

Curriculum Vitae

Eun Jung Kim, Ph.D.
Assistant Professor

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RESEARCH INTERESTS:

Computer Architecture, Power/Temperature Control, Computer System Security, Parallel/Distributed Systems, Performance Evaluation, Fault-Tolerant Computing.

HONORS AND AWARDS:

- NSF CAREER Award, 2009.
- Ministry of Information and Communication, Faculty Fellowship, Korea, 2006.
- Ministry of Information and Communication, Faculty Fellowship, Korea, 2005.

EDUCATION:

1998–2003: The Pennsylvania State University, University Park, Pennsylvania.

Ph.D. in Computer Science and Engineering (Academic advisor: Dr. Chita R. Das).

Thesis: Design and Analysis of High Performance and Energy Efficient Cluster Interconnects.

1992–1994: Pohang University of Science and Technology, Pohang, Korea.

M.S. in Computer Science and Engineering (Academic advisor: Dr. S. Y. Bang).

Thesis: A Variation Measure for handwritten Character Image Data Using Entropy Difference.

1988–1992: Korea Advanced Institute of Science and Technology, Taejeon, Korea.

B.S. in Computer Science.

EXPERIENCE:

Texas A&M University (09/2003–present), College Station, Texas.

Assistant Professor, Department of Computer Science.

The Pennsylvania State University (08/1998–06/2003), University Park, Pennsylvania.

Research/Teaching Assistant, Department of Computer Science and Engineering.

Korea Telecom (03/1994–05/1997), Seoul, Korea.

Member of Technical Staff, Communication Network Research and Development Group.

- Design and implementation of the network management systems for switching equipments.
- Design and development of a network management model for PCS wireless network.
- TMN (Telecommunication Management Network) Standardization as a member of ITU-T SG7.

Pohang University of Science and Technology (03/1992–02/1994), Pohang, Korea.

Research/Teaching Assistant, Department of Computer Science and Engineering.

- Developed a printed Korean character recognizer using neural network.
- Built handwritten Korean character image database PE92.

PUBLICATIONS

(Kim's students are marked with *)

Book Chapters

1. E. J. Kim, K. H. Yum, and C. R. Das, "Introduction to Analytical Models," Performance Evaluation and Benchmarking, Edited by L. K. John and L. Eeckhout, Taylor & Francis, 2006.

Journal Papers

2. *M. Lee, *B. Ahn and E. J. Kim, "A Session Key Caching and Prefetching Scheme for Secure Communication in Cluster Systems," The Journal of Parallel and Distributed Computing (JPDC) (under minor revision).
3. Y. Kim, E. J. Kim, and R. N. Mahapatra, "Hierarchical Multiplexing Interconnection Structure for Cost-Effective Stage-Level Reconfigurable Chip Multiprocessor," to appear in EURASIP Journal on Embedded Systems.
4. *Y. Jin, E. J. Kim, and K. H. Yum, "Design and Analysis of On-Chip Networks for Large Scale Cache Systems," to appear in IEEE Transactions on Computers.
5. K. H. Yum, *Y. Jin, E. J. Kim, and C. R. Das, "Integration of Admission, Congestion, and Peak Power Control in QoS-Aware Clusters," to appear in The Journal of Parallel and Distributed Computing (JPDC).
6. *J. Iyer, *H. Yu, *H. Kim, E. J. Kim, K. H. Yum, and P. S. Mah, "Assuring K-Coverage in the Presence of Mobility and Wear-Out Failures," in Wireless Sensor Networks, in International Journal of Sensor Networks (IJSNet), Vol. 5, No.1, pp. 58-65, 2009.
7. *H. Kim, E. J. Kim, and K. H. Yum, "ROAL: A Randomly Ordered Activation and Layering Protocol for Ensuring K-Coverage in Wireless Sensor Networks," in Journal of Networks (JNW), Vol. 3, No. 1, pp. 43-52, Jan 2008.
8. *H. K. Lee, *V. Hall, K. H. Yum, K. I. Kim, and E. J. Kim, "Bandwidth Estimation in Wireless LANs for Multimedia Streaming Services," in Journal of Advances in Multimedia, vol. 2007, Article ID 70429, 2007.
9. *M. Lee, and E. J. Kim, "A Comprehensive Framework for Enhancing Security in Infini-Band Architecture," in *IEEE Transactions on Parallel and Distributed Systems*, Vol. 18, No. 10, pp. 1393-1406, Oct. 2007.

10. E. J. Kim, K. H. Yum, M. Yousif, J. Duato and C. R. Das, "Exploring IBA Design Space for Improved Performance," in *IEEE Transactions on Parallel and Distributed Systems*, Vol. 18, No. 4, pp. 498-510, April 2007.
11. E. J. Kim, G. M. Link, K. H. Yum, V. Narayanan, M. Kandemir, M. J. Irwin, and C. R. Das, "A Holistic Approach to Designing Energy-Efficient Cluster Interconnects," in *IEEE Transactions on Computers*, Vol. 54, No. 6, pp. 660-671, June 2005.
12. E. J. Kim, K. H. Yum, and C. R. Das, "Performance Analysis of a QoS Capable Cluster Interconnect," in *Performance Evaluation: An International Journal on Performance Modeling and Evaluation*, Volume 60, Issues 1-4, pp. 275-302, May 2005.
13. K. H. Yum, E. J. Kim, C. R. Das, and A. Vaidya, "MediaWorm: A QoS Capable Router Architecture for Clusters," in *IEEE Transactions on Parallel and Distributed Systems*, Vol. 13, No. 12, pp.1261–1274, December 2002.
14. D. H. Kim, Y. S. Hwang, S. T. Park, E. J. Kim, S. H. Park, and S. Y. Bang, "Handwritten Korean Character Image Database PE92," *IEICE Transactions on Information and System*, Vol. E79-D, No. 7, 1996.
15. D. H. Kim, E. J. Kim, and S. Y. Bang, "A Variation Measure for Handwritten Character Image Data Using Entropy Difference," *Pattern Recognition*, Vol. 30, No. 1, pp.19–29, 1997.

Conference Papers

16. *H. K. Lee, *B. S. Ahn and E. J. Kim, "Adaptive Prefetching Scheme Using Web Log Mining in Cluster-based Web Systems," to appear in Proceedings of the International Conference on Web Services (ICWS), Los Angeles, USA, July 2009 (18% acceptance rate).
17. *L. Wang, *H. J. Kim, *Y. Jin and E. J. Kim, "Recursive Partitioning Multicast: A Bandwidth-Efficient Routing for Networks-On-Chip," to be presented in the International Symposium on Networks-on-Chip (NOCS), San Diego, CA, May 2009 (23% acceptance rate).
18. *I. Yeo, *C. C. Liu and E. J. Kim, "Temperature-Aware Scheduler Based on Thermal Behavior Grouping in Multicore Systems," to appear in Design, Automation and Test In Europe (DATE), Nice, France, April 2009 (23.5% acceptance rate).
19. *I. Yeo, *C. C. Liu and E. J. Kim, "Predictive Dynamic Thermal Management for Multicore Systems," in Proceedings of the 45th Design Automation Conference (DAC), Anaheim, CA, June 2008 (23% acceptance rate).
20. *I. Yeo, and E. J. Kim, "Hybrid Dynamic Thermal Management Based on Statistical Characteristics of Multimedia Applications," in Proceedings of the International Symposium on Low Power Electronics and Design (ISLPED), Bangalore, India, August 2008 (17% acceptance rate).
21. *Y. Jin, K. H. Yum, and E. J. Kim, "Adaptive Data Compression for High-Performance Low-Power On-Chip Networks", in 41st International Symposium on Microarchitecture (MICRO-41), Lake Como, Italy, 2008 (19% acceptance rate).
22. *H. Kim, E. J. Kim, and K. H. Yum "A Randomly Ordered Activation and Layering Protocol for Ensuring K-Coverage in Wireless Sensor Networks," in International Conference on Wireless and Mobile Communications, March 2007 (31% acceptance rate).

23. *I. Yeo, *H. K. Lee, K. H. Yum and E. J. Kim, "Effective Dynamic Thermal Management for MPEG-4 Decoding," in IEEE International Conference on Computer Design (ICCD 2007), Lake Tahoe, USA, October, 2007 (28% acceptance rate).
24. *Y. Jin, E. J. Kim, and K. H. Yum "A Domain-Specific On-Chip Network Design for Large Scale Cache Systems", in Proceedings of 13th International Symposium on High-Performance Computer Architecture (HPCA-13), 2007 (16% acceptance rate).
25. *M. Lee, *M. S. Ahn, and E. J. Kim, "I²SEMS: Interconnects Independent Security Enhanced Shared Memory Multiprocessor Systems," in Proceedings of the 16th International Conference on Parallel Architectures and Compilation Techniques (PACT 2007), Brasov, Romania, September, 2007 (19% acceptance rate).
26. *H. K. Lee, *V. Hall, K. H. Yum, K. I. Kim and E. J. Kim, "Design of Active Set Top Box in a Wireless Network for Scalable Streaming Services," in Proceedings of the 2007 International Conference on Image Processing (ICIP), San Antonio, 2007 (28% acceptance rate).
27. *H. K. Lee, *V. Hall, K. H. Yum, K. I. Kim and E. J. Kim "Bandwidth Estimation In Wireless LANs For Multimedia Streaming Services," in Proceedings of the 2006 International Conference on Multimedia & Expo 2006 (ICME) (22% acceptance rate).
28. *B. Azeez, *H. Kim, *Y. Jin and E. J. Kim, "I/O Node Placement for Performance and Reliability in Torus Networks," in Proceedings of The 18th IASTED International Conference on Parallel and Distributed Computing and Systems (PDCS).
29. *H. K. Lee, *G. Vageesan, K. H. Yum and E. J. Kim "A PROactive Request Distribution(PRORD) Using Web Log Mining in Cluster-Based Web Server," in Proceedings of the 2006 International Conference on Parallel Processing (ICPP) (32% acceptance rate).
30. *H. Yu, *J. Iyer, *H. Kim, K. H. Yum, P. Mah and E. J. Kim "Assuring K-Coverage in the Presence of Mobility in Wireless Sensor Networks," in Proceedings of the IEEE Global Telecommunication Conference, selected for best papers (GLOBECOM 2006) (28% acceptance rate).
31. Praveen S Bhojwani, Rabi N. Mahapatra and E. J. Kim, "A Heuristic for Peak Power Constrained Design of Network on Chip (NoC) based Multimode Systems", in IEEE Proceedings of Intl. Conf. on VLSI Design, IEEE Computer Press, 2005 (35% acceptance rate).
32. *M. Lee, E. J. Kim and M. Yousif, "Security Enhancement in InfiniBand Architecture," In the Proceedings of the 19th IEEE International Parallel & Distributed Processing Symposium 2005, Denver, 2005 (14% acceptance rate).
33. *Y. Jin, E. J. Kim, K. H. Yum "Peak Power Control for a QoS Capable On-Chip Network", in International Conference on Parallel Processing(ICPP) 2005 (28.6% acceptance rate).
34. *H. K. Lee, *G. Vageesan and E. J. Kim "On Improving Performance and Conserving Power in Cluster-based Web Servers," in International Conference on Web Services(ICWS) 2005 (19% acceptance rate).
35. E. J. Kim, K. H. Yum, G. Link, V. Narayanan, M. Kandemir, M. J. Irwin, M. Yousif, and C. R. Das, "Energy Optimization Techniques in Cluster Interconnects," in *Proceedings of International Symposium on Low Power Electronics and Design (ISLPED'03)*, pp.459-464, August 2003, Korea (7% acceptance rate for regular papers).

36. E. J. Kim, K. H. Yum, C. R. Das, M. Yousif, and J. Duato, "Performance Enhancement Techniques in InfiniBandTM Architecture," in *Proceedings of IEEE International Symposium on High Performance Computer Architecture (HPCA-9)*, pp.253–262, February 2003, Anaheim, CA (17% acceptance rate).
37. K. H. Yum, E. J. Kim, C. R. Das, M. Yousif, and J. Duato, "Integrated Admission and Congestion Control for QoS Support in Clusters," in *Proceedings of IEEE International Conference on Cluster Computing*, pp. 325–332, September 2002, Chicago, IL.
38. E. J. Kim, K. H. Yum, and C. R. Das, "Calculation of Deadline Missing Probability in a QoS Capable Cluster Interconnect," in *Proceedings of IEEE International Symposium on Network Computing and Applications (NCA)*, pp.34–43, February 2002, Cambridge, MA.
39. E. J. Kim, K. H. Yum, and C. R. Das, "An Analytical Model for a QoS Capable Cluster Interconnect," in *Proceedings of International Conference on Measurement, Modeling and Evaluation of Computer and Communication Systems (MMB)*, pp.9–24, September 2001, Germany.
40. K. H. Yum, E. J. Kim, and C. R. Das, "QoS Provisioning in Clusters: An Investigation of Router and NIC Design," in *Proceedings of ACM International Symposium on Computer Architecture (ISCA)*, pp.120–129, June 2001, Sweden (15% acceptance rate).

Workshop Papers, Posters and Technical Reports

41. *M. Lee, *E. J. Kim, K. H. Yum, and M. Yousif, "An Overview on Security Issues in Cluster Interconnects," in the Proceedings of the Cluster-Sec 2006 Workshop (invited paper, CCGrid Workshops) 2006, Singapore.
42. *H. Kim, E. J. Kim and R. N Mahapatra, "Power Management in RAID Server Disk System Using Multiple Idle States", in the Proceedings of International Workshop on Unique Chips and Systems (UCAS) 2005. Poster version presented in the Fourth Annual Austin Conference on Energy-efficient Design, 2005.
43. *H. K. Lee, *G. Vageesan and E. J. Kim, "Application-Level Memory Management in Cluster-based Servers", poster presentation in the Fourth Annual Austin Conference on Energy-efficient Design, 2005.
44. *M. Lee, E. J. Kim, K. H. Yum, and M. Yousif, "Instant Attack Stopper in InfiniBand Architecture," In the Proceedings of the Cluster-Sec 2005 Workshop (Cluster-Sec, CCGrid Workshops) 2005, Cardiff, UK, 2005.
45. *M. Lee, E. J. Kim, and C. W. Lee, "A Source Identification Scheme against DDoS Attacks in Cluster Interconnects," in International Workshop on Network Design and Architecture (IWNDA) in conjunction with ICCP 2004.
46. H. Kim, Y. Jin, and E. J. Kim, "Power Management in RAID Server Disk System Using Multiple Idle States," Technical Report 2004-11-3, Department of Computer Science, Texas A&M University, November 2004.
47. Y. Jin, H. Kim, E. J. Kim, and K. H. Yum, "Peak Pwer Control for a QoS Capable On-Chip Network," Technical Report 2004-11-2, Department of Computer Science, Texas A&M University, November 2004.

48. H. Lee, G. Vageesan, and E. J. Kim, "Power and Locality Aware Request Distribution," Technical Report 2004-7-3, Department of Computer Science, Texas A&M University, July 2004.
49. E. J. Kim, K. H. Yum, N. Kim, C. R. Das, and M. Yousif, "Performance Enhancement Techniques for QoS Provisioning in InfiniBandTM Architecture," Technical Report CSE-02-005, Department of Computer Science and Engineering, The Pennsylvania State University, February 2002.
50. E. J. Kim, K. H. Yum, and C. R. Das, "Performance Analysis of a QoS Capable Cluster Interconnect," Technical Report CSE-01-001, Department of Computer Science and Engineering, The Pennsylvania State University, January 2001.
51. K. H. Yum, E. J. Kim, and C. R. Das, "QoS Provisioning in Clusters: An Investigation of Router and NIC Design," Technical Report CSE-01-005, Department of Computer Science and Engineering, The Pennsylvania State University, March 2001.
52. K. H. Yum, E. J. Kim, G. Viswanathan, C. R. Das, M. Yousif, and J. Duato, "Integrated Admission and Congestion Control for QoS Support in Clusters," Technical Report CSE-01-26, Department of Computer Science and Engineering, The Pennsylvania State University, October 2001.
53. K. H. Yum, E. J. Kim, V. Shirodkar, S. Hanabe, and C. R. Das, "Design and Analysis of a Versatile Router for Supporting Integrated Traffic in Clusters," Technical Report CSE-00-021, Department of Computer Science and Engineering, The Pennsylvania State University, October 2000.
54. E. J. Kim and S. B. Kim, "Customer Network Management for Public Data Network," in *Proceedings of Korea Electronic Communication Society Conference*, July 1996, Korea.
55. E. J. Kim, D. H. Kim, and S. Y. Bang, "A Verification of Variation Measure for Handwritten Korean Character," in *Proceedings of Hangul and Korean Information Processing Society Conference*, September 1993, Korea.
56. E. J. Kim, Y. H. Park, and S. Y. Bang, "The Development of Recognition System for Printed Korean Character," in *Proceedings of Korea Information Science Society Conference*, March 1993, Korea.

Manuscripts Submitted for Publication

Journal Papers

1. *M. Lee, *M. Ahn and E. J. Kim, "Fast Secure Communications in Shared Memory Multiprocessor Systems", submitted to *IEEE Transactions on Parallel and Distributed Systems (TPDS)*.
2. *B. Azeez, *H. Kim, *Y. Jin, E. J. Kim, "I/O Node Placement for Performance and Reliability in Torus Networks", submitted to *Microprocessors and Microsystems*.
3. *I. Yeo and E. J. Kim, "Thermal-Aware Scheduler Based on Statistical Characteristics of Multimedia Applications", submitted to *ACM Transactions in Embedded Computing Systems (TECS)*.

4. *Lei Wang, Yuho Jin and Eun Jung Kim, "Design and Analysis of Multicast Routing for Networks-On-Chip", submitted to IEEE Transactions on COMPUTER-AIDED DESIGN of Integrated Circuits and Systems (TCAD).

RESEARCH PROJECTS:

- NSF:CAREER: Communication-Centric Chip Multiprocessor Design; National Science Foundation; PI: E. J. Kim; Grant period: 03/01/09 – 2/30/14; Amount: \$400,000.
- NSF: Collaborative Research: Design and Analysis of High-Performance, Energy-Efficient, and Secure Clusters; National Science Foundation; PI: E. J. Kim, Ki Hwan Yum; Grant period: 04/01/06 – 3/31/09; Amount: \$150,000.
- ETRI: Design and Analysis of Embedded Software Solutions in Wireless Environments; Electronics and Telecommunications Research Institute (ETRI), Korea; PI: E. J. Kim, Co-PI: Ki Hwan Yum; Grant period: 05/01/05 – 12/31/07; Amount: \$180,000.

PROFESSIONAL ACTIVITIES:

- Member of ACM and IEEE.

Service on Conference Organizing and Program Committees

- Program Co-Chair of the Parallel and Distributed Computing track at the 16th International Conference on Computer Communications and Networks (ICCCN 2007).
- Program Committee member of IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA) 2007, the International Symposium on High-Performance Computer Architecture 2006, the the 33rd International Conference on Parallel Processing (ICPP 2004), the 10th International Conference on Parallel and Distributed Systems (ICPADS'04), International Workshop on Network Design and Architecture (IWNDA 2004).

Proposal Review

- Panelist/Reviewer, National Science Foundation. (2009, 2008, 2007)
- Reviewer, U.S. Army Research. (2008)

Paper Review

- Reviewer of ISCA, HPCA, DAC, IPDPS, ICPP, HiPC, IEEE Transactions on Computers, IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on VLSI Systems, Journal of Microprocessors and Microsystems, Journal of Parallel and Distributed Computing.

DEPARTMENTAL COMMITTEE SERVICE:

- Member of Undergraduate Curriculum Committee, Department of Computer Science, Texas A&M University (2008.9 - present).
- Member of Graduate Advisory Committee, Department of Computer Science, Texas A&M University (2007.9 - 2008.8).
- Member of Undergraduate Student Awards Committee, Department of Computer Science, Texas A&M University (2006.9 - 2007.8).

- Member of Graduate Assistantship & Scholarship Selection Committee, Department of Computer Science, Texas A&M University (2005.9 - 2006.8).
- Member of Student Award Committee, Department of Computer Science, Texas A&M University (2004.9 - 2005.8).
- Member of Library Committee, Department of Computer Science, Texas A&M University (2003.8 - 2004.8).

INVITED TALKS:

- “Secure Cluster Design,” Computer Engineering Seminar, Department of Electrical and Computer Engineering, Texas A&M University, 3/20/06.
- “Secure Cluster Design,” Pohang University of Science and Technology, 8/12/05.
- “Fault Tolerant Routing in Energy Efficient Cluster Interconnects,” IBM Austin Research Lab, 1/30/04.
- “Fault Tolerant Routing in Energy Efficient Cluster Interconnects,” CPSC 681 Graduate Seminar, Department of Computer Science, Texas A&M University, 11/24/03.
- “High Performance and Energy Efficient Cluster Interconnects,” Department of Computer Information Science and Engineering, University of Florida, 4/23/03.
- “High Performance and Energy Efficient Cluster Interconnects,” Department of Computer Science, Texas A&M University, 4/16/03.
- “High Performance and Energy Efficient Cluster Interconnects,” Department of Electrical and Computer Engineering, University of Rhode Island, 3/13/03.
- “High Performance and Energy Efficient Cluster Interconnects,” Department of Computer Science, University of Delaware, 3/3/03.
- “High Performance and Energy Efficient Cluster Interconnects,” Department of Electrical and Computer Engineering, Rutgers University, 2/23/03.
- “High Performance and Energy Efficient Cluster Interconnects,” Department of Electrical and Computer Engineering, Michigan State University, 2/3/03.
- “Performance Enhancement Techniques for InfiniBand™ Architecture,” International Symposium on High-Performance Computer Architecture (HPCA-9), 2/10/03.
- “Calculation of Deadline Missing Probability in a QoS Capable Cluster Interconnect,” International Symposium on Network Computing and Applications (NCA 01), 2/14/02.

COURSE TAUGHT:

- CPSC 321 (Undergraduate level Computer Architecture)
- CPSC 614 (Graduate level Computer Architecture)
- CPSC 689-609 (Special Topics in Cluster Interconnects)
- CPSC 689-604 (Special Topics in Chip Multiprocessor Systems)

STUDENT RESEARCH ADVISING:

Ph.D. Students

- Hogil Kim (Graduated in 2007, First Employment: Korea Army Academy at Yeong-cheon).
- Manhee Lee (Graduated in 2008, First Employment: Cisco).
- Yuho Jin (Graduated in 2009, First Employment: University of Southern California).

- Heungki Lee (Spring 2004 – present).
- Minseon Ahn (Fall 2005 – present).
- Inchoon Yeo (Spring 2006 – present).
- Baiksong Ahn (Fall 2006 – present).
- Lei Wang (Fall 2007 – present).

Master Students

- Gopinath Vageesan (Graduated in 2005, First Employment: Microsoft).
- Baba Tunde (Graduated in 2005, First Employment: National Instrument).
- Varrian Hall (Graduated in 2006, First Employment: Raytheon).
- Jayakrishnan V. Iyer (Graduated in 2008, First Employment : Jupiter).
- Sung Ho Park (Graduated in 2008, First Empolyment : Intel).
- Chihchun Liu (Graduated in 2008, First Empolyment : Flowserver).
- Poornachandran Kumar (Fall 2007 – present).