W Hsu, K Merchant, H Shu, C Hsu, A Helmy	Weighted waypoint mobility model and its impact on ad hoc networks
18	112	D Son, A Helmy, B Krishnamachari	The effect of mobility-induced location errors on geographic routing in mobile ad hoc sensor networks: analysis and improvement using mobility prediction
19	90	A Helmy	A multicast-based protocol for IP mobility support
20	87	K Seada, A Helmy	Rendezvous regions: A scalable architecture for service location and data-centric storage in large-scale wireless networks

21	84	D Estrin, M Handley, A Helmy…	A dynamic bootstrap mechanism for rendezvous-based multicast routing
22	81	S Tanachaiwiwat, P Dave, R Bhindwale, A Helmy	Location-centric isolation of misbehavior and trust routing in energy-constrained sensor networks
23	73	M Zuniga, K Seada, B Krishnamachari, A Helmy	Efficient geographic routing over lossy links in wireless sensor networks
24	66	W Hsu, T. Spyropoulos, K Psounis, A Helmy	Modeling spatial and temporal dependencies of user mobility in wireless mobile networks
25	64	W Hsu, A Helmy	On nodal encounter patterns in wireless LAN traces
26	61	S Tanachaiwiwat, P Dave, R Bhindwale, A Helmy	Secure locations: routing on trust and isolating compromised sensors in location-aware sensor networks
27	60	S Tanachaiwiwat, A Helmy	VACCINE: War of the worms in wired and wireless networks
28	60	AAG Helmy, M Jaseemuddin…	Multicast-based mobility: a novel architecture for efficient micromobility
29	59	Y Kim, JJ Lee, A Helmy	Modeling and analyzing the impact of location inconsistencies on geographic routing in wireless networks
30	59	K Seada, A Helmy	Efficient geocasting with perfect delivery in wireless networks
31	59	D Estrin, D Farinacci, A Helmy, D Thaler…	Protocol independent multicast-sparse mode (PIM-SM)
32	58	R Chitradurga, A Helmy	Analysis of wired short cuts in wireless sensor networks
33	55	A Helmy, S Garg, P Pamu, N Nahata	Contact-based architecture for resource discovery (CARD) in large scale MANets
34	55	J Faruque, A Helmy	Rugged: Routing on fingerprint gradients in sensor networks
35	54	A Helmy, S Garg, N Nahata, S Pamu	CARD: a contact-based architecture for resource discovery in wireless ad hoc networks
36	50	W Hsu, D Dutta, A Helmy	Profile-cast: Behavior-aware mobile networking
37	49	W Hsu, A Helmy	On modeling user associations in wireless LAN traces on university campuses
38	48	W Hsu, D Dutta, A Helmy	Mining behavioral groups in large wireless LANs
39	44	W Hsu, A Helmy	Impact: Investigation of mobile-user patterns across university campuses using wlan trace analysis
40	42	A Helmy	Mobility-assisted resolution of queries in large-scale mobile sensor networks (MARQ)
41	42	A Helmy	Architectural framework for large-scale multicast in mobile ad hoc networks
42	38	A Helmy, D Estrin, S Gupta…	Fault-oriented test generation for multicast routing protocol design
43	38	J Faruque, K Psounis, A Helmy	Analysis of gradient-based routing protocols in sensor networks

44	35	D Son, A Helmy, B Krishnamachari	The effect of mobility-induced location errors on geographic routing in ad hoc networks: Analysis and improvement using mobility prediction
45	33	A Helmy, M Jaseemuddin, G Bhaskara	Efficient micro-mobility using intra-domain multicast-based mechanisms (M&M)
46	32	F Bai, A Helmy	Impact of mobility on last encounter routing protocols
47	32	Y Lu, H Lin, Y Gu, A Helmy	Towards mobility-rich analysis in ad hoc networks: using contraction, expansion and hybrid models
48	32	C Li, W Hsu, B Krishnamachari, A Helmy	A local metric for geographic routing with power control in wireless networks
49	30	K Seada, A Helmy	Efficient and robust geocasting protocols for sensor networks
50	30	S Ebrahimi-Taghizadeh, A Helmy…	TCP vs. TCP: a systematic study of adverse impact of short-lived TCP flows on long-lived TCP flows

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- The citations above are according to the Google Scholar and Citations service, available publicly at http://scholar.google.com/citations?hl=en&user=QcO9p8AAAAAJ .
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