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Education

Institution	Date	Degree	Major
Syracuse University	2001	Ph.D.	Computer Information Science
Dissertation title:	Adaptive Communication System (ACS): Design and Evaluation		
Thesis Advisor:	Professor Salim Hariri		
University of Colorado-Boulder	1994	M.S.	Computer Science
Sogang University, S. Korea	1987	M.S.	Computer Science
Thesis title:	Dynamic Self-Adjusting Processor Scheduling Algorithm		
Thesis Advisor:	Professor Felix M. Villarreal S.J.		
Sogang University, S. Korea	1985	B.S.	Computer Science

Professional Experience

- 2001– present:** Assistant Professor in the Department of Computer Science and Engineering, University of Colorado at Denver and Health Sciences Center.
- 2000 – 2001:** Teaching Assistant, Department of Electrical Engineering and Computer Science, Syracuse University.
- 1994 – 2000:** Research Assistant, Center for Advanced Technology in Computer Applications and Software Engineering, Syracuse University.
- 1991 – 1991:** Lecturer, Department of Computer Science, Shin-Gu College, South Korea
- 1987 – 1992:** Research Associate Engineer, Luck-GoldStar Information and Communication, Inc., Seoul, Korea.
- 1983 –1987:** Teaching Assistant, Department of Computer Science, Sogang University, Seoul Korea.

Refereed Journal Publications

- 2007-J1** K. Kim and I. Ra, e-Lollapalooza: A Process-Driven e-Business Service Integration System for e-Logistic Service, *J. of KSII Trans. on Internet and Information Systems*, Vol. 1, No. 1, pp. 33—51, December 2007.
- 2005-J2** I. Ra and K. Kim, A Process-driven Multiparty Business-to-Business Collaboration and Choreography Model, *J. of Computer Science and Network Security*, Vol. 5, No. 12, pp. 29—34, December 2005.
- 2005-J1** K. Kim, I. Ra and C. Kim, Software Architectural Performance Estimations Using Layered Queuing Model for Very Large Scale Clustered Workflow Architectures, *J. of Electronics and Computer Science*, Vol. 7, No. 1, pp. 57—65, 2005.
- 2004-J1** S. Kim, M. Ko, S. Park, I. Ra and Y. Lee, Automated Pricing for E-Commerce Systems, *Annual Review of Communications*, Vol. 56, International Engineering Consortium, pp. 1021—1025, 2004.

- 1998-J1** H. Topcuoglu, S. Hariri, I. Ra, et. al, The Design and Evaluation of a Virtual Distributed Computing Environment, Vol. 1, No.1, *The J. of Networks, Software Tools and Applications*(Cluster Computing), pp. 81—93,1998.
- 1997-J1** S. Hariri, S. Park, I. Ra, et. al, ATM High Performance Distributed Computing Laboratory, *Lecture Notes on Control and Information Systems 226*, Edited by G. Cooperman, G. Michler and H. Vinck, Springer Verlag, 1997.
- 1985-J1** I. Ra, Design of Cyber FORTRAN V Pre-compiler for Structured Programming, *J. of the Korean Information Science Society*, 1985.

Publications in Refereed Proceedings

- 2008-P2** M. Kim, I. Ra, J. Yoo, D. Kim and H. Kim, QoS Mesh Routing Protocol for IEEE 802.16 based Wireless Mesh Networks, Proc. of the 10th IEEE International Conference on Advanced Communication Technology, February 2008, Phoenix Park, Gangwon-Do, Korea.
- 2008-P1** M. Kim, I. Ra, J. Yoo, D. Kim and H. Kim, Cross-layer based Fast Handover Mechanism for Seamless Macro-mobility support in WiBro Networks, Proc. of the 22nd IEEE the International Conference on information Networking (ICOIN), Busan, Korea, January 2008.
- 2007-P4** G. Dix, I. Ra, Peer To Peer Messaging System for Distributed and Parallel Applications, Proc. of the Parallel and Distributed Processing Techniques and Applications, Las Vegas, Nevada, pp. 10—16, June 2007.
- 2007-P3** H. Ahn, K. Lee, T. Kim, H. Kim, and I. Ra, Workflow Message Queue's Performance Effect Measurements on an EJB-Based Workflow Management System, pp. 467—478, June 2007, Huang Shan, China. *Lecture Notes in Computer Science 4537*, Springer-Verlag, 2007.
- 2007-P2** T. Park and I. Ra, SPECS: Smart Partial Enciphering Service for Accessing Encrypted Files with Efficient and Transparent, ACM Symposium on Information, Computer and Communications Security, pp. 377—379, March 2007, Singapore, Singapore.
- 2007-P1** M. Shim, H. Kim, I. Ra, A Handover Mechanism for Reliable Multicast Service over WiBro Networks, Proc. of the 9th IEEE International Conference on Advanced Communication Technology, pp. 1081—1085, February 2007, Gangwon-Do, Korea.
- 2006-P1** K. M. Shim, H. Kim, I. Ra, A semi-soft Handover scheme for Reliable Downlink Service in Micro-domain, Proc. of the International Conference on Next Generation Network(NGNCON) 2006, pp. 25—29, July 2006, Jeju, Korea.
- 2005-P2** Y. Yoon, S. Ghim, I. Ra, A Component-Based Adaptive Model for Context-Awareness in Ubiquitous Computing, Proc. of the Network Centric Ubiquitous Systems, Nagasaki, pp. 576—585, Japan, December 2005, *Lecture Notes in Computer Science 3823*, Springer-Verlag, 2005.
- 2005-P1** K. Kim and I. Ra, A Process-Driven e-Business Service Integration System and Its Application to e-Logistics Services, Proc. of the 6th International Conference on Web Information Systems Engineering, pp. 669—678, November 2005, New York City, New York, *Lecture Notes in Computer Science 3806*, Springer-Verlag, 2005.
- 2004-P6** S. Ghim, Y. Yoon, I. Ra, A Context-Adaptive Model for Mobile Learning Applications, Proc. of the Intelligent Networked and Mobile Systems, Brisbane, Australia, pp. 102—113, November 2004, *Lecture Notes in Computer Science 3306*, Springer-Verlag, 2004.
- 2004-P5** J. Gradecki, I. Ra, An Adaptive-Learning Distributed File System, Proc. of the Knowledge-Based Intelligent Information & Engineering Systems, Wellington, New Zealand, pp. 637—646, September 2004, *Lecture Notes in Computer Science*

- 3306, Springer-Verlag, 2004.
- 2004-P4** J. Gradecki, I. Ra, Design and Evaluation of an intelligent Peer-to-Peer Distributed File System, Proc. of the Parallel and Distributed Processing Techniques and Applications, Las Vegas, Nevada., pp. 1037—1042, June 2004.
- 2004-P3** B. Kim, I. Ra, S. Hariri, et. al., An evaluation of Autonomic Self-Configuration in network Centric Systems, Proc. of the Parallel and Distributed Computing and Network, Innsbruck, Austria, pp. 64—69, February 2004.
- 2004-P2** S. Kim, J. Won, S. Paik, K. Kim, H. Kim, B. Yoon, I. Ra, Peer-to-Peer Workflow Model for Clustering and Scheduling Resources on Grid/P2P, Proc. of the 6th IEEE Int. Conference on Advanced Communication Technology, Korea, pp. 1021—1026, February 2004.
- 2004-P1** Y. Kim, I. Ra, B. Kim, et. al. A Grid-enabled Adaptive Problem-Solving Environment, Proc. of the AXGrids 2004, Nicosia, Cyprus, pp. 119—128, January 2004, *Lecture Notes in Computer Science 3165*, Springer-Verlag, 2004.
- 2003-P2** Y. Kim, I. Ra, S. Park, S. Hariri, et. al. ADViCE over Grid Services: Initial Deployment, Proc. of the IEEE Challenges of Large Applications in Distributed Environment Workshop, Seattle, WA, pp. 27—31, June 2003.
- 2003-P1** S. Kim, S. Park, S. Shin, I. Ra, Y. Lee, A Play Script Editing and Playing System Based on XML, Proc. Of the ISCA with CATA 2003, Hawaii, pp. 883—897, March 2003.
- 2001-P1** I. Ra, S. Hariri, C. Raghavendra, Adaptive Communication System for Heterogeneous Network Computing, Proc. of the 10th IEEE Heterogeneous Computing Workshop, San Francisco, pp. 883—897, April 2001.
- 2000-P1** I. Ra, S. Park, and S. Hariri, Design and Evaluation of an Adaptive Communication System for High Performance Distributed Computing Applications, Proc. of the Int. Workshops on Cluster Computing - Technologies, Environments, and Applications, Las Vegas, pp. 493—499, Nevada, June 2000.
- 1999-P1** D. Kim, I. Ra and S. Hariri, Evaluation and Implementation of Adaptive Distributed Virtual Computing Environment2 (ADViCEII), Proc. of the Parallel and Distributed System Conference, Boston, MA, pp. 677—682, November 1999.
- 1997-P1** H. Topcuoglo, S. Hariri, I. Ra, et. al, The Software Architecture of a Virtual Distributed Computing Environment, Proc. of the IEEE High-Performance Distributed Computing, pp.40—49, August 1997.
- 1996-P1** S. Park, I. Ra, M. Ng, S. Park and S. Hariri, An Efficient Multithreaded Message Passing Tool for ATM-based Distributed Computing Environments', Proc. of the 9th International Conference on Parallel and Distributed Computing Systems (PDCS'96), Chicago, IL, October 1996.

Books and Book Chapters

- 2004-B1** S, Hariri, I. Ra, Message Passing tools evaluations, Book chapter in High Performance Distributed Computing: Network, Architecture and Programming, by Edited by S. Hariri and M. Parasha, John Wiley & Sons, Inc, 2004.
- 2000-B1** S. Hariri, D. Kim, Y. Kim, I. Ra, H. Topcuoglo, et. al, A Problem Solving Environment for Network Computing, Book chapter in Enabling Technologies for Computational Science-Frameworks, Middleware and Environments, Edited by E. N. Houstis, J. R. Rice, et. al, Kluwer Academic Publishers, 2000.

Publications in Preparation

- 2008-P1** A. Baloch and I. Ra, A Design Pattern For migrating A C/C++ Application into a Distributed Application Using MPI

- 2007-P2** B. Wise and I. Ra, Design and Evaluation of an Adaptive Resource Scheduling over Grid-Computing environment (Submitted GPC 2008)
- 2007-P1** T. Park, Y. Im, I. Ra, Forensic Logging System Using a Secure OS and Network Processor

Courses Taught

- Advanced Topics in Operating Systems (CSC5574)
- Computer Architecture (CSC4591)
- Database Systems (CSC5559)
- High Performance Networked Computing (CSC5799)
- Introduction to Computer Networks (CSC4761/5761)
- Operating Systems (CSC5573)
- Operating System Concepts (CSC3453)
- Senior Design Project (CSC4739)
- Special Topics in Cluster Computing (CSC5803)
- Special Topics in IT Government Systems (CSC5800)

Courses Developed

- CSC3453: Operating Systems Concepts – Lecture/Lab
- CSC4591: Computer Architecture – Lecture/Lab
- CSC4739: Senior Design Projects – Lecture/Lab/Seminar
- CSC4761/5761: Introduction to Computer Networks – Lecture/Lab (**New**)
- CSC4761/5761: Introduction to Computer Networks - **Online** – Lecture/Lab (**New**)
- CSC4771/5771: Introduction to Mobile Computing – Lecture/Lab (**New**)
- CSC5559: Database Systems – Lecture/Lab
- CSC5573: Operating Systems – Lecture/Lab/Seminar
- CSC5574: Advanced Topics in Operating Systems – Lecture/Lab/Seminar
- CSC5704: Introduction to Distributed Systems – Lecture/Lab (**New**)
- CSC5799: High Performance Networked Computing – Lecture/Lab/Seminar (**New**)
- CSC5800: Special Topics in IT Government Systems – Lecture/Seminar (**New**)
- CSC5803: Special Topics in Cluster Computing – Lecture/Lab (**New**)

Presentations at Meetings and Seminars Presented

- 2007-1** T. Park, Y. Im, I. Ra, Forensic Logging System Using a Secure OS and Network Processor, IFIP WG 11.9 International Conference on Digital Forensics, January 28-31, 2007, Orlando, Florida, USA.
- 2006-3** Study for Improving performance of HMm link Simulator, Dec. 2006, ETRI (Electronics and Telecommunications Research Institute), Korea.
- 2006-2** How to prepare for ABET, Sejong University, Korea, July, 2006.
- 2006-1** Jinwon Kim and Ilkyeun Ra, HOPES (Hospital Operations Emergency System) Design and Implementation, at Research and Creative Activities Symposium at University of Colorado at Denver and Health Sciences, April 15, 2006.
- 2005-1** Arta Doçi and Ilkyeun Ra, Future Networks: Convergence of Voice, Data, and Video, at Research and Creative Activities Symposium at University of Colorado at Denver and Health Sciences, April 15, 2005.
- 2004-2** Autonomic Computing – Invited seminar, Dept. of Computer Science, Chungbuk National University, Cheongju, Chungbuk, S. Korea
- 2004-1** Autonomic Self-Configuration Supports for Distributed Computing Application- Presentation at the Int' Conference on Parallel and Distributed Computing and

- Network, Innsbruck, Austria, February, 2004.
- 2003-2** ADViCE over Grid Services: Initial Deployment, - Presentation at the Intl' IEEE Workshop on Challenges of Large Applications in Distributed Environment, Seattle, WA, June, 2003.
- 2003-1** ADViCE over Grid Services, University of Colorado at Denver, Dept. Computer Science and Engineering, October 3, 2003.
- 2001-3** Adaptive Communication systems for grid computing, Dept. of Computer & Multimedia Engineering, Dongguk University, Seoul, Korea, June 2001.
- 2001-2** Adaptive Communication systems for grid computing, Dept. of Computer & Science, Sookmyung University, Seoul, Korea, June 2001.
- 2001-1** Adaptive Communication systems for cluster computing-Invited seminar, Department of Computer Science, University of Denver, March 8, 2001.

Recognitions, Honors, etc.

- Listed in the 2004-2005 edition of International WHO'S WHO of Professionals.
- Listed in the 2002 edition of Who's Who in Engineering Education (WWE).

Other Indicators of Scholarship

- **Award Grants**
 - With Dr. Charles Little “A Web-Based Hospital Computerized Disaster Information and Management Systems,” Proposal has been submitted to the Dept. of Health and Human Services Public Health Services, **\$235,146** (total \$450,000 - 3 years), February 2007, **has been selected for funding as of Feb 13, 2008.**
 - Electronics and Telecommunications Research Institute, Dajeon, South Korea: 04/01/07 – 11/30/07 (\$40,000) : Title - Development of Parallel Computing Environment of Huge Data Processing. Developing parallel data link level simulator.
 - Colorado Department of Personnel and Administration 02/01/05 – 12/31/05 (\$13,000): Statewide Leadership with Information Technology Solutions. The scope of work was the development of business case studies and technology trade studies to support the efficient delivery of information technology services to state government.
- **Submitted Grant proposals**
 - With Dr. Charles Little “A Web-Based Hospital Operations Emergency System for Disaster Management (HOPES),” Proposal was submitted to the Dept. of Health and Human Services Public Health Services, \$214,868 (total \$450,000 - 3 years), February 2006, Grant denied.
 - With Dr. Haeok Lee, “Implementing Community-Based Liver Cancer Prevention Program: A Model Program for Integrating Cultural Competency for AAPIs in Colorado,” Proposal submitted to the Colorado Department of Public Health and Environment, total grant \$ 648,988 (2 years), Granted denied. December 2005.
 - With Dr. Charles Little, “A Web-Based Hospital Operations Emergency System for Disaster Management (HOPES),” Proposal was submitted to the Dept. of Health and Human Services Public Health Services, \$394,461 (2 years), Grant denied, September 2005.
 - “Government Information Technology Education and Training,” Proposal submitted to the Division of Information Technologies, Department of Personnel

and Employment State of Colorado, \$6,500.00 (6 month), Awarded (\$6,500.00), September 2005.

- “Government Information Technology Education and Training,” Proposal submitted to the Division of Information Technologies, Department of Personnel and Employment State of Colorado, \$6,500.00 (6 month), Awarded (\$6,500.00), February 2005.
- “Toward for grand challenge applications: Developing a parallel cloth behavior simulator,” University of Colorado at Denver, \$5000, 2004, Grant denied.
- With Prof. Lynn Johnson, Regional 2-D Flash Flood Forecasting Modeling National Oceanic and Atmospheric Administration, National Weather Service Office of Hydrologic Development, Hydrology Laboratory, \$374,226 (3 years), 2003, Grant denied.
- With Prof. Tom Altman and et. al., ENGINEERING INTEGRATED COMPUTATIONAL SOLUTIONS TO LIFE SCIENCES PROBLEMS, Department of Education is \$573,235, 2003, Grant denied.
- With. Prof. Jim Matton and Min-Hyung Choi, Parallel Computing to Fold and Visualize Ribosomal RNA, Bucher Award, \$100000, 2003, Grant denied.
- With Prof. Salim Hariri, et. al., “ITR Collaborative Research: NSF Center for Investigating the Physics of the Universe,” NSF, \$5000000, 2002, Grant denied.
- “Designing A proactive runtime communication management agent (PROMA),” University of Colorado at Denver, \$5000, 2002, Grant denied.
- Equipment grant proposal to Boeing, “High Performance Computing Lab,” \$50000, 2001, Grant denied.

- **Research Support**

- ①. Two research facilities built
 - a. 2002 -- 2004: Beowulf Cluster (16 nodes with Gigabit Ethernet) and Grid Computing Environment setup
 - b. 2002: The equipment and labor were donated for installing network equipment from Network Integration Design, Denver, CO.
 - c. 2002: Networking Teaching Labs with College of Business
- ②. 2003: PBS Pro Software Grant, from Altair Engineering, Troy, MI.
- ③. 2002: OPNET – OPNET software grant, OPNET Technology, Bethesda, MD.

- **Thesis/Project Supervision**

- Ph.D. Students :
 - Ah Young Lee, Begins Fall 2006.
 - Joe Gradecki, “Adaptive Intelligent Peer-to-Peer Distributed File System,” Ph.D. Thesis. Dropped-out in 2006.
 - Bisadip Ghosh, ”The Role of Social Capital in IT-Enabled Knowledge Processes in Business Process Outsourcing,” Ph.D. Thesis Committee, CSIC 2007.
- M.S. Students
 - Thesis Advising
 - Brian Wise, “Adaptive Resource Scheduler in Grid Computing Environment,” M.S. Thesis, expected to graduate in December 2007.
 - Geoffrey Dix Jr., “JXTA based peer-to-peer message passing system,” M.S. Thesis, graduated in December 2005.

- Independent study project supervision
 - Advisor for 19 independent projects
 - Undergraduate students
 - Jeremy Cook, “LiftEyes an Online Community,” Independent study 3 credits, Fall 2006
- **Referee of Scholarly Manuscripts**
 - J. of Cluster Computing
 - J. of Parallel and Distributed System
 - Heterogeneous Computing

Professional Associations

- Member of Institute of Electrical and Electronics Engineers (IEEE) Computer Society
- Member of Association for Computing Machinery (ACM)
- Member of Center for Computational Biology (CCB)

Service

1. Departmental Committees

- Graduate M.S. Committee
- Graduate Ph.D. Committee
- Departmental Bylaws Committee
- Hardware Committee
- Advisor for ACM chapter

2. Campus Wide

- Advisor for Korean Student Association

3. Professional Activities

- Program Committee for the International Conference on Information Networking (2008, 2006)
- Program Committee for The IEIP International Symposium on Network-Centric Ubiquitous Systems (2007, 2006, 2005)
- Program Committee for International Workshop on Process Aware Information Systems (PAIS 2007), Huang Shan, China.
- Program Committee for the IASTED International Conference on Parallel and Distributed Computing and Networks 2007, Innsbruck, Austria.
- Program Committee for International Conference of Ubiquitous Information Technology (ICUT 2007), Feb. 12 - 13, 2007. Dubai, Arab Emirates.
- Program Committee for the 2006 International Workshop on Advanced Multimedia Technology and Applications, November, 2006, Cheju, Korea
- Program Committee for The International Workshop on Intelligent Networked and Mobile Systems – Work Shop for Web-based Learning (2006, 2005, 2004)
- Program Committee for The 2005 International Conference on Pervasive Systems and Computing, June 2005, Las Vegas, Nevada, USA.

- Program Committee for The International Workshop on Intelligent Networked and Mobile Systems, November 2004, Brisbane, Australia
- Program Committee for The IEEE/ACS International Conference on Pervasive Services 2004, July 2004, Beirut, Lebanon.
- Session Chair at the 12th Korea Internet Conference (KRnet), June 2004, Seoul Korea.