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Research Interests

Wireless Internet, Multimedia networking, Wireless sensor networks, Embedded software, Telemetric services

Employment

Yonsei University, Seoul, Korea

Associate Professor

September, 2005 – present

Bell Laboratories, Lucent Technologies, Murray Hill, NJ,
Member of Technical Staff

July, 1999 – August, 2005

University of Michigan, Ann Arbor, MI,
Research Scientist

September, 1998 – July, 1999

Education

University of Michigan, Ann Arbor, MI

Ph.D., Computer Science & Engineering

August 1998

Thesis Title: Low-Cost Failure Recovery for Real-Time Communication in Multi-Hop Networks

Advisor: Kang G. Shin

Seoul National University, Seoul, Korea

M.S., Computer Engineering

February 1991

Seoul National University, Seoul, Korea

B.S., Computer Engineering

February 1989

Selected Honors and Awards

Teaching Excellence Award, Yonsei University (2007)

OKAWA Foundation Research Grant (2006)

Bell Laboratories Teamwork Award (2003, 2005)

Bell Laboratories President's Silver Award (2002)

Samsung Human-Tech Thesis Bronze Prize (1998)

University of Michigan Summer Research Fellowship (1993)

Korean Government Overseas Scholarship (1992 – 1995)

Graduation Honor, *Magna Cum Laude*, Seoul National University (1988)

DONGWON Academic Excellence Scholarship (1986 – 1988)

Selected Publications

- H. Choi and Seungjae Han, "Domain Load Balancing Routing for Multi-Gateway Wireless Mesh Networks", accepted for publication in *Wireless Networks*, Springer.
- Y. Bejerano, Seungjae Han, and M. Smith, "A Novel Frequency Planning Algorithm for Mitigating Unfairness in Wireless LANs", accepted for publication in *Computer Networks*, Elsevier.
- J. Kang and Seungjae Han, "Network Selection for Heterogeneous Multi-Service Wireless Networks", accepted for publication in *IEEE LCN*, 2010.
- S. Cho, H. Shin, Seungjae Han, H. Cha, and R. Ha, "Density-Adaptive Network Reprogramming Protocol for Wireless Sensor Networks", *Wireless Communications and Mobile Computing*, Wiley, Vol. 10, No. 6, page 857 – 874, June 2010.
- Y. Bejerano, H. Chio, Seungjae Han, and T. Nandagopal, "Performance Tuning of Infrastructure-Mode Wireless LANs", *IEEE WiOPT*, May 2010
- Seungjae Han, T. Nandagopal, Y. Bejerano, and H. Choi, "Analysis of Spatial Unfairness in Wireless LANs", *IEEE INFOCOM*, April 2009.
- S. Sim, J. Park, Seungjae Han, and S. Lee, "Seamless IP Mobility Support for Flat-Architecture Mobile WiMAX Networks", *IEEE Communications Magazine*, Vol. 47, No. 6, page 142 – 149, June 2009.
- Y. Bejerano and Seungjae Han, "Cell Breathing Techniques for Balancing the Access Point Load in Wireless LANs," *IEEE Transactions on Mobile Computing*, Vol. 8, No. 6, page 735 – 749, June 2009.
- S. Park, Seungjae Han, and S. Cho, "User Utility Discovery for Priority-based Network Resource Pricing", *Computers & Industrial Engineering*, Elsevier, Vol. 56, No. 4, page 1357 – 1368, May 2009.
- Y. Kim, Seungjae Han, "Proxy Mobile IP extension for Mobile Multimedia Multicast Services", *IEEE CCNC*, Jan. 2009
- S. Sim, S. Park, S. Kim, Seungjae Han, "Use of Incomplete Timestamp Records for Hospital Simulation Analysis", *HICSS*, Jan. 2009
- Y. Bejerano, Seungjae Han, K. Lee, and A. Kumar, "Single-Path Routing for Life Time Maximization in Multi-hop Wireless Networks", *IEEE LCN*, Oct. 2008
- D. Ko, Seungjae Han, H. Cha, and R. Ha, "A traffic control system for IEEE 802.11 networks based on available bandwidth estimation", *Wireless Communications & Mobile Computing*, Wiley, Vol. 8, No. 4, page 409-419, May 2008
- J. Park and Seungjae Han, "Balancing for video streaming services in hierarchical wireless networks," *Computer Networks*, Elsevier, Vol. 52, No.1, page 259 – 2746, Jan 2008.
- H. Choi and Seungjae Han, "Load Balancing Routing for Wireless Mesh Networks: An Adaptive Partitioning Approach", *IEEE CCNC*, Jan. 2008
- Y. Bejerano, Seungjae Han, and L. Li, "Fairness and Load Balancing in Wireless LANs using Association Control," *IEEE/ACM Transactions on Networking*, Vol. 15, No. 3, page 560-573, June 2007.
- O. Kwon, H. Cha, Seungjae Han, and R. Ha, "Empirical evaluation of receiver-based TCP delay control in CDMA2000 networks," *International Journal of Communication Systems*, Wiley, Vol. 20, No. 8, page 927 - 941, August 2007.

- Y. Bejerano, Seungjae Han, and A. Kumar, "Efficient Load Balancing Routing for Wireless Mesh Networks," *Computer Networks, Elsevier*, Vol. 51, No.10, page 2450 – 2466, July 2007.
- Y. Bejerano and Seungjae Han, "Cell Breathing Techniques for Balancing the Access Point Load in Wireless LANs," *IEEE INFOCOM*, 2006.
- Y. Bejerano, Seungjae Han, and L. Li, "Fairness and Load Balancing in Wireless LANs using Association Control," *ACM MOBICOM*, page 315 – 329, September 2004.
- T. Klein and Seungjae Han, "Assignment Strategies for Mobile Data Users in Hierarchical Overlay Networks: Performance of Optimal and Adaptive Strategies," *IEEE Journal on Selected Areas in Communications*, Vol. 22, No. 5, page 849 – 861, June 2004.
- Seungjae Han and T. Klein, "Performance Analysis of Adaptive and Online Assignment Strategies for Wireless Data Users in Hierarchical Overlay Networks," *IEEE GLOBECOM*, December 2003.
- M. Buddhikot, G. Chandranmenon, Seungjae Han, Y. Lee, S. Miller, and L. Salgarelli, "Design and Implementation of a WLAN/CDMA2000 Internetworking Architecture," *IEEE Communications Magazine*, Vol. 41, No. 11, page 90 – 100, November 2003.
- M. Buddhikot, G. Chandranmenon, Seungjae Han, Y. W. Lee, S. Miller, and L. Salgarelli, "Integration of 802.11 and Third-Generation Wireless Data Networks," *IEEE INFOCOM*, page 503 – 512, March 2003.
- Seungjae Han and K. G. Shin, "Experimental Evaluation of Behavior-based Failure-Detection Schemes in Real-time Communication Networks," *IEEE Transactions on Parallel and Distributed Systems*, Vol. 10, No. 6, page 613 – 626, June 1999.
- K. G. Shin, T. Abdelzاهر, Seungjae Han, J. Reumann, and E. Abram-Profeta., "Multimedia-Friendly Server and Communication Design," *IEEE Multimedia*, Vol. 6, No. 2, page 84 – 90, April 1999.
- K. G. Shin and Seungjae Han, "Fast Low-cost Failure Recovery for Reliable Real-time Multimedia Communication," *IEEE Network*, Vol. 12, No. 6, page 56 – 63, November 1998.
- Seungjae Han and K. G. Shin, "A Primary-backup Channel Approach to Dependable Real-time Communication in Multi-hop Networks," *IEEE Transactions on Computers*, Vol. 47, No. 1, page 46 – 61, January 1998.
- Seungjae Han and K. G. Shin, "Efficient Spare-resource Allocation for Fast Restoration of Real-time Channels from Network Component Failures," *IEEE Real-Time Systems Symposium (RTSS)*, page 99 – 108, December 1997.
- Seungjae Han and K. G. Shin, "Fast Restoration of Real-time Communication Services from Component Failures in Multi-hop Networks," *ACM SIGCOMM*, page 77 – 88, September 1997.
- Seungjae Han and K. G. Shin, "Experimental Evaluation of Failure-detection Schemes in Real-time Communication Networks," *IEEE FTCS*, page 122 – 131, June 1997.
- Seungjae Han, H. Rosenberg, and K. G. Shin, "DOCTOR : An Integrated Software Fault Injection Environment for Distributed Real-time Systems," *IEEE Computer Performance and Dependability Symposium (IPDS)*, page 204 ~ 213, April 1995.

Selected Patents

“Methods and devices for determining the adjacency of access points in a wireless network”, US Patent 7,430,189, September 2008.

“Integrated web cache,” US Patent 7,499,401, March 2009.

“Mobility access gateway,” US Patent 7,562,393, July 2009.

“Method for scheduling users in a hierarchical network,” US Patent 7,577,121, August 2009.

“User assignment strategies for hierarchical and other overlay networks,” US Patent 7,586,872, September 2009.

“Method for vertical handoff in a hierarchical network,” *US Patent pending*, 2006/0209882.

“Method for scheduling users in a hierarchical network,” *US Patent pending*, 2006/0203778.

“Methods and devices for iteratively determining mobile device-to-access point associations to achieve load balancing,” *US Patent pending*, 2006/0182023.

“Methods and devices for associating a mobile device to access points within a WLAN”, *US Patent pending*, 2006/0146768

“Fairness and load balancing in wireless LANs using association control,” *US Patent pending*, 2006/0064497

“Method and apparatus for adaptive and online assignment in hierarchical overlay networks,” *US Patent pending*, 2005/0014496

“Quality of service mechanisms for mobility access device,” *US Patent pending*, 2004/0100903