Curriculum Vitae

Name:	Rohit Negi
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RESEARCH INTERESTS

Broadly interested in large scale networks, communication systems, information theory, with an emphasis on wireless communications and power systems. Research work has included Quality of Service over wireless links, MAC for ad hoc networks, sensor networks, large scale power system analysis, space-time codes for multiple-antenna fading channels, Orthogonal Frequency Division Multiplexing systems and data storage systems.

RECENT EMPLOYMENT

July 2009 - present	Carnegie Mellon University, Pittsburgh, Pennsylvania: Professor of Electrical and Computer Engineering. Research areas: Wireless communications, networking, information theory, communication theory and power networks.
July 2005 - June 2009	Carnegie Mellon University, Pittsburgh, Pennsylvania: Associate Professor of Electrical and Computer Engineering.
Sept. 2000 - June 2005	Carnegie Mellon University, Pittsburgh, Pennsylvania: Assistant Professor of Electrical and Computer Engineering.

EDUCATION

1996-2000	Stanford University, Stanford, CA Ph.D. in Electrical Engineering, September 2000 Thesis: *Power Adaptation Strategies for Delay Constrained Channels* Advisor: Prof. John Cioffi
1995-1996	Stanford University, Stanford, CA M.S. in Electrical Engineering (GPA: 4.15 out of 4)
1991-1995	Indian Institute of Technology (IIT), Bombay, India Bachelor of Technology in Electrical Engineering (GPA: 9.93 out of 10) Thesis: *Convergence and Bias in Lattice Filter Algorithms* Advisor: Prof. P.G. Poonacha

AWARDS AND HONORS

- Best paper award in IEEE International Conference on Smart Grid Communications (SmartGridComm), Taiwan, Dec. 2012.
- Best paper award in IEEE International Conference on Communications (Wireless communications symposium), Germany, 2009.
- Best paper award in IEEE International Symposium on Wireless Communication Systems (ISWCS), Italy, 2005.
- Best paper award in IEEE/ACM Broadband Networks (Broadnets), San Jose, USA, 2004.
- National Science Foundation (NSF) Career award 2004.
- Texas Instruments Award, 1997-2000, and Stanford Engineering Fellowship, 1995-1996.
- Stanford Engineering Graduate Fellowship, 1995-1996.
- **President of India Gold medal, IIT Bombay, 1995.** Awarded for the highest GPA in the graduating engineering class of 400 students.
- Secured the All India 11th Rank at the IIT Joint Entrance Exam, '91, amongst approximately 100,000 students who took the exam.
- Awarded the National Talent Search (NTS) scholarship, instituted by the National Council for Educational Research and Training (NCERT), India.
- Awarded the National Physics Olympiad gold medal, 1990, India.

PRIOR EXPERIENCE

Summer '98 Intern at Texas Instruments R&D Center, Dallas, Texas
Developed patented algorithms for antenna arrays, and adapted space-time codes to CDMA, for the Third Generation wireless system solution being developed at Texas Instruments.

Summer '97 Intern at Amati Communications Corp., San Jose, California
Designed novel interference cancellation algorithms for VDSL, including a matrix precoded scheme.

Summer '96 Intern at Bell Laboratories (Lucent Technologies), Crawford Hill, New Jersey
Performed cellular capacity calculations for wireless local loop using multiple antennas for beamforming.

Ph.D. STUDENTS ADVISED

1. Dapeng Wu, "Quality-of-Service for bursty traffic over fading wireless channels," Ph.D. dissertation, Carnegie Mellon University, Aug. 2003.
2. Xun Zhang, "Detection in perpendicular recording channels," Ph.D. dissertation, Carnegie Mellon University, April 2006.

3. Arjunan Rajeswaran, "Capacity and cross-layer design of ultra-wideband wireless networks," Ph.D. dissertation, Carnegie Mellon University, Jan. 2007.

4. Yaron Rachlin, "On the interdependence of sensing, accuracy and complexity in large-scale detection applications," Ph.D. dissertation, Carnegie Mellon University, Feb. 2007. Co-advised by P. Khosla.

5. Sung Chul Han, "A flexible decoder and performance evaluation for array-structured LDPC codes," Ph.D. dissertation, Carnegie Mellon University, Sept. 2007. Co-advised by M. Pueschel.

6. Gyouhwan Kim, "Scheduling in wireless ad hoc networks: algorithms with performance guarantees," Ph.D. dissertation, Carnegie Mellon University, Sept. 2008.

7. Satashu Goel, "Delay constrained communication over fading channels: A queued-code approach," Ph.D. dissertation, Carnegie Mellon University, May 2009.

8. Balakrishnan Narayanaswamy, "Sparse Measurement Systems: Applications, Analysis, Algorithms and Design," Ph.D. dissertation, Carnegie Mellon University, January 2011. Co-advised by P. Khosla.

9. Eui Seok Hwang, "Storage channels with write errors: Two-dimensional magnetic recording and Advanced memory systems,"Ph.D. dissertation, Carnegie Mellon University, July 2011. Co-advised by V. Bhagavatula.

10. Qiao Li, "Distributed Scheduling in Cyber-physical Systems," Ph.D. dissertation, Carnegie Mellon University, August 2012.

11. Yang Weng, "Cyber-physical and power systems," ongoing. Expected graduation May 2013.

12. Andrew Cheng, "Cyber-physical system analysis," ongoing. Expected graduation May 2014.

13. Vinay Prabhu, "Network science," ongoing. Expected graduation May 2014. Co-advised by M. Rodrigues.

14. Minhee Jun, "Reconfigurable RF-FPGA for digital communications," ongoing. Expected graduation May 2016.

EDUCATIONAL CONTRIBUTIONS

1. **Course 18-450:** Designed a new course in digital wireless communications, supplemented by extensive course notes, that covers digital modulation, equalization, coding (convolutional) and channel fading. This course explains the basic wireless processing operations, at an under-graduate level, and augments theoretical analysis by Matlab-based experiments. A course project builds a basic digital transceiver using USRP radios.

2. **Course 18-753:** Introduced information theory into the department syllabus, which explains the basics of the field to graduate students (and some under-graduates). Added a large number of examples to demonstrate the application of concepts from this difficult field, beyond the standard text-book. Supplementary algorithmic material shows practical applications of information theory, such as in machine learning, coding theory, etc.

3. **Course 18-859:** Designed and taught an advanced topics course on ad-hoc networks and ultrawideband communications. This course exposed graduate students to current research topics in wireless networks. Students also do a class project, which could be either theoretical, simulation-based or experimental. Some of the projects done by the students in the class were used as the basis for developing the wireless instructional lab.

4. **Instructional Wireless Lab:** Developed the Intel Instructional Wireless Laboratory. This lab provides students with hands-on experience with state of the art wireless technology, spanning the areas of channel propagation, physical layer, MAC, networking and applications.

5. **Course 18-752:** Taught an existing graduate course on detection, estimation and identification, covering the topics of frequentist testing (Neyman-Pearson theory) and Bayesian detection and estimation. The topics on detection and estimation in Scharf's text-book were augmented with my extensive notes on model identification and machine learning, so as to allow data-driven experimental projects in the class.

6. **Course 18-345:** Taught an existing undergraduate course on telecommunication networks. This course introduces undergraduates to the core ideas of networking, including the concept of layering, link layer protocols, MAC, routing in the internet and ATM networks.

PROFESSIONAL ACTIVITIES

1. Invited panelist at the National Science Foundation's Cyber-physical systems workshop, Alexandria, VA, Aug. 2010.

2. Associate Editor of IEEE Transactions on Mobile Computing, 2006 – 2010.

3. Associate Editor of IEEE Transactions on Wireless Communications, 2003 – 2007.

4. Communication Theory representative to IEEE ICC 2005 and IEEE ICC 2007.

5. Technical Program Committees of over 28 IEEE conferences, including most of the ICC and Globecom conferences in the past few years.

6. Finance Chair of the 12th International Packet Video workshop, Pittsburgh, PA, April 24-26, 2002.

7. Reviewer for over one hundred IEEE conference and journal papers, not including TPC papers.

8. Member of IEEE Information Theory, Vehicular Technology and Communications Societies.

9. Invited participant at the National Science Foundation's wireless networking workshop, Los Angeles, CA, Aug. 2006.

10. Member of the Communications program review panel of the National Science Foundation, Arlington, VA, June 2006.

11. Invited participant at the National Science Foundation's wireless networking workshop, Nashua, NH, Oct. 2004.

12. Invited participant at the National Science Foundation's wireless networking workshop, Charleston, SC, Jan. 2004.

13. Member of the Information Technology Research (FMF) review panel of the National Science Foundation, Arlington, VA, May 2004.

14. Invited participant at the National Science Foundation's advanced networking infrastructure workshop, Reston, VA, Jan. 2003.

15. Member of the Information Technology Research (CCF) review panel of the National Science Foundation, Arlington, VA, May 2002.

DISSERTATION

Power Control Strategies for Delay Constrained Channels: My Ph.D. thesis focused on fading (mobile) channels on which processing delay constraints have been imposed. Algorithms were derived that optimize transmission for such channels under various criteria. In particular, outage capacity issues were explored, and dynamic programs were shown to increase capacity substantially.

PATENTS

1. X. Zhang, R. Negi, E. Kurtas, X. Yang, "Jitter sensitive maximum-aposteriori sequence detection," US patent 7424077.

2. Co-inventor of US patents 6,643,338 and 6,449,314 and 6,424,679, obtained by Texas Instrument Corp.

3. Co-inventor of European patent #EP1999000203293, "Space time block coded transmit antenna diversity for WCDMA," obtained by Texas Instrument Corp.

BOOK CHAPTERS

1. R. Negi, Y. Rachlin, P. Khosla, "The sensing capacity of sensor networks," in *Wireless Sensor Networks; signal processing and communications perspectives*, edited by A. Swami, Q. Zhao, Y.W. Hong, L. Tong, John Wiley, 2007.

2. S. Goel and R. Negi, "Obtaining secrecy through intentional uncertainty," in *Securing wireless communications at the physical layer*, edited by R. Liu and W. Trappe, Springer, 2010.

PUBLICATIONS

1. Yang Weng, R. Negi and M. Ilic, "A Search Method for Obtaining Initial Guesses for Smart Grid State Estimation," in *Proc. IEEE SmartGridComm Symposium*, Tainan, Taiwan, Dec. 2012.

2. Yang Weng, Qiao Li, R. Negi, and M. Ilic, "Semidefinite programming for power system state estimation," in *Proc. IEEE Power and Energy Society General Meeting*, July 2012.

3. Andrew Cheng, Qiao Li, and R. Negi, "Towards a Secure Fair MAC in Wireless Ad Hoc Networks Using Trusted Computing Technology," in *IEEE Globecom* 2012.

4. Qiao Li, and R. Negi, "Maximal Scheduling in Wireless Networks with Priorities," *IEEE Transactions on Wireless Communications*, Oct. 2012.

5. Andrew Cheng, Qiao Li, and R. Negi, "Towards a Secure Fair MAC in Wireless Ad Hoc Networks Using Trusted Computing Technology," in *ACM WiSec* Nov. 2012.

6. Qiao Li, T. Cui, R. Negi, F. Franchetti, "On-line Decentralized Charging of Plug-In Electric Vehicles in Power Systems," submitted to *IEEE Transactions on Smart Grid*.

7. Qiao Li, T. Cui, Y. Weng, R. Negi, F. Franchetti, "An Information-Theoretic Approach to PMU Placement in Electric Power Systems," accepted to *IEEE Transactions on Smart Grid*.

8. Qiao Li and R. Negi, "Maximal Scheduling in Wireless Ad Hoc Networks With Hypergraph Interference Models," *IEEE Transactions on Vehicular Technology*, pp. 297 - 310, Jan. 2012.

9. Qiao Li and Rohit Negi, "Distributed scheduling in cyber-physical systems: the case of coordinated electric vehicle charging," in *Proc. IEEE Globecom SG-COMNETS*, Nov. 2011.

10. E. Hwang, N. Balakrishnan, R. Negi, B. V. K. Vijaya Kumar, "Iterative Cross-entropy Encoding for Memory Systems with Stuck-at Errors," in *IEEE Globecom*, 2011.

11. E. Hwang, S. Jeon, R. Negi, B. V. K. Vijaya Kumar, "Coding with side information for radiation-tolerant memory devices," *Interplanetary Network Progress Report*, 42-187, Nov. 2011.

12. E. Hwang, R. Negi, B. V. K. Vijaya Kumar, "Additive encoding low-density parity-check (AE-LDPC) codes for two-dimensional magnetic recording," in *Proc. ICNC: Intl. Conf. on Computing, Networking and Communications*, Oct. 2011.

13. Qiao Li and R. Negi, "Scheduling in Wireless Networks under Uncertainties: A Greedy Primal-Dual Approach," in *Proc. IEEE ICC*, 2011.

14. Qiao Li and R. Negi, "Distributed Throughput-optimal Scheduling in Ad Hoc Wireless Networks," in *Proc. IEEE ICC*, 2011.

15. Qiao Li, R. Negi and Marija Ilic, "Phasor Measurement Units Placement for Power System State Estimation: A Greedy Approach," in *Proc. IEEE Power and Energy Society General meeting conference*, 2011.

16. E. Hwang, R. Negi, and B. V. K. Vijayakumar, "Investigation of Two-dimensional Magnetic Recording (TDMR) with Position and Timing Uncertainty at 4 Tb/in2," *IEEE Transactions on Magnetics*, pp. 4775 - 4780, Dec. 2011.

17. E. Hwang, R. Negi, and B. V. K. Vijayakumar, "Scrubbing with Partial Side Information for Radiation-Tolerant Memory," in *Proc. IEEE Globecom*, 2010.

18. Yang Weng, R. Negi, Zhijian Liu and Marija Ilic, "Robust State-Estimation Procedure using a Least Trimmed Squares Pre-processor," in *IEEE Innovative Smart Grid Technologies Conference (ISGT)*, Jan. 2011.

19. Yaron Rachlin, Rohit Negi, Pradeep Khosla, "The sensing capacity of sensor networks," *IEEE Transactions on Information Theory*, pp. 1675-1691, March 2011.

20. Qiao Li and R. Negi, "Greedy Maximal Scheduling in Wireless Networks," in *Proc. IEEE Globecom*, 2010.

21. E. Hwang, R. Negi and B. V. K. Vijayakumar, "L1 minimization method for estimating sparsely represented errors," in *CMU Electricity Conference*, March 2010.

22. Narayanaswamy Balakrishnan, R. Negi and Pradeep Khosla, "Robust lossy detection using sparse measurements: The regular case," *IEEE Int. Symp. Information Theory*, pp. 1583-1587, June 2010.

23. E. Hwang, R. Negi, B. V. K. Vijayakumar and Roger Wood, "Investigation of Position and Timing Uncertainty in Two-Dimensional Magnetic Recording (TDMR) at 4 Terabits per square inch," in *Proc. Ninth Perpendicular Magnetic Recording Conference (PMRC)*, May 2010.

24. E. Hwang, R. Negi, B. V. K. Vijayakumar and Michael Cheng, "Signal Processing for Near 10 Tbit/in2 Density in Two Dimensional Magnetic Recording (TDMR)," in *Proc. 11th Joint MMM-Intermag Conference*, GH-01, 2010.

25. E. Hwang, R. Negi, and B. V. K. Vijayakumar, "Signal Processing for Near 10 Tbit/in2 Density in Two Dimensional Magnetic Recording (TDMR)," *IEEE Transactions Magnetics*, pp. 1813-1816, June 2010.

26. E. Hwang, R. Negi, and B. V. K. Vijayakumar, "Symmetric Information Rate of an Ideal Readback Two Dimensional Magnetic Recording (TDMR) Channel with Random Voronoi Grains," in *Proc. IEEE ICC*, May 2010.

27. Qiao Li and R. Negi, "Scheduling in Wireless Networks Under Uncertainties," in *Proc. IEEE ICC*, pp. 1-5, June 2010.

28. K. S. Chan, J. J. Miles, E. Hwang, W. Lin, R. Negi, B. V. K. Vijayakumar, and J. G. Zhu, "TDMR Platform Simulations and Experiments," *IEEE Trans. Magnetics*, vol. 45, no. 10, pp. 3837-3843, 2009.

29. Qiao Li and R. Negi, "Scheduling in Multi-hop Wireless Networks with Priorities," *Proc. IEEE Int. Conf. Infocom*, pp. 2926-2930, April 2009.

30. Narayanaswamy, Balakrishnan; Negi, Rohit; Khosla, Pradeep, "Robust detection of random variables using sparse measurements," *Proc. 7th Annual Allerton Conference on Communication, Control, and Computing*, pp.1468-1475, Sept 2009.

31. S. Goel and R. Negi, "Analysis of Delay Statistics for the Queued-Code," *Proc. IEEE Int. Conf. Communications*, pp. 1-6, June 2009.

32. Qiao Li and Rohit Negi, "Back-Pressure Routing and Optimal Scheduling in Wireless Broadcast Networks," *Proc. IEEE Globecom*, Nov. 2009.

33. S. Goel, R. Negi, "Guaranteeing secrecy using artificial noise," *IEEE Trans. Wireless Comm.*, vol.7, June 2008.

34. Qiao Li and Rohit Negi, "Prioritized maximal scheduling in wireless networks," in *Proc. IEEE Globecom*, 2008.

35. B. Narayanaswamy, Y. Rachlin, R. Negi, and P. Khosla, "An analysis of the computational complexity of sequential decoding of specific tree codes over Gaussian channels," in *Proc. IEEE Int. Symp. Information Theory*, 2008.

36. S. Goel and R. Negi, "Multiuser diversity in cellular downlink using the queued-code," in *Proc. IEEE Globecom*, 2008.

37. Euiseok Hwang, Rohit Negi and B. V. K. Vijaya Kumar, "Extended Kalman filter based acquisition timing recovery for magnetic recording read channels," in *IEEE Int. Conf. Communications*, 2008.

38. Gyouhwan Kim, Qiao Li and Rohit Negi, "A polynomial-time approximation algorithm for weighted sum-rate maximization in UWB networks," in *IEEE Int. Conf. Communications*, 2008.

39. Qiao Li, Gyouhwan Kim and Rohit Negi, "Maximal scheduling in a hypergraph model for wireless networks", in *IEEE Int. Conf. Communications*, 2008.

40. Gyouhwan Kim, Qiao Li and Rohit Negi, "A graph-based algorithm for scheduling with sum-interference in wireless networks," in *Proc. IEEE Globecom*, pp. 5059-5063, Washington DC, USA, Nov. 2007.

41. Satashu Goel and Rohit Negi, "A queued-code based on LDPC block codes," in *Proc. IEEE Globecom*, pp. 3255-3259, Washington DC, USA, Nov. 2007.

42. B. Narayanaswamy, Y. Rachlin, R. Negi, and P. Khosla, "The sequential decoding metric for detection in sensor networks," in *Proc. IEEE Int. Symp. Information Theory*, 2007.

43. A. Rajeswaran, G. Kim, R. Negi and N. Sai Shankar, "Interference handling in UWB versus 802.11n networks," in *Proc. IEEE Int. Conf. Commun.*, pp. 4710-4715, Glasgow, Scotland, June 2007.

44. G. Kim and R. Negi, "Dynamic programming for scheduling a single route in wireless networks," in *Proc. IEEE Int. Conf. Commun.*, pp. 3722-3727, Glasgow, Scotland, June 2007.

45. X. Zhang, R. Negi, "A MAP based algorithm for joint timing error and transition jitter estimation," in *Proc. 10th Joint MMM/Intermag Conference*, 2007.

46. X. Zhang, R. Negi, "Biased PRML scheme for transition noise dominant perpendicular recording channels," *Proc. 10th Joint MMM/Intermag Conference*, 2007.

47. X. Zhang, R. Negi, "A MAP based algorithm for joint timing error and transition jitter estimation," *IEEE Transactions on Magnetics*, vol. 43, pp. 2256-2258, June 2007.

48. A. Rajeswaran, Gyouhwan Kim and R. Negi, "Joint power adaptation, scheduling and routing for ultra wide band networks," *IEEE Trans. Wireless Comm.*, vol. 6, pp. 1964 - 1972, May 2007.

49. A. Rajeswaran and R. Negi, "Capacity of power constrained ad hoc networks," *IEEE Trans. Wireless Comm.*, vol. 6, pp. 1964-1972, May 2007.

50. X. Zhang and R. Negi, "Optimal detection for perpendicular recording channels with transition noise," *Journal of Applied Physics*, vol. 99, No. 8, April 2006.

51. X. Zhang, R. Negi, "A SOVA-based post processing scheme for transition noise dominant recording channels," in *Proc. 17th Magnetic Recording Conference (TMRC)*, 2006.

52. A. Rajeswaran and R. Negi, "PHY-graph model for ad hoc wireless MAC," in *64th Semi-Annual IEEE Vehicular Technology Conference (VTC)*, pp. 1-5, Vancouver, Canada, Sept. 2006.

53. S. Goel, R. Negi, "The queued-code in finite-state Markov fading channels with large delay bounds," in *Proc. IEEE Int. Symp. Information Theory*, pp. 30-34, Seattle, USA, July 2006.

54. Y. Rachlin, N. Balakrishnan, R. Negi, J. Dolan and P. Khosla, "Increasing sensor measurements to reduce detection complexity in large-scale detection applications," in *Proc. IEEE Military Communication (MILCOM)*, pp. 1-7, Oct. 2006.

55. Y. Rachlin, R. Negi and P. Khosla, "On the interdependence of sensing and estimation complexity in sensor networks," in *Proc. Info. Process. Sensor Networks (IPSN)*, pp. 160-167, April 2006.

56. Y. Rachlin, R. Negi, and P. Khosla, "Temporal sensing capacity," in *44th Allerton Conference*, Urbana-Champaign, USA, Sept. 2006.

57. G. Kim, A. Rajeswaran, and R. Negi, "UWB versus 802.11 - a network perspective," in *Proc. IEEE Broadnets*, pp. 1-9, Oct. 2006.

58. A. Rajeswaran, Gyouhwan Kim, and R. Negi, "A scheduling framework for UWB and cellular networks," *Springer Science (formerly Kluwer Academic) Journal on Mobile Networks and Applications Journal (MONET),* vol. 11, pp. 9-20, Dec. 2005.

59. Dapeng Wu, and R. Negi, "Effective capacity-based quality of service measures for wireless networks," *Springer Science (formerly Kluwer Academic) Journal on Mobile Networks and Applications Journal (MONET),* vol. 11, pp. 91-99, Dec. 2005.

60. S. Goel and R. Negi, "Secret communication in presence of colluding eavesdroppers," *Proc. IEEE Military Communication (MILCOM)*, Atlantic City, Oct. 2005.

61. Sung-Chul Han and R. Negi, "Early stopping for RAKE receivers," *Proc. IEEE International Symposium on Wireless Communication Systems (ISWCS)*, Italy, pp. 245-249, Sept. 2005.

62. R. Negi and S. Goel, "Secret Communication using Artificial Noise," *Proc. Vehicular Tech. Conf*, Dallas, Sept. 2005.

63. Y. Rachlin, R. Negi, and P. Khosla, "Sensing capacity for Markov random fields," *Proc. IEEE Int. Symp. Information Theory*, pp. 132-136, Sept. 2005.

64. Dapeng Wu and R. Negi, "Effective capacity channel model for frequency-selective fading channels," *Proc. IEEE Int. Conf. on Quality of Service in Heterogeneous Wired/Wireless Networks*, pp. 43, Aug. 2005.

65. Gyouhwan Kim, A. Rajeswaran, and R. Negi, "Joint power adaptation, scheduling and routing framework for wireless ad-hoc networks," *Proc. IEEE Int. Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, New York, USA, pp. 725-729, June 2005.

66. Dapeng Wu and R. Negi, "Utilizing multiuser diversity for efficient support of quality of service over a fading channel," *IEEE Transactions on Vehicular Technology*, vol. 54, pp. 1198-1206, May 2005.

67. R. Negi and A. Rajeswaran, "DoS analysis of reservation based MAC protocols," *Proc. IEEE Int. Conf. Commun.*, Seoul, pp. 3632-3636, May 2005.

68. Y. Rachlin, R. Negi, and P. Khosla, "Sensing capacity for discrete sensor network applications," *Proc. of Int. Conf. on Info. Proc. in Sensor Networks (IPSN)*, pp. 126-132, April 2005.

69. R. Negi, and A. Rajeswaran, "Scheduling and power adaptation for networks in the ultra wide band regime," *Proc. IEEE Globecom*, pp. 139-145, Dallas, USA, Dec. 2004.

70. R. Negi, and S. Goel, "An information-theoretic approach to queuing in wireless channels with large delay bounds," *Proc. IEEE Globecom*, pp. 116-122, Dallas, USA, Dec. 2004.

71. Y. Rachlin, R. Negi, and P. Khosla, "Sensing capacity of target detection," *Proc. IEEE Information Theory Workshop*, San Antonio, TX, pp. 147-152, Oct. 2004.

72. A. Rajeswaran, Gyouhwan Kim, and R. Negi, "A scheduling framework for UWB and cellular networks," *Proc. IEEE/ACM Broadband Networks*, pp. 386-395, San Jose, Oct. 2004.

73. Dapeng Wu, and R. Negi, "Effective capacity based QoS measures for wireless networks," *Proc. IEEE/ACM Broadband Networks*, pp. 527-536, San Jose, USA, Oct. 2004.

74. Dapeng Wu, and R. Negi, "Downlink scheduling in a cellular network for quality of service assurance," *IEEE Transactions on Vehicular Technology*, vol. 53, pp. 1547-1557, Sept. 2004.

75. A. Rajeswaran, and R. Negi, "Capacity of power constrained ad hoc networks," *Proc. IEEE Infocom*, pp. 443-453, Hong Kong, May 2004.

76. N. Badruddin, and R. Negi, "CDMA capacity increase due to relaying," *Proc. IEEE Wireless Communications and Networking Conf. (WCNC)*, pp. 243-248, March 2004.

77. R. Negi and A. Rajeswaran, "Physical layer effect on MAC performance in ad-hoc wireless networks," *Proc. IASTED Conference on Communications, Internet and Information Technology*, Phoenix, USA, Nov. 2003.

78. Dapeng Wu, and R. Negi, "Downlink scheduling in a cellular network for quality of service assurance," *Proc. IEEE Vehicular Technology Conference*, pp. 1391-1395, Oct. 2003.

79. Dapeng Wu, and R. Negi, "Utilizing multiuser diversity for efficient support of quality of service over a fading channel," *Proc. IEEE International Conference on Communications (ICC)*, pp. 2202-2207, May 2003.

80. Dapeng Wu, and R. Negi, "Effective capacity: A wireless channel model for support of quality of service," *IEEE Transactions on Wireless Communications*, vol. 2, pp. 630-643, July 2003.

81. R. Negi, A. Maleki and J. Cioffi, "Adaptive antennas for space-time codes in outdoor channels," *IEEE Transactions on Communications*, vol. 50, pp. 1918-1925, Dec. 2002.

82. R. Negi, and J. Cioffi, "Delay-constrained capacity with causal feedback," *IEEE Transactions on Information Theory*, vol. 48, pp. 2478-2494, Sept. 2002.

83. R. Negi, and J. Cioffi, "Blind OFDM symbol synchronization in ISI channels," *IEEE Transactions on Communications*, vol. 50, pp. 1525-1534, Sept. 2002.

84. D. Stancil, A. Berson, J. van't Hof, R. Negi, S. Sheth, P. Patel, "Doubling wireless channel capacity using co-polarised, co-located electric and magnetic dipoles," *IEEE Electronics Letters*, vol. 38, pp. 746-747, July 2002.

85. Dapeng Wu, and R. Negi, "Effective capacity: A wireless channel model for support of quality of service," *Proc. IEEE Globecom*, pp. 695-699, San Antonio, USA, 2001.

86. S. Vishwanath, Wei Yu, R. Negi, A. Goldsmith, "Space-time turbo codes: decorrelation properties and performance analysis for fading channels," *Proc. IEEE Global Telecommunications Conference (GLOBECOM)*, vol. 2, pp. 1016-1020, San Francisco, USA, Dec. 2000.

87. R. Negi, and J. Cioffi, "Stationary schemes for optimal transmission over fading channels with delay constraint," *Proc. IEEE Vehicular Technology Conference (VTC)*, pp. 358-361, Boston, USA, Sep. 2000.

88. R. Negi, M. Charikar. J. Cioffi, "Minimum outage transmission over fading channels with delay constraint," *Proc. IEEE International Conf. on Communications (ICC)*, vol. 1, pp. 282-286, New Orleans, USA, May 2000.

89. Won-Joon Choi, R. Negi, J. Cioffi, "Combined ML and DFE decoding for the V-BLAST system," *Proc. IEEE International Conf. on Communications (ICC)*, vol. 3, pp. 1243-1248, New Orleans, USA, May 2000.

90. R. Negi, and J. Cioffi, "Transmission over fading channels with channel side information and delay constraint," *Proc. IEEE Globecom*, pp. 2550-2554, Rio de Janiero, Brazil, Nov. 1999.

91. A. Dabak, S. Hosur and R. Negi, "Space time block coded transmit antenna diversity scheme for WCDMA," *Proc. IEEE Wireless Communications and Networking Conference (WCNC)*, pp. 1466-1469, New Orleans, USA, Sept. 1999.

92. A. Maleki, R. Negi and J. Cioffi, "Space-time coding over a code division multiple access system," *Proc. IEEE Wireless Communications and Networking Conference (WCNC)*, pp. 134-138, New Orleans, USA, Sept. 1999.

93. R. Negi, A. Maleki and J. Cioffi, "Adaptive antennas for space-time coding over block-time invariant multi-path fading channels," *Proc. IEEE Vehicular Technology Conference (VTC)*, pp. 70-74, Houston, USA, May 1999.

94. R. Negi, and J. Cioffi, "Pilot tone selection for channel estimation in a mobile OFDM system," *IEEE Transactions on Consumer Electronics*, vol. 44, pp. 1122-1128, Aug. 1998.

95. R. Negi, and J. Cioffi, "Blind OFDM symbol synchronization in ISI channels," *Proc. IEEE Globecom*, pp. 2812-2817, Sydney, Australia, Nov. 1998.

96. A. Maleki, R. Negi and J. Cioffi, "Space-time coding and transmission optimization for wireless channels," *Proc. Asilomar Conference on Signals, Systems, and Computers*, pp. 1798-1802, Pacific Grove, USA, Nov. 1998.

97. R. Negi, and J. Cioffi, "Pilot tone selection for channel estimation in a mobile OFDM system," *Proc. IEEE International Conference Consumer Electronics*, pp. 466-467, Los Angeles, USA, June 1998.