

CURRICULUM VITAE

Asis Nasipuri, Associate Professor

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RESEARCH INTERESTS:

- *Mobile Ad Hoc Networks:* medium access control, routing, inter-layer interactions, modeling and performance evaluation.
- *Wireless Sensor Networks:* multi-sensor collaboration, routing, medium access control, localization schemes, experimental testbed development and applications.
- *Statistical Communication Theory:* distributed detection, non-parametric detection techniques, multi-stage and sequential detection.
- *Wireless Communications:* channel characterization and modeling, mitigation of multi-path fading effects, source and channel coding, wireless CDMA.

EDUCATION:

Ph.D., Electrical & Computer Engineering, University of Massachusetts, Amherst, MA 01003, 1993.

Dissertation title: "On some centralized and distributed parametric and nonparametric detection schemes".

Master of Science, Electrical & Computer Engineering, University of Massachusetts, Amherst, MA 01003, 1990.

Thesis title: "Two-stage Wilcoxon detectors using conditional tests".

Bachelor of Technology (Honors), Electronics & Electrical Communication Engineering, Indian Institute of Technology, Kharagpur 721302, India, 1987.

PROFESSIONAL EXPERIENCE:

- *Associate Professor*, Department of Electrical and Computer Engineering, The University of North Carolina at Charlotte, July 2006 to date.
- *Assistant Professor*, Department of Electrical and Computer Engineering, The University of North Carolina at Charlotte, August 2000 to June 2006.
- *Postdoctoral Fellow*, Division of Computer Science, The University of Texas at San Antonio, May 1998 – August 2000.
- *Assistant Professor*, Electronics & Electrical Communication Engineering, Indian Institute of Technology, Kharagpur, India, January 1996 – May 1998.
- *Visiting Lecturer*, Electronics & Electrical Communication Engineering, Indian Institute of Technology, Kharagpur, India, November 1993 – December 1995.
- *Teaching Associate, Graduate Research & Teaching Assistant*, Department of Electrical & Computer Engineering, University of Massachusetts, Amherst, September 1997 – August 2003.

RESEARCH GRANTS AWARDED:

1. **Research grant from the Electric Power Research Institute (EPRI)** “Wireless Mesh Sensor Network for Power Systems Monitoring”, A. Nasipuri (PI), I. L. Howitt, and J. M. Conrad, The University of North Carolina at Charlotte, \$83,566, September 1, 2006 – May 31, 2007.
2. **National Science Foundation** grant EIA-013079 “*CISE Research Resources: Experimental Testbed for Mobile Network Protocols*”, T. Dahlberg (PI), A. Nasipuri, E. El-Kwae, and G. Ahn, The University of North Carolina at Charlotte, \$100,000, Sept. 2001 to February 2005.
3. **National Science Foundation** grant ANI-9973147 “*Collaborative Proposal: Protocols for Mobile, Ad Hoc Networks*”, S. R. Das (PI) and A. Nasipuri, University of Texas at San Antonio, \$157,772, Oct. 1999 to Sept. 2003 (a sub-award of \$54,784 was made out to UNC Charlotte from this grant under the title “*Multi-channel CSMA Protocols*”, A. Nasipuri (PI), when Dr. Nasipuri joined UNC Charlotte in August 2000).
4. **National Science Foundation** supplement to “*Collaborative Proposal: Protocols for Mobile, Ad Hoc Networks*” under the *Research Experience for Undergraduates (REU)* Scheme, \$14,250, July 2001 to Sept. 2002. (The entire portion of \$14,250 was sub-awarded by the University of Cincinnati to the proposing institution UNC Charlotte under the title “*Supplement to Multi-channel CSMA Protocols*”, A. Nasipuri (PI), July 2001 to Sept. 2002.
5. **Junior Faculty Grant** from the University of North Carolina at Charlotte, “*Development of a Wireless Sensor Network Prototype for Supervision and Control of Bioreactor Landfills*”, A. Nasipuri (PI) and V. Ogunro, \$6000, 2004 – 2005.
6. **Indian Space Research Organization (ISRO)**, Bangalore, India, on “*Studies of the Interplay of Source & Channel Coder Parameters for use in Digital Satellite Communications*”, INR 500,000, March 1998 to Feb 2000, Asis Nasipuri (PI), Saswat Chakrabarti and Ranjan Gangopadhyay, at I.I.T. Kharagpur, India.
7. **European Community**, Brussels, research grant on “*Design of Advanced Wavelength-Routed Optical Networks*”, 100,000 ECU, August 1996 to July 1998, Ranjan Gangopadhyay (PI), Asis Nasipuri, and Debashis Datta, at I.I.T., Kharagpur, India.
8. **NORTEL Technologies**, Canada, on “*Development of Tools for Telecommunications Network Planning*”, INR 30,000, July 1996 to June 1997, Debashis Datta (PI), Prabir K. Biswas, and Asis Nasipuri, at I.I.T., Kharagpur, India.
9. **All India Council of Technical Education (AICTE)**, New Delhi, on “*Advanced Radio & Multimedia Communications*”, INR 1,400,000, Feb. 1996 to Jan. 1999, R. V. Rajakumar (PI), Asis Nasipuri, and others, at I.I.T., Kharagpur, India.
10. **Defense Research & Development Organization (DRDO)**, New Delhi, India, on “*System Using Digital FM Linear Modulation with Discriminator Detection*”, INR 812,400, June 1994 – December 1996, Ranjan Gangopadhyay (PI), and Asis Nasipuri, I.I.T., Kharagpur, India.

HONORS AND AWARDS:

1. **Maxheim Fellowship Award**, 2004 – 2005, William States Lee College of Engineering, UNC Charlotte, \$5000.

2. *Nominated for Graduate Teaching Excellence award*, William States Lee College of Engineering, 2003.
3. *National Talent Search* Scholarship from the National Council of Educational Research & Training, New Delhi, India, 1980 – 1987.

PROFESSIONAL SERVICES AND ACTIVITIES:

- **Technical Program Chair:**
 - *Workshop on Multi-hop Wireless Networks (MWN)*, held in conjunction with the *IEEE International Performance, Computing and Communications Conference (IPCCC)*, April 14 - 17, 2004, Phoenix, AZ.
- **Member of Technical Program Committee:**
 - The 11th *International Conference on Parallel and Distributed Systems (ICPADS-05)*, July 2005, Japan.
 - *First IEEE International Workshop on Performance and Management of Wireless and Mobile Networks*, to be held in conjunction with the *30th Annual IEEE Conference on Local Computer Networks (LCN 2005)*, November 2005, Sydney, Australia.
 - *Symposium on Wireless Sensor Networks (WSN05)*, to be held in conjunction with the *IEEE International Conference on Wireless Networks, Communications, and Mobile Computing (IEEE Wirelesscom 2005)*, June 2005, Hawaii, USA.
 - *Workshop on Internet Compatible QoS in Ad hoc Wireless Networks (IC-QAWN)*, in conjunction with *The 3rd ACS/IEEE International Conference on Computer Systems and Applications (AICCSA-05)*, January 3 – 6, 2005, Cairo, Egypt.
 - *IEEE International Conference on Computer Communication and Networks (IC3N)*, 2003, Dallas
 - *International Workshop on Distributed Computing (IWDC)*, 2003, Kolkata, India.
 - *IEEE International Conference on Computer Communication and Networks (IC3N)*, 2002, Miami
 - *International Symposium on Communications and Information Technology (ISCIT)*, October 23 – 25, 2002, Pattaya, Thailand.
 - *ACM International Workshop on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWIM)*, September 28, 2002, Atlanta.
 - *IEEE International Conference on Computer Communication and Networks (IC3N)*, 2001, Phoenix
 - *IEEE International Conference on Computer Communication and Networks (IC3N)*, 2000, Las Vegas.
- **Session Chairmanship:**
 - *International Conference on Energy, Environment, and Disasters (INCEED)*, July 2005, Charlotte, NC.
 - *IEEE International Performance, Computing and Communications Conference (IPCCC)*, 2004, Phoenix, AZ.

- *IEEE International Conference on Computer Communication and Networks (IC3N)*, 2002, Miami, FL.
- *IEEE International Conference on Computer Communication and Networks (IC3N)*, 2001, Phoenix, AZ.
- *IEEE International Conference on Computer Communication and Networks (IC3N)*, 2000, Las Vegas, NV.
- *IEEE International Conference on Computer Communication and Networks (IC3N)*, 1999, Boston, MA.
- **Reviewer of Journal and Conference Papers:**
 - *Journals:* IEEE Trans. on Wireless Communications, IEEE Trans. on Mobile Computing, IEEE Trans. Computers, IEEE Journal on Selected Areas in Communications, IEEE Multimedia Journal, IEEE Trans. on Parallel and Distributed Systems, Wireless Communications & Mobile Computing Journal, IEEE Trans. on Communications, Signal Processing Journal, ACM Mobile Computing and Communications Review, EURASIP Journal on Applied Signal Processing, Wireless Networks Journal, International Journal of Computers and Applications, International Journal of Wireless and Mobile Computing, The Telecommunications Systems Journal.
 - *Conferences:* IEEE GLOBECOM, IEEE INFOCOM, ACM MobiHoc, IEEE ICCCN, ACM MsWIM, ISPACS, and many international conferences related to communications, signal processing, and networking.
- **Other Professional Reviewer Activities:**
 - *Proposal Reviewer*, DEPSCoR proposal for the State of Tennessee, 2004.
 - *Textbook proposal reviewer*, Oxford University Press, 2004.
- **Membership in Professional Societies:**
 - *IEEE, IEEE Communications Society.*
 - *Eta Kappa Nu.*

UNIVERSITY SERVICE:

- **Departmental Committee Memberships (Electrical & Computer Engineering, UNC Charlotte)**
 - *Graduate Program Director*, July 2006 – date.
 - Member of the *Strategic Planning Committee* (2004 – 2005)
 - Member of the *Graduate Committee* (2004 – 2005)
 - Member (non-voting) of the *Departmental Tenure and Promotion Review Committee* (2003 – 2004)
 - *Chair* of the *Faculty Search Committee* (2000–2002)
- **College Committee Memberships (College of Engineering, UNC Charlotte):**
 - *Chair* of the *Reassignment of Duties Committee* (2004 – 2005)

- Member of the *Academic Policy and Curriculum Committee* (2004 – 2005)
- Member of the *Curriculum Committee* (2004 – 2005)
- Member of the *ECE Chair Search Committee* (2003 – 2004)
- Member of the *Computer Committee* (2000–2002).
- **University Committee Memberships (UNC Charlotte):**
 - Member of the *Faculty Council* (2003 – 2005)
 - Member of the *Graduate Council* (2002 – 2004)
 - Member of *University Research Computing Steering Committee*, 2003 – 2005.
 - Member of the *Faculty Advisory Library Committee* (2001–2003)

PUBLICATIONS:

Book Chapters:

1. Asis Nasipuri, "Mobile Ad Hoc Networks", in *Handbook of RF and Wireless Technologies*, edited by Farid Dowla, Newnes (an imprint of Elsevier), pp. 59 – 100, 2004.
2. Asis Nasipuri and Samir R. Das "Multi-channel MAC Protocols for Mobile Ad Hoc Networks", in *Handbook of Wireless and Mobile Computing*, edited by Azzedine Boukerche, Chapman and Hall/CRC Press, pp. 99 – 120, 2006.
3. Asis Nasipuri, "Localization in Wireless Sensor Networks", in *Algorithms and Protocols in Wireless Ad Hoc and Sensor Networks*, edited by Azzedine Bourkerche, Wiley & Sons (in press), 2007.

Journal Publications:

1. Asis Nasipuri and Kai Li, "Multi-sensor Collaboration in Wireless Sensor Networks for Detection of Spatially Correlated Signals", (invited paper) *International Journal of Mobile Network Design and Innovation*, vol. 1, no. 3/4, pp. 215-223, 2006.
2. A. Nasipuri and S. R. Das, "Performance of Multi-channel Wireless Ad Hoc Networks", *International Journal of Wireless and Mobile Computing*, Special Issue on Medium Access Control for WLANs, WPANs, Ad Hoc Networks, and Sensor Networks, vol. 1, nos. 3/4, pp. 191-203, 2006.
3. Kai Li and Asis Nasipuri, "Performance of a Collaborative Target Detection Scheme for Wireless Sensor Networks", *Lecture Notes in Computer Science: LNCS 2918*, December 2003, Springer.
4. A. Nasipuri, R. Castaneda, and Samir R. Das, "Performance of Multipath Routing for On-Demand Protocols in Mobile Ad Hoc Networks", *Mobile Networks (MONET) Journal*, Special Issue on Wireless Multicast and Routing Vol. 6, pp. 339 - 349, 2001. (65 citations¹)
5. A. Nasipuri and S. Tantaratana, "Nonparametric Distributed Detector Using Wilcoxon Statistics", *Signal Processing*, Vol. 57, No.2, March 1997, pp. 139-146, Elsevier Press.

¹ Citation numbers obtained from Google Scholar online

6. A. Nasipuri and S. Tantaratana, "Truncated Sequential CFAR Detectors Using Weighted Sign and Weighted Conditional Sign Tests", *Journal of the Franklin Institute*, Vol. 332B, No. 6, pp. 717-734, Elsevier Press, 1995.
7. S. Tantaratana and A. Nasipuri, "Two-stage Wilcoxon Detectors Using Conditional Tests", *IEEE Transactions on Information Theory*, Vol. IT-38, No. 3, May 1992, pp. 1080-1090.

International Peer-reviewed Conference Publications:

1. Vamsee K. Boda, Asis Nasipuri, and Ivan Howitt, "Design Considerations for a Wireless Sensor Networks for Locating Parking Spaces", to be presented at *IEEE SoutheastCon2007*, March 22 – 25, 2007.
2. Asis Nasipuri and Ribal El Najjar, "Experimental Evaluation of an Angle Based Indoor Localization System", Proceedings of the *Second IEEE International Workshop on Wireless Network Measurement (WinMee 2006)*, co-located with *WiOpt 2006*, April 3, 2006, Boston, MA.
3. Asis Nasipuri and Kai Li, "Collaborative Detection of Spatially Correlated Signals in Sensor Networks", Proceedings of the *2005 International Conference on Telecommunication Systems Modeling and Analysis*, Nov 17-20, Dallas, Texas, ISBN 0-9716253-3-6.
4. Teresa A. Dahlberg, Asis Nasipuri, and Craig Taylor, "Explorebots: A Mobile Network Experimentation Testbed", accepted for presentation and publication in the Proceedings of the *ACM Workshop on Experimental Approaches to Wireless Network Design and Analysis (E-WIND)*, August 2005.
5. Swapnil Patil, Samir Das, and Asis Nasipuri, "Serial Data Fusion Using Space-filling Curves in Wireless Sensor Networks", in Proceedings of the *IEEE International Conference on Sensor and Ad Hoc Communications and Networks (SECON 2004)*, October 4-7, 2004.
6. Saurabh Mishra and Asis Nasipuri, "An Adaptive Low Power Reservation Based MAC Protocol for Wireless Sensor Networks", in Proceedings of the *Workshop on Multihop Wireless Networks (MWN)*, held in conjunction with the *IEEE International Performance, Computing, and Communications Conference (IPCCC'04)*, April 15-17, 2004, Phoenix, AZ.
7. Ivan Howitt, Gail-Joon Ahn, Teresa Dahlberg, Asis Nasipuri, Yuliang Zheng, "Context & Environmental Aware Wireless Sensor Networks for Reconfigurable Manufacturing Systems," in Proceeding of the *CIRP 2nd International Conference on Reconfigurable Manufacturing*, August 2003.
8. Asis Nasipuri and Kai Li, "A Directionality based Location Discovery Scheme for Wireless Sensor Networks", in Proceedings of the *First ACM International Workshop on Wireless Sensor Networks and Applications (WSNA'02)*, held in conjunction with *ACM Mobicom'02*, September 28, 2002.
(42 citations)
9. Asis Nasipuri, Kai Li, and Uma Reddy Sappidi, "Power Consumption and Throughput in Mobile Ad Hoc Networks using Directional Antennas", in Proceedings of the *IEEE International Conference on Computer Communication and Networks (ICCCN2002)*, October 14-16, 2002, Miami, Florida.
(24 citations)

10. Kai Li and Asis Nasipuri, "Modeling MAC Performance in Mobile Ad Hoc Network Simulations", in Proceedings of the *Communication Networks and Distributed Systems Modeling and Simulation Conference (CNDS '02)*, January 27-31, 2002, San Antonio, Texas.
11. Nitin Jain, Samir R. Das, and Asis Nasipuri, "A Multichannel MAC Protocol with Receiver-Based Channel Selection for Multihop Wireless Networks", in Proceedings of the *IEEE International Conference on Computer Communication and Networks (ICCCN2001)*, Phoenix, AZ, October 2001.
(33 citations)
12. Asis Nasipuri, Ryan Burleson, Benjamin Hughes, and Johnny Roberts, "Performance of a Hybrid Routing Protocol for Mobile Ad Hoc Networks", in Proceedings of the *IEEE International Conference on Computer Communication and Networks (ICCCN2001)*, Phoenix, AZ, October 2001.
13. Asis Nasipuri and Samir R. Das, "Multichannel CSMA with Signal Power-Based Channel Selection for Multihop Wireless Networks", in Proceedings of the *IEEE Fall Vehicular Technology Conference (VTC 2000)*, Boston, September 2000.
(21 citations)
14. Asis Nasipuri, Shengchun Ye, and Robert E. Hiromoto, "A MAC Protocol for Mobile Ad Hoc Networks Using Directional Antennas", in Proceedings of the *IEEE Wireless Communications and Networking Conference (WCNC 2000)*, Chicago, September 2000.
(117 citations)
15. Asis Nasipuri, Jothsna Mandava, Hanumantha Manchala, and Robert E. Hiromoto, "On-Demand Routing Using Directional Antennas in Mobile Ad Hoc Networks", in Proceedings of the *IEEE International Conference on Computer Communication and Networks (ICCCN2000)*, October, 2000, Las Vegas.
(30 citations)
16. Sushil Gote, Asis Nasipuri, and Aloknath De, "Source-Aided Error Concealment in Packetized Voice Communication", Proceedings of the *International Conference on Communications, Computers, and Devices (ICCCD-2000)*, Indian Institute of Technology, Kharagpur, India, December 2000.
17. Asis Nasipuri, Jun Zhuang and Samir R. Das, "A Multichannel CSMA MAC Protocol for Multihop Wireless Networks", in Proceedings of the *IEEE Wireless Communications and Networking Conference (WCNC'99)*, New Orleans, September, 1999.
(40 citations)
18. Asis Nasipuri and Samir R. Das, "On-Demand Multipath Routing for Mobile Ad Hoc Networks", in Proceedings of the *IEEE International Conference on Computer Communication and Networks (ICCCN'99)*, Boston, October, 1999.
(104 citations)
19. R. Gangopadhyay, Asis Nasipuri, G. Gopalkrishnan, and P. T. Kulkarni, "Transmission Performance of Multiwavelength Ring Networks with Embedded Logical Wheel", Proceedings of the *Asia-Pacific Conference on Communications (APCC/ICCS'98)*, Singapore, November 1998.
20. Asis Nasipuri and Ranjan Gangopadhyay, "Performance of CPFSK with Fractional-bit Differential Detection in Mobile Fading Channels", Proceedings of the *International Conference on Computers and Devices for Communications (CODEC)*, Science City, Calcutta, India, January 1998.

21. Asis Nasipuri, R. Gangopadhyay, and Sachin Doshi, "Studies on WDM Ring Networks", Proceedings of the *National Conference on Communications*, I.I.T., Powai, Bombay, January 1998.
22. K. V. Martin, Asis Nasipuri, and Ranjan Gangopadhyay, "Simulation Studies on DS/SSMA Communication Systems with RAKE Receiver in Mobile Fading Channels", Proceedings of *INCURSI-96*, Burdwan University, India, January 1996.
23. Asis Nasipuri and Sawasd Tantaratana, "Nonparametric Distributed Detection Using Wilcoxon Statistics", Proceedings of the *Conference on Information Sciences and Systems*, The Johns Hopkins University, March 1993.
24. Asis Nasipuri and Sawasd Tantaratana, "Some Results on Distributed Detectors Using Wilcoxon Statistics", Proceedings of *30th Annual Allerton Conference on Communications, Controls & Computing*, University of Illinois at Urbana-Champaign, Sept. 1992.
25. Sawasd Tantaratana and Asis Nasipuri, "Two-stage Wilcoxon Detectors Using Conditional Wilcoxon Tests", Proceedings of the *Conference on Information Sciences & Systems*, Princeton University, NJ, May 1990.

Significant Unrefereed Publications:

1. Asis Nasipuri, K. R. Subramanian, Hilary Inyang, and William Armstrong, "REMS: Remotely Operating Environmental Monitoring System for High-Hazard and Inaccessible Regions", presented at the *International Conference on Energy, Environment and Disasters (INCEED 2005)*, July 2005.
2. Asis Nasipuri, Kalpathi Subramanian, Vincent Ogunro, John L. Daniels, and Helene A. Hilger, "Development of a Wireless Sensor Network for Monitoring a Bioreactor Landfill", to be presented at *Geo Congress 2006*, February 2006.

Patent:

1. Asis Nasipuri, "Method for Position Location in Wireless Sensor Networks Using Multiple Rotating Antenna Beams", U.S. Provisional Patent, filed June 2002.

INVITED TALKS:

- "Application Development with Wireless Sensor Networks", Workshop on Wireless and Mobile Computing, IEEE Computer Chapter, Kolkata, India, June 2005.
- "Research Issues on Wireless Sensor Networks", IEEE Chapter, Indian Institute of Technology, Kharagpur, July 2004.
- "Wireless Sensor Networking", Center for Mobile Computing, Jadavpur University, (organized by Computer Chapter, IEEE Calcutta Section), India, July 2004.
- "Medium Access Control Protocols for Wireless Multi-Hop Networks", The University of Texas at San Antonio, March 1999.
- "Medium Access Control Protocols for Wireless Multi-Hop Networks", Texas A&M University, College Station, Texas, Nov. 1998.
- "Personal Communication Systems", Interim Test Range of the Defense Research & Development Organization, Chandipur, India. Oct. 1997.

- “*Personal Communication Systems*”, Short course on Personal Multimedia & Broadband Communications and Networks, Indian Institute of Technology, Kharagpur, India. July 1995.
- “*Personal Communication Systems*”, Short course on Personal Communication Services, Indian Institute of Technology, Kharagpur, India. July 1996.
- “*Wavelength division multiplexed ring networks*”, Workshop on Wavelength Routed Optical Networks, Indian Institute of Technology, Kharagpur, India. Nov. 1997.

STUDENT RESEARCH GUIDANCE:

- **Ph.D. Students Graduated:**
 - Kai Li, dissertation title “Protocols for Mobile Ad Hoc Networks”, The University of North Carolina at Charlotte, 2002. (Dr. Li is currently Assistant Professor of Technology Systems at East Carolina University, Greenville, NC.)
- **Ph.D. Students in Progress:**
 - Rana Hadba, The University of North Carolina at Charlotte, started 2003.
 - Hadi Alasti, The University of North Carolina at Charlotte, started 2005.
- **M.S. Thesis Students Graduated (selected list):**
 - William R. Armstrong, M.S. thesis title “Localized Contour Detection in Wireless Sensor Networks”, The University of North Carolina at Charlotte, August 2005.
 - Saurabh Mishra, M.S. thesis title “An Adaptive Low Power Reservation Based Medium Access Control Protocol for Wireless Sensor Networks”, The University of North Carolina at Charlotte, December 2003.
 - Uma Reddy Sappidi, M.S. thesis title “Medium Access Control of Mobile Ad Hoc Networks using Directional Antennas”, The University of North Carolina at Charlotte, December 2003.
 - Jai Mondhe, M.S. thesis title “Multichannel MAC Protocol with Cooperative Channel Selection for Ad Hoc Networks”, The University of North Carolina at Charlotte, December 2003.
 - Jun Zhuang, M.S. thesis title “Multi-channel MAC Protocol with Memory based Channel Selection in Multi-hop Wireless Networks”, The University of Texas at San Antonio, 1999.
 - Sushil Gote, Master of Technology thesis title “Software for Evaluation and Design of Joint Source and Channel Coding in Satellite Channels”, Indian Institute of Technology, Kharagpur, India, 1997.
 - M. Jayasekhar, Master of Technology thesis title “Performance of Differential Detection on Mobile Wireless Channels”, Indian Institute of Technology, Kharagpur, India, 1997.
 - K. V. Martin, Master of Technology thesis title “Performance of DS/SSMA Communication Systems with RAKE Receiver in Mobile Fading Channels”, Indian Institute of Technology, Kharagpur, India, 1995.

- **M.S. Non-thesis Projects Supervised:**
 - Rennie Loila, “The Performance of GMSK in Multipath Fading Channels”, 2002.
 - Niraj Jalan, “Group Mobility Model for Ad Hoc Wireless Networks”, 2003.
 - Chulwoo Part, “A Survey of Location Discovery Schemes in Wireless Sensor Networks”, 2003.
 - Zeid Hakim Al-Kadi, “Wireless Community Networks”, 2003.
 - Chin Hsing Kuo, “IEEE 802.15.4: A Summary of Features and Applications”, 2004.
 - Sumanth Kumar Peppala, “Security in Bluetooth”, 2005.
- **Ph.D./M.S. Committees:**
 - Jing Wang, Ph.D. in Electrical and Computer Engineering, in progress.
 - Bing Cao, Ph.D. in Computer Science, 2004.
 - Kavan Acharya, Ph.D. in Electrical Engineering, 2004.
 - EunSang Bak, Ph.D. in Electrical Engineering, 2004.
 - Parag Vaishampayan, M.S. in Electrical Engineering, 2004.
 - Pratibha Bhasin. M.S. in Computer Science, 2004.
 - Vinod Namboodiri, M.S. in Computer Science, 2003.
 - Sai Kisor Vavilala, M.S. in Electrical Engineering, 2003.
- **Senior Undergraduate Projects Supervised:**
 - Ryan Bureson, Benjamin Hughes, and Johnny Roberts, “Modeling and Simulation of Mobility Patterns in Mobile Ad Hoc Networks”, 2001.
 - Joshua A Foster, “A Visualization Tool for a Routing Performance Evaluation of Mobile Ad Hoc Networks”, 2001.
 - Hesham Alsarhan and Zeid Al-Kadi, “Simulation and Performance Evaluation of a Hybrid Routing Protocol”, 2002.
 - Ribal El Najjar, “WiSeNet: an On-the-fly Deployable Intrusion Detection System”, 2003.
 - Andrew Penrod, Umang Jokhakar, and Michael Horsky, “A Hardware Prototype for a Position Estimation System”, 2003
 - Brian Toothman, Jerry Zacharias, Fred Cupo and Barret Fischer, “An Intelligent Traffic Guidance System for University Parking Services”, 2004.
 - Christopher Mack, Steven Yip, and Trung Nguyen, “Wireless Robots”, 2005.

TEACHING:

- **New Courses Developed:**
 - *ECGR 6120/8120 Wireless Communication and Networking.* (3) Prerequisites: ECGR 3123, ECGR 4123, graduate standing, or permission of the department. The cellular concept: interference issues, cell layout and planning, control techniques,

grade-of-service and system capacity; characteristics of the mobile radio channel and channel models; multiple access techniques in wireless: FDMA, TDMA, and CDMA; analog and digital cellular telephone standards; packet radio systems: description, medium access control, and routing issues. (*Spring*)

- **New Courses Offered:**

- *ECGR 6890 Individual Study and Projects: Special Topics in Communications* Characterization of the mobile fading channel, channel models; Speech coding techniques - linear predictive coding, CELP; Joint source and channel coding for bandwidth-limited channels; Packet radio network fundamentals – network model, need and nature of dynamic routing protocols, medium access protocols. (*Fall 2000*)
- *ECGR3890 Topics in Data Communications & Networking:* Supervised individual study on principles of data communication and networking concepts. It covers data transmission and reception in noisy channels, data link control, multiplexing, circuit and packet switching, and LANs. Emphasis will be given to learning the above material through software projects. (*Fall 2001*)
- *ECGR 8890 Individual Study and Projects: Introduction to wireless sensor networks:* what is a sensor network, applications, unique constraints, practical example - MICA nodes; sensing and signal detection basics - sensing model, detection theory concepts, distributed detection, collaborative signal detection; MAC (SMAC, IEEE 802.15.4 and ZigBee), geographic routing, attribute based routing; infrastructure management: localization, time synchronization, clusterization. (*Spring 2005*)

- **Courses Taught:**

Course Name	Where taught	Year(s)	No. of Students
Fundamentals of Electrical Engineering	U. Mass., Amherst	Spring 1993	Approx 45
Mobile Communications & Fading	I.I.T., Kharagpur, India	Spring of 1994, 1995, 1996, 1997.	Approx 12 – 20
Digital Signal Processing	I.I.T., Kharagpur, India	Fall of 1994, 1995, 1996, 1997	Approx 40 – 45
Basic Electronics	I.I.T., Kharagpur, India	Fall of 1994, 1995, 1996, 1997	Approx 60 – 75
Information Theory & Coding	I.I.T., Kharagpur, India	Spring 1995, 1996, 1997	Approx 10 – 18
Optical Communications	I.I.T., Kharagpur, India	Spring 1997, 1998	Approx 10 – 15
EE-4613: Communication Systems	UT at San Antonio	Spring 2000	27
ECGR-6890: Selected Topics in Comm.	UNC Charlotte	Fall 2000	4
ECGR-6090: Special Topics – Wireless Communications & Networks	UNC Charlotte	Spring 2001, 2002, 2003.	18, 13, and 10, respectively.
ECGR-3123: Data Communications & Networking	UNC Charlotte	Spring 2001, 2002, 2003, 2004, 2005.	25, 33, 64, 38, and 34, respectively.
ECGR-3132: Electronics-II	UNC Charlotte	Summer 2001	22
ECGR-3890: Topics in Data Communications & Networking	UNC Charlotte	Fall 2001	1
ECGR-6121/8121: Advanced Theory of Communications-I	UNC Charlotte	Fall 2001, 2002, 2003, 2004, 2005	18, 9, 9, 9, and 8 respectively.
ECGR-3111: Signals & Systems	UNC Charlotte	Fall 2002, 2003, 2004, 2005	57, 45, 53, and 56 respectively.

ECGR 6120/8120: Wireless Communications & Networking	UNC Charlotte	Spring 2004, 2005	14 and 18, respectively.
ECGR-5187: Data Communications	UNC Charlotte	Spring 2005	3
ECGR-8090: Selected Topics in Sensor Networks	UNC Charlotte	Spring 2005	1
ECGR-4123: Analog and Digital Communications	UNC Charlotte	Spring 2006	27
ECGR-6090/8090: Wireless Sensor Networks	UNC Charlotte	Spring 2006	27