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## Education

**Ph.D.**, Electrical and Computer Engineering, University of Maryland, College Park, 1999.

**Dissertation:** “*Robust Communication Framework for Multimedia Data by Exploring Unequal Error Protection*,” supervised by Prof. K. J. Ray Liu

**M.S.E.**, Electrical and Computer Engineering, University of Maryland, College Park, 1998.

**B.S.**, with highest honor, Electrical Engineering, Xi’an Jiaotong University, Xi’an, China, 1995.

## Honors and Awards

- Featured in MIT Technology Review magazine March/April 2006 issue on *10 Emerging Technologies*, 2006.
- 2006 World Technology Award nominee
- *2005 TR35* (Tuning in Cognitive Radios) - MIT Technology Review magazine's list of the top 35 technology innovators under the age of 35, honored during the annual Emerging Technologies Conference at MIT, September 28-29, 2005.
- *Bell Laboratories President's Gold Award* - for “outstanding level of innovation, technical excellence, and business impact,” Bell Laboratories, Lucent Technologies, 2002.
- Nominated for *IEEE Trans. on Multimedia Best Paper Award*, (MMSPTC nomination), 2002.
- *George Harhalakis Outstanding Graduate Student Award* - for “outstanding contributions in cross-disciplinary research,” University of Maryland, College Park, 1998-99 (1 per year among 6 departments).
- *Institute for Systems Research Fellowship* - “for high quality research project and outstanding academic record,” University of Maryland, College Park, 1995 – 1998 (3 per year among 6 departments).
- *Graduated with the highest honor* (ranked 1<sup>st</sup> in EE department), Xi’an Jiaotong University, 1995.
- *Admitted to Highly-gifted Class at age of 15*, Xi’an Jiaotong University, 1990.

## Professional Activities

- Guest Editor (lead), Special Issue on Advanced Mobility Management and QoS Protocols for Mobile Internet, *IEEE Journal on Selected Area on Communications (JSAC)*, June 2004.
- Guest Editor (lead), Special Issue on Cross Layer Interaction for Communications, *EURASIP Journal on Applied Signal Processing*, Feb., 2005.
- Member, Multimedia Signal Processing Technical Committee, 2000-2004.
- Advisor, Multimedia Signal Processing Technical Committee, 2005- present.
- Member, IEEE, IEEE Signal Processing Society, IEEE Communication Society, 2000- present.
- Publication chair, *MMSP 2006*.

- Technical Program Track Chair, ICME 2006.
- Technical Program Area Chair, ICME 2004.
- Special Session Organizer, “Mobile Multimedia Communications,” *IEEE MMSP* 2001.
- **Technical Program Committees**
  - IEEE/ACM International Symposium on Dynamic Spectrum Access Networks (DySpan) 2007
  - ACM International Symposium on Mobile Ad Hoc Networking and Computing (Mobihoc) 2006
  - First International Workshop on Technology and Policy for Accessing Spectrum (TAPAS) 2006
  - IEEE Workshop on Networking Technologies for Software Defined Radio Networks (WSDR) 2006
  - IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON) 2006
  - IEEE Vehicular Technology Conference (VTC) Fall 2006
  - IEEE Wireless Communications and Networking Conference (WCNC) 2006
  - IEEE Radio and Wireless Symposium (RWS) 2006
  - IEEE second International Conference on Wireless Internet (WICON) 2006
  - ACM Workshop on Wireless Security (WiSe) 2005
  - IEEE WirelessCOM 2005
  - IEEE International Workshop on Multimedia Signal Processing (MMSP) 2005
  - IEEE International Conference on Multimedia & Expo (ICME) 2004
  - IEEE International Conference on Communications (ICC) 2003
  - IEEE Globecom 2003
  - IEEE International Conference on Multimedia & Expo (ICME) 2003
  - IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2002
  - IEEE International Workshop on Multimedia Signal Processing (MMSP) 2002
  - IEEE International Conference on Multimedia & Expo (ICME) 2002
  - IEEE International Conference on Multimedia & Expo (ICME) 2001

## Academic and Industrial Experiences

<i>2005-Present</i>	Assistant Professor, Department of Computer Science <b>University of California, Santa Barbara</b>
<i>2004-2005</i>	Project lead / Researcher, Wireless and Networking Group, <b>Microsoft Research Asia, Beijing, China</b>
<i>1999-2004</i>	Member of Technical Staff, Wireless Research Laboratory <b>Bell-Labs, Lucent Technologies, New Jersey</b>
<i>1998-1999</i>	Research Assistant, Electrical and Computer Engineering Department <b>University of Maryland, College Park</b>
<i>1995-1998</i>	Research Fellow, Electrical and Computer Engineering & Institute for Systems Research <b>University of Maryland, College Park</b>

## Book Chapters

1. H. Zheng and K. J. R. Liu, "Multimedia Services over Digital Subscriber Line," in *Encyclopedia of Telecommunications*, J. Proakis, ed., John Wiley & Sons, Inc., 2002.
2. H. Zheng and J. Boyce, "Streaming Video over Wireless Networks," in *Wireless Internet Handbook, Technologies, Standards, and Applications*, B. Furht, M. Ilyas, ed., CRC press, pp. 105-126, 2003.
3. H. Zheng and L. Cao, "Decentralized Spectrum Management through User Coordination," In *Cognitive Wireless Communications Networks*, Vijay Bhargava and Ekram Hossain, ed., Springer, to appear, 2007.

## Edited Special Issues in Journals

1. Special Issue on Advanced Mobility Management and QoS Protocols for Mobile Internet, *IEEE Journal on Selected Area in Communications (JSAC)*, (Lead Editor, with A. H. Aghvami, A. Ganz, R. Sivakumar and W. Zhu), Vol. 22, No. 5, June 2004.
2. Special Issue on Cross Layer Design for Communications and Signal Processing Systems, *EURASIP Journal on Applied Signal Processing*, (Lead Editor, with A. Ortega, L. Tong and M. Zorzi), Vol. 2005, iss. 2, February, 2005.

## Publications in Refereed Journals

1. H. Zheng and K.J.R Liu, "Robust Image and Video Transmission over Spectrally Shaped Channel Using Multicarrier Modulation," *IEEE Trans. On Multimedia*, Vol. 1, No. 1, pp. 88-103, March 1999.
2. H. Zheng and K.J.R. Liu, "The Subband Modulation: A Joint Power and Rate Allocation Framework for Subband Image and Video Transmission," *IEEE Trans. on Circuits and Systems for Video Technology*, Vol. 9, No. 5, pp.823-838, August 1999.
3. H. Zheng and K.J.R. Liu, "Power Minimization for Delivering Integrated Multimedia Services Over Digital Subscriber Line," *IEEE Journal on Selected Areas in Communications*, Vol. 18, No. 6, pp. 841-849, Special Issue on Error-Resilient Image and Video Transmission, June 2000.
4. H. Zheng and K.J.R Liu, "Optimization Approaches for Delivering Multimedia Services over Digital Subscriber Lines," *IEEE Signal Processing Magazine*, Vol. 17, No. 4, pp. 44-60, July 2000.
5. H. Zheng and J. Boyce, "An Improved UDP Protocol for Video Transmission over Internet-to-Wireless Networks," *IEEE Trans. On Multimedia*, Vol. 3, No. 3, pp. 356-365, September 2001.
6. H. Zheng, A. Lozano and M. Haleem, "Multiple ARQ Processes for MIMO Systems," *EURASIP Journal on Applied Signal Processing*, Special Issue on MIMO Systems and Signal Processing, Vol. 2004, No. 5, pp.772-782, May 2004.
7. H. Aghvami, A. Ganz, R. Sivakumar, H. Zheng, W. Zhu, "Guest editorial - Advanced mobility management and QoS protocols for next-generation wireless internet," *IEEE Journal on Selected Areas in Communications*, vol. 22, no. 5, pp. 797-801, June 2004.
8. H. Zheng and H. Viswanathan, "Optimizing ARQ Performance in High Speed Downlink Systems with Scheduling," *IEEE Trans. on Wireless Communications*, vol. 4, iss. 2, pp. 495-506, March 2005.
9. J. Chen, T. Lv and H. Zheng, "Joint Cross-layer Design for Wireless QoS Content Delivery," special issue on Cross Layer Interaction for Communications, *EURASIP Journal on Applied Signal Processing*, vol. 2005, iss. 2, pp. 167-182, February 2005.

10. S. Das, T. Klein, K. Leung, S. Mukherjee, G. Rittenhouse, L. Samuel, H. Viswanathan and H. Zheng, "Distributed paging and registration in wireless networks," *IEEE Network Magazine*, vol. 19, iss. 5, pp. 19-25, October, 2005.
11. C. Peng, H. Zheng, B. Y. Zhao, "Utilization and Fairness in Spectrum Assignment for Opportunistic Spectrum Access," *ACM Mobile Networks and Applications (MONET)*, vol. 11, iss. 4, pp. 555-576, May 2006.
12. J. Zhao, H. Zheng and G. Yang, "Spectrum Sharing through Distributed Coordination in Dynamic Spectrum Access Networks," to appear, *Wireless Communications and Mobile Computing*.

## Publications in Refereed Conferences

1. H. Zheng and K. J. R. Liu, "The Subband Modulation: A Combined Source Coding and Channel Modulation Scheme for Image and Video Transmission," *Proc. of IEEE Int'l Conf. on Image Processing (ICIP)*, pp. II-132-136, Chicago, IL, Oct. 1998.
2. H. Zheng, A. Raghupathy, and K. J. R. Liu, "A New Loading Algorithm for Image Transmitting over Noisy Channel: Combined Source Coding and Multicarrier Modulation Approach," *Proc. of the 32nd Asilomar Conference on Signals, Systems, and Computers*, vol. 2, pp. 1611-1615, Pacific Grove, CA, Nov. 1998 (invited paper).
3. H. Zheng and K. J. R. Liu, "Robust H.263 Video Transmission Over Spectrally Shaped Channels using Multicarrier Modulation," *Proc. of IEEE International Workshop on Multimedia Signal Processing*, pp. 585-590, Redondo Beach, CA, Dec. 1998.
4. H. Zheng and K.J.R. Liu, "Loading Algorithms for Subband Coded Image Transmission Using Multicarrier Modulation," *Proc. of SPIE Visual Communications and Image Processing*, vol. 3653, pp. 218-229, San Jose, CA, Jan. 1999 (invited paper).
5. H. Zheng and K.J.R. Liu, "A New Loading Algorithm Multimedia Data Transmission Over Spectrally Shaped Channels Using Multicarrier Modulation," *Proc. of IEEE Int'l Conference on Communications (ICC)*, vol. 3, pp. 1678-1682, Vancouver, BC, May 1999.
6. W. Trappe, H. Zheng, and K.J.R. Liu, "Adaptive Lifting Coding Scheme for Video Scene Changes," *Proc. of IEEE Multimedia Signal Processing Workshop*, pp. 321-326, Copenhagen, Denmark, Sept. 1999.
7. H. Zheng and K.J.R. Liu, "Transmitted Power Minimization for Subband Image Transmission over Spectrally Shaped Channels," *Proc. of IEEE Multimedia Workshop on Multimedia Signal Processing*, pp. 9-14, Copenhagen, Denmark, Sept. 1999.
8. H. Zheng and K.J.R. Liu, "Power Optimized Space-Time Coding for Image and Video Transmission over Wireless Channels," *Proc. of IEEE Int'l Conf. on Image Processing (ICIP)*, Kobe, Japan, Oct. 1999.
9. H. Zheng and K.J.R. Liu, "Space-Time Diversity for Image over Wireless Channels," *Proc. of IEEE International Symposium on Circuit and Systems (ISCAS)*, Geneva, Switzerland, May 2000 (invited paper).
10. H. Zheng and J. Boyce, "Packetization Scheme for MPEG Video over Wireless," *Proc. of IEEE Wireless and Communications and Networking Conference (WCNC)*, no.1, pp. 191-195, Chicago, IL, Sept. 2000 (invited paper).
11. H. Zheng and D. Samardzija, "On the Performance of H.263 Video over Multiple Antenna Systems," *Proc. of IEEE International Conf. on Vehicle Technology (VTC)*, Atlantic City, NJ, Oct. 2001.
12. H. Zheng, "Impact of Hybrid ARQ on BLAST Performance," *Proc. of IEEE International Vehicle Technology Conference (VTC)*, Atlantic City, NJ, Oct. 2001.

13. H. Zheng, A. Lozano and M. Haleem, "Multiple ARQ Processes for MIMO Systems," *Proc. of IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)*, Lisbon, Portugal, Sept. 2002.
14. H. Zheng and H. Vishvanathan, "High Speed Downlink Packet Data Systems with Scheduling, Hybrid ARQ and VoIP," *Proc. of Wireless and Optical Communications Conference*, Newark, NJ, April 2003 (invited paper).
15. H. Zheng, "Optimizing Wireless Multimedia via Cross Layer Design," *Proc. of IEEE International Conference on Multimedia and Expo (ICME)*, Baltimore, MD, July 2003, (invited paper).
16. H. Zheng and H. Vishvanathan, "Optimizing TCP Performance with HARQ and Scheduler," *Proc. of IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)*, Beijing, P.R. China, Sept. 2003.
17. H. Zheng and H. Vishvanathan, "Optimizing the ARQ performance in downlink packet data systems with scheduling," *Proc. of IEEE International Vehicle. Technology Conference (VTC fall)*, Orlando, FL. Oct. 2003.
18. H. Zheng, G. Rittenhouse and M. Recchione, "The Performance of Voice over IP over UMTS Downlink Shared Packet Channel under Different Delay Budgets," *Proc. of IEEE Vehicle Technology Conference (VTC fall)*, Orlando, FL. Oct. 2003.
19. G. Song, Y. Li, L. J. Cimini, Jr., H. Zheng, "A Joint Channel-Aware and Queue-Aware Data Scheduling in Multiple Shared Wireless Channels," *Proc. of IEEE Wireless and Communications and Networking Conference (WCNC)*, vol. 5, no. 1, pp. 1922-1927, Atlanta, GA, March 2004.
20. J. Chen, T. Lv, H. Zheng, "Cross Layer Design for QoS Aware Wireless Communications," *Proc. of IEEE International Symposium on Circuit and Systems (ISCAS)*, Vancouver, Canada, May 2004.
21. Jie Chen, Tiejun Lv, Haitao Zheng, "Joint cross-layer design for wireless QoS content delivery," *Proc. of IEEE International Conference on Communications (ICC)*, vol. 27, no. 1, pp. 4243-4247, Paris, France, June 2004.
22. T. E. Klein, K. K. Leung, H. Zheng, "Enhanced Scheduling Algorithms for Improved TCP Performance in Wireless IP Networks," *Proc. of IEEE Globecom*, Dallas, TX, Nov. 2004.
23. H. Zheng and C. Peng, "Collaboration and Fairness in Opportunistic Spectrum Access," *Proc. of IEEE International Conference on Communications (ICC)*, Seoul, Korea, May, 2005.
24. H. Zheng, Y. Zhu, C. Shen and X. Wang, "On the Effectiveness of Cooperative Diversity in Ad Hoc Networks: A System Level Study," *Proc. of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Philadelphia, PA, March 2005.
25. H. Zheng and G. Rittenhouse, "Providing VoIP Service in UMTS-HSDPA with Frame Aggregation," *Proc. of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Philadelphia, PA, March 2005.
26. S. Das, T. Klein, K. Leung, S. Mukherjee, G. Rittenhouse, L. Samuel, H. Viswanathan and H. Zheng, "Distributed Radio Link Control Protocol in an All-IP Cellular Network," *Proc. of IEEE Vehicular Technology Conference( VTC Fall)*, Dallas, TX, Sept. 2005.
27. L. Cao, H. Zheng, "Spectrum Allocation via Local Bargaining in Ad hoc Networks," *Proc. of 3rd Annual IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON)*, Santa Clara, CA, Sept., 2005.
28. H. Zheng and L. Cao, "Device-centric Spectrum Management," *Proc. of IEEE Int'l Symposium on New Frontiers in Dynamic Spectrum Access Networks (DySpan) 2005*, Baltimore, MD, Nov. 2005.

29. J. Zhao, H. Zheng and G. Yang, "Distributed Coordination in Dynamic Spectrum Allocation Networks," *Proc. of IEEE Int'l Symposium on New Frontiers in Dynamic Spectrum Access Networks (DySPAN) 2005*, Baltimore, MD, Nov. 2005.
30. Q. Wang, H. Zheng, "Route and Spectrum Selection in Dynamic Spectrum Networks," *Proc. of IEEE Consumer Communications and Networking Conference (CCNC)*, Las Vegas, NV, Jan. 2006 (invited)
31. Q. Yang, H. Zheng, J. Zhao, V. Li , "Adaptive Channel Selection through Collaborative Sensing," *Proc. of IEEE Int'l Conference on Communications (ICC)*, Istanbul, Turkey, May 2006.
32. P. A. Kumar Acharya, S. Singh and H. Zheng, "Reliable Open Spectrum Communications Through Proactive Spectrum Access," *Workshop on Technology and Policy for Accessing Spectrum (TAPAS)*, Boston, MA, August 2006.
33. A. Sharma, M. Tiwari and H. Zheng, "MadMAC: Building a Reconfigurable Radio Testbed Using Commodity 802.11 Hardware," *IEEE Workshop on Networking Technologies for Software Defined Radio (SDR) Networks*, to appear, Reston, VA, Sept. 2006.
34. B. Y. Zhao, R. Gilbert, K. Johnson, S. Wu and H. Zheng, "Location Independent Compact Routing for Sensor Networks," *ACM Mobishare*, to appear, Sept. 2006.
35. H. Zheng, J. Shi and L. Cao, "Group-Mobility-Aware Spectrum Management for Future Digital Battlefields," *IEEE Military Communication Conference (MILCOM)*, to appear, Washington DC, Oct. 2006.
36. R. Raghavendra, A. P. Jardosh, E. M. Belding-Royer and H. Zheng, "IPAC: IP-based Adaptive Packet Concatenation for Multihop Wireless Networks," *Asilomar Conference on Signals, Systems, and Computers*, to appear, Pacific Grove, CA, Nov. 2006.