

SEUNG-JONG PARK

Associate Professor

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RESEARCH INTEREST

Interdisciplinary research involving (1) distributed computing ranging from cloud computing over high speed optical networks to mobile computing over wireless networks; and (2) Computational Biology performing large-scale molecular simulation over cloud computing and high speed networking.

EDUCATION

Ph.D., 2004

Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, Georgia, USA

M.Sc., 1995

Computer Science, Korea Advanced Institution of Science and Technology, Teajun, Korea

B.Sc., 1993

Computer Science, Korea University, Seoul, Korea

POSITIONS HELD

Associate Professor, since August 2010

Department of Computer Science
Louisiana State University, Baton Rouge

Assistant Professor, 2004-2010

Department of Computer Science
Louisiana State University, Baton Rouge

Research Assistant, 2000-2004

Electrical and Computer Engineering,
Georgia Institute of Technology, Atlanta, Georgia,

Researcher, 1995-2000

Research and Development Center
Shinsegi Telecomm, Inc., Seoul, Korea

1. RESEARCH AND CREATIVE ACTIVITY

1.1 Research Publications

Journal Papers

1. Robert B. Crochet, Michael C. Cavalier, Minsuh Seo, Jeong Do Kim, Young-Sun Yim, Seung-Jong Park, Yong-Hwan Lee, "Investigating combinatorial approaches in virtual screening on human inducible 6-phosphofructo-2-kinase/fructose-2,6-bisphosphatase (PFKFB3): A case study for small molecule kinases," in the Journal of Analytical Biochemistry, Elsevier, Volume 418, Issue 1, November 2011, pp.143-148.
2. Suman Kumar, Seung-Jong Park, and S. Sitharama Iyengar, "A Loss-Event Driven Scalable Fluid Simulation Method for High Speed Networks," in the Journal of Computer Networks, Elsevier, Volume 54, Issue 1, 2010, pp. 112-132.
3. Yixin Wu, Suman Kumar, and Seung-Jong Park, "Measurement and Performance Issues of Transport Protocols over 10Gbps High Speed Optical Networks," in the Journal of Computer Networks, Elsevier, Volume 54, Issue 3, 2010, pp.475-488.
4. Seung-Jong Park and R. Sivakumar, "Congestion-Aware Topology Controls for Wireless Multi-hop Networks," in the Journal of Ad-hoc Networks, Elsevier, Volume 8, Issue 3, 2010, pp. 295-312.
5. Suman Kumar and Seung-Jong Park, "Probability Model for Data Redundancy Detection in Sensor Networks," in the Journal of the Mobile Information Systems, Volume 5, Number 2, 2009, pp. 195-204.
6. Y. Zhu, R. Vedantham, Seung-Jong Park and R. Sivakumar, "A Scalable Correlation Aware Aggregation Strategy for Wireless Sensor Networks," Information Fusion, Volume 9, Issue 3, July 2008, Pages 354-369.
7. Seung-Jong Park and R. Sivakumar, "Energy Efficient Correlated Data Aggregation for Wireless Sensor Networks," in the International Journal of Distributed Sensor Networks, Vol 4, Issue 1, pp13-27, Jan 2008.
8. Seung-Jong Park, R. Vedantham, R. Sivakumar and I. Akyildiz, "GARUDA: Achieving Effective Reliability for Downstream Communication in Wireless Sensor Networks," in the journal of IEEE transactions on Mobile Computing, Vol 7, No.2, pp.214-230, Feb., 2008.
9. R. Vedantham, Seung-Jong Park and R. Sivakumar, "Sink-to-Sensors Congestion Control," in the journal of Elsevier Ad Hoc Networks Journal, vol 5, no. 4, pp462-485, May 2007.
10. V. Anantharaman, Seung-Jong Park, K. Sundaresan and R. Sivakumar, "TCP Performance over Mobile Ad-hoc Networks: A Quantitative Study," In the Journal of Wireless Communications and Mobile Computing Journal (WCMC), Volume 4, Issue 2, pp.203-222, Mar, 2004.
11. Seung-Jong Park and R. Sivakumar, "Sink-to Sensors Communication Reliability in Sensor Networks," ACM SIGMOBILE Mobile Computing and Communications Review, Volume 7, Issue 3, pp.27-28, July 2003.

12. Seung-Jong Park and R. Sivakumar, "Adaptive Topology Control for Wireless Ad-hoc Networks," ACM SIGMOBILE Mobile Computing and Communications Review, Volume 7, Issue 3, pp.37-38. July 2003.

Refereed Conference Proceedings

1. Lin Xue, Cheng Cui, Suman Kumar, Seung-Jong Park, "Experimental Evaluation of the Effect of Queue Management Schemes on the Performance of High Speed TCPs in 10Gbps Network Environment," accepted at the International Conference on Computing, Networking and Communications (ICNC 2012), Hawaii, USA, 2012.
2. Suman Kumar, Mohammed Azad, and Seung-Jong Park, "A fluid-based simulation study: the effect of loss synchronization on sizing buffers over 10Gbps high speed networks," in the proceeding of the 8th International Workshop on Protocols for Future, Large-Scale & Diverse Network Transports (PFLDNeT), Lancaster, PA, 2010.
3. Yixin Wu, Suman Kumar and S.-J. Park, "On Transport Protocol Performance Measurement over 10Gbps High Speed Optical Network," in the proceeding of the 18th International Conference on Computer Communications and Networks (ICCCN), 2009.
4. S. Kumar, S.-J. Park, S. Iyengar, and J.-H. Kimn, "Time-Adaptive Numerical Simulation for High Speed Networks," accepted for publication in the proceeding of High Performance Computing, Networking and Communication System (HPCNCS-07), Orlando, FL, 2007.
5. Suman Kumar and S.-J. Park, "Estimating Data Redundancy in Sensor Networks," in the Prof. of 3rd International Symposium on Innovations and Real Time Applications of Distributed Sensor Networks, Nov. 26-27, 2007, Shreveport, Louisiana.
6. Y. Zhou, Y. Yuan and S.-J. Park, "ACKNET, A Synthetic, Reliable, and Accurate Network Emulator over Long Fat Networks," in the Proc. of the 17th Annual Argonne Symposium for Undergraduates in Science, Engineering and Mathematics, Nov, 2006.
7. S.-J. Park and R. Sivakumar, "An Energy Efficient Correlated Data Aggregation for Wireless Sensor Networks," in the Prof. of 2nd International Symposium on Innovations and Real Time Applications of Distributed Sensor Networks, Washington DC, USA, Oct, 2006.
8. R. Vedantham, S.-J. Park and R. Sivakumar, "Sink-to-Sensors Congestion Control," in the Proc. of IEEE International Conference on Communications, Seoul, Korea, May 2005.
9. Y. Zhu, R. Vedantham, S.-J. Park and R. Sivakumar, "A Scalable Correlation Aware Aggregation Strategy for Wireless Sensor Networks," IEEE International Conference on Wireless Internet (WICON), Budapest, Hungary, July 2005.
10. S. S. Iyengar, G. Seetharaman, R. Kannan, A. Durresi, Seung-Jong Park, B. Krishnamachari, R. R. Brooks and J. Morrison, "Next Generation Distributed Sensor Networks," in Proceedings of Office of Naval Research, September 5-6, 2004, USA.
11. S.-J. Park, R. Vedantham, R. Sivakumar and I. Akyildiz, "A Scalable Approach for Reliable Downstream Data Delivery in Wireless Sensor Networks," in the Proceedings of ACM

- International Symposium on Mobile Ad hoc Networking and Computing (MOBIHOC), pp78-89, Japan, May 2004.
12. S.-J. Park and R. Sivakumar, "Load-sensitive transmission power control in wireless ad-hoc network," IEEE Globecom 2002, vol.21, no.1, pp.42-46, Taiwan.
 13. S.-J. Park and R. Sivakumar, "Quantitative Analysis of Transmission Power Control in Wireless Ad-Hoc Network," in the Proc. of International Workshop on Ad Hoc Networking, in conjunction with International Conference on Parallel Processing 2002, Vancouver, Canada.
 14. S.-J. Park, D.-W. Kim and C.-Y. Kim, "Optimal power allocation in CDMA forward link using dependencies between pilot and traffic channels," in the Proc. of 50th IEEE Vehicular Technology Conference (VTC), Sept. 1999, Amsterdam, The Netherlands.
 15. D.-W. Kim, S.-J. Park and J.-W. Lee, "Scaling power up to resist SIR measurement error in CDMA mobile systems," proceedings of CDMA International Conference (CIC), pp. 419-422, 1998, Seoul, Korea.
 16. S.-J. Park and D.-W. Kim, "Optimal channel separation in CDMA mobile systems," CDMA International Conference, pp. 419-422, 1997, Korea.
 17. S.-J. Park, et al, "Frequency coordination between adjacent carriers of two CDMA operators," in the Proc. of 48th IEEE Vehicular Technology Conference, pp. 1458-1461, 1996, Atlanta, GA, USA.
 18. S.-J. Kim, S.-J. Park and Y.-H. Oh, "Complexity reduction method for vector sum excited linear prediction coding," in the Proc. of International Conference on Spoken Language Processing, pp. 2071~2074, 1994, Japan.

Edited Books

Book chapter:

Suman Kumar and Seung-Jong Park, "On the Design and Analysis of Transport Protocols over Wireless Sensor Networks," will appear in the book of Wireless Sensor Network", ISBN 978-3-902613-49-3, 2009.

S. Karthikeyan, S.-J. Park and R. Sivakumar, "Transport Layer Solutions for Ad-hoc Networks," in the book of Ad Hoc Networks: Technologies and Protocols, Springer, pp.123-152, 2004.

1.2 Research Support/Grant Activities

1) GENI Integration Project (NSF), Park as a PI

Project Title: Integrating a CRON (Cyberinfrastructure of Reconfigurable Optical Network) Testbed into ProtoGENI

Co-PI: Rajgopal Kannan

Award amount: \$266,688

Duration: 10/01/09 – 09/31/12

Sponsor: GENI (Global Environment for Networking Innovation) project office funded by NSF Program

2) NSF MRI Grant (0821741), Park as a PI

Project title: CRON: Development of a Cyberinfrastructure Reconfigurable Optical Network for Large-Scale Scientific Discovery

Co-PI: S. Sitharama Iyengar, Thomas Sterling, and Rajgopal Kannan

Award amount: \$495,181 and LSU match money (\$201,796)

Duration: 08/01/08 – 07/30/11

Sponsor: NSF Major Research Infrastructure (MRI) Program

3) DoD EPSCOR (N00014-08-1-0856), Park as a co-PI

Project title: Secure and Survivable Cyber-Centric Sensor Networks: Algorithms and Architecture Research

PI: S. Iyengar, Co-PI: Seung-Jong Park and Wu.

Amount: \$781,731

Duration: 06/01/08 - 06/30/11

Funding Agency: Department of Defense (Office of Naval Research)

4) Louisiana Board of Regents, (LEQSF2006-08-RD-A-08), Park as a PI

Project title: Developing a Fluid Based Simulator and Transport Protocols for Large-Scale Wireless Sensor and Actor Networks

Award amount: \$82,280

Duration: 07/01/06 – 05/31/08

Sponsor: Louisiana Board of Regents, RCS Program

5) NIH Research Project Grant Program (R01), Park as a co-Investigator

Project title: PFKFB3-based development of a new cancer drug targeting the Warburg effect

Award amount: \$1,099,350

PI: Yong-Hwan Lee, Dept. of Biological Sciences, LSU

Duration: 2/18/08 – 01/31/12

Sponsor: National Institutes of Health (NIH), Research Project Grant Program

6) TeraGrid: Mid-size Allocation, Park as a co-PI

Project title: Virtual Screening of Inhibitor Compounds for PFKFB3, A Novel Cancer Therapeutic Target

Award amount: 250,000 computation hours

PI: Yong-Hwan Lee, Dept. of Biological Sciences, LSU

Duration: 2/18/09 – 01/31/10

Sponsor: TeraGrid (<http://www.teragrid.org/>) supported by NSF

7) LSU Faculty Research Grant, Park as a PI

Project title: Developing an adaptive and parallel transport protocol for large-scale scientific applications over high speed networks

Award amount: \$10,000

Duration: 01/01/05 – 12/31/05

Sponsor: The Office of Research and Economic Development, LSU

8) LSU CCT General Development Program, Park as a PI

Project title: Scalable algorithms for high-end parallel and distributed computing

Award amount: \$60,000

Duration: 02/01/05-01/31/06

Sponsor: General Development Program, CCT, LSU

9) LSU Grant for faculty summer salary, Park as a PI

Project title: Developing an Adaptive Simulation Method to Predict Behaviors of Transport Protocols over High Speed Optical Networks

Award amount: \$5,000

Duration: 2005

Sponsor: The Office of Research and Economic Development, LSU