

## Resume

Last name: **Jang** First name: **Ju wook**

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Date of birth: February 23 1961

Affiliation/Contact: Dept. of Electronic Eng.  
Sogang University  
1 Shinsoodong, Mapo-Ku  
Seoul Korea 121-742

Position: Professor

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### **[Financial support during the sabbatical year]**

July 1. 2008 – August 31. 2009 Sogang University

### **[Experience]**

1995. 3 - present: Professor, Sogang University

1993. 7 - 1995. 2: Senior Researcher, Computer R & D Center  
Samsung Electronics Co. ltd

1985. 2 - 1988. 7: Researcher, Samsung Electronics Co. ltd

### **[Awards]**

LG Yonam Overseas Professor Grant, US\$ 30,000, 2001

### **[Education]**

1993. 12: Ph. D., EE-Systems, University of Southern California

1985. 2: M. S. Electrical Engineering, KAIST

1983. 2: B. S. Electronic Eng. Seoul National University

### **[Ph. D. Thesis]**

"Efficient Parallel Algorithms on Reconfigurable Mesh"

### **[ Publications]**

Title	Journal/Proceedings	Author	Vol., Page no, Year
Energy and Time-Efficient Matrix Multiplication on FPGAs	IEEE Transaction on Very Large Scale Integration Systems	Ju-Wook Jang, Seonil B.Choi and Vicktor K. Prasanna	Vol.13, No.11, p1305 – p1319, 2005.11
A New Scheme to Improve Overall TCP Throughput with Vertical Handover between 3G Cellular Packet Networks and Wireless LANs	EURASIP Journal on Wireless Communications and Networking	Chang-hyeon Lim and Ju Wook Jang	Vol. 2009, p1–p12, 2009.
Application of Network Coding to IEEE 802.16j Mobile Multi-hop Relay (MMR) Network for	Journal of Communications and Networks	Kyungjun Lee, Wonjin Sung, and Ju Wook Jang	VOL.10, NO.4, p412-p421, 2008.12

Throughput Enhancement			
Robust end-to-end loss differentiation scheme for transport control protocol over wired/wireless networks	IET Communications	Chang-hyeon Lim and Ju-Wook Jang	Vol. 2, Issue 2, p284-291, 2008. 2
Domain-Specific Modeling for Rapid Energy Estimation of Reconfigurable Architecture	The Journal of Supercomputing	Seonil Choi, Ju-wook Jang, Sumit Mohanty and Vickor K. Prasanna	Vol.26-3, 259p – 281p, 2003.11
An Adaptive End-to-End Loss Differentiation Scheme for TCP over Wired/Wireless Networks	International Journal of Computer Science and Network Security	Chang-hyeon Lim and Ju-Wook Jang	2007.3
A Simple Reduction of Non-uniformity in Dynamic Load Balancing of Quantized Loads on Hypercube Multiprocessors and Hiding Balancing Overheads	Journal of Computer and System Sciences	Hwakyung Rim, Ju-wook Jang and Sungchun Kim	Vol.67-1, p1 – p25, 2003.8
Constant Time Algorithms for Computational Geometry on the Reconfigurable Mesh	IEEE Trans. on Parallel and Distributed Systems	Ju-Wook Jang, Madhusudan Nigam, Viktor K. Prasanna and Sartaj Sahni	Vol.8-1, 1997
An Optimal multiplication algorithm on reconfigurable mesh	IEEE Trans. on Parallel and Distributed Systems	Ju-Wook Jang, Heonchul Park and Prasanna, V.K.	Vol.8-5, 1997
A Fast Algorithm for Computing a Histogram on Reconfigurable Mesh	IEEE Trans. on Pattern Analysis and Machine Intelligence	Ju-Wook Jang, Heonchul Park and Prasanna, V.K.	Vol.17-2, 1995
An Optimal Sorting Algorithm on Reconfigurable Mesh	Journal of Parallel and Distributed Computing 25	Ju-wook Jang and Viktor K. Prasanna	1995
An Optimal Parallel Radix Sorting Algorithm on Two and Three Dimensional Meshes for VLSI Computation	Journal of Electrical Engineering and Information Science	Ju-wook Jang	1998
Hiding communication overheads in dynamic load balancing for multi computers	Journal of Systems and Software	Hwakyung Rim, Ju-wook Jang and Sungchun Kim	Vol.58(1), 11p – 22p, 2001.10
Fast Parallel Radix Sort Using A Reconfigurable Mesh	International Journal of High Speed Computing	Ju-Wook Jang and Kyung-Geun Lee	Vol.9-1,1997
Overhead Reduction in the Network Communication for Web Computing	International Journal of High Speed Computing, (Accepted for publication)	Juil Oh, Ju-Wook Jang and Tack-Don Han	2000
A Practical Scheme to Improve User Satisfaction with Reduced Power in Wireless Networks	International Conference on New Technologies, Mobility and Security	Dong Cheul Jang and Ju Wook Jang	1p – 5p, 2009.11

Dynamic Frame Scheduling with Load Balancing for IEEE 802.16j	International Conference on Wireless Communications and Signal Processing (WCSP 2009)	Hoon Baek and Ju Wook Jang	1p – 5p, 2009.11
Frequency Reuse During Relay Transmission for two-hop IEEE 802.16j Relay Networks	International Conference on Wireless Communications and Signal Processing (WCSP 2009)	Sangwon Kim and Ju Wook Jang	1p – 5p, 2009.11
Improving Fairness Using ARQ Messages in LTE Mobile Multi-hop Relay (MMR) Network	International Conference on Wireless Communications and Signal Processing (WCSP 2009)	YongHwan KWON and Ju Wook Jang	1p – 5p, 2009.11
Reduction of Latency in Mobile Multi-hop Relay(MMR) Network	International Conference on Wireless Communications and Signal Processing (WCSP 2009)	WoonYong Jo and Ju Wook Jang	1p – 5p, 2009.11
Reduction of Relay Overhead in IEEE 802.16j Mobile Multi-hop Relay (MMR) Networks	6th Annual IEEE Consumer Communications & Networking Conference	Kyungmin Lee and Ju Wook Jang	1p – 2p, 2009.1
An Efficient Uplink Transmission Scheduling Scheme with Reduced Interference for IEEE 802.16j based Mobile Multi-hop Relay Networks	3rd International Conference on Ubiquitous Information Technologies & Applications	Won Sun Kim and Ju Wook Jang	354p– 359p 2008.12
A Scheduling Scheme for Improving Fairness Using ARQ messages in IEEE 802.16j Mobile Multi-hop Relay (MMR)Networks	3rd International Conference on Ubiquitous Information Technologies & Applications	YongHwan Kwon and Ju Wook Jang	271p– 277p 2008.12
A Route Recovery Scheme in DYMO for Efficient Ad-hoc	The 2008 International Conference on Ubiquitous City Technology	Junho Chung, Yonghwan Kwon, Bosung Kim, Hakkwan Kim, Kyungmin Lee, Dowon Hyun and Juwook Jang	2008.1
PERFORMANCE ANALYSYS OF SIGCOMP FOR 3G CELLULAR NETWORKS	The Forth IASTED Asian Conference on Communication Systems and Networks	Woojin Han, Kyungjun Lee, Hyun-hwa Park, Kyung-geun Lee and Juwook Jang	2007.4
An Analysis of Reliable MAC Layer Multicast in Wireless Networks	The 2007 International Conference on Convergence Information Technology	Yoodoc Song, Junho Chung, Wookyung Sung, Bosung Kim, Dowon Hyun and Juwook Jang	2007.11
Efficient and Reliable Routing in Ad-hoc during Disaster	The 2007 International Conference on Ubiquitous City Technology	Junho Chung, Woohyung Sung, Dohyun Pyun, Kyungjun Lee, Taehwan Kim, Dowon Hyun and Juwook Jang	2007.2
IPv6 Secure Multicast	International Conference on	Dowon Hyun,	2006.11

Conferencing	Hybrid Information Technology	Wookyung Sung, Dohyon Pyon, Taehwan Kim, Woojin Han, Jinhyuk Lee and Juwook Jang	
Performance Measurement of Car-to-car Ad-hoc Networks in the real world	International Conference on Wireless Information Networks And Systems	Taehwan Kim, Woojin Han, Jinhyuk Lee, Dowon Hyun and Juwook Jang	2006.8
Adaptive End-to-end Loss Differentiation scheme for TCP Over Wired/Wireless Networks	International Conference on Wireless Information Networks And Systems	Chang-hyeon Lim, Jinhyuk Lee, Taehwan Kim, Woojin Han, Dowon Hyun and Juwook Jang	2006.8
A Multimedia Conferencing on a Mobile Ad-hoc Network over Vehicles	The IASTED Conference on Networks and Communication Systems	Woojin Han, Taehwan Kim, Jinhyuk Lee, Dowon Hyun, Jaeyong Um, Jehun Ryu, Junchae Lim and Juwook Jang	2006.3
Performance Analysis on mobility of Ad-hoc Network for inter-vehicle communication	Fourth Annual ACIS International Conference on Computer and Information Science (ICIS 2005)	Jaehyun Kim, Woojin Han, Yunil Hwang, Woohyuk Choi, Taehwan Kim, Juwook Jang, Jaeyong Um and Junchai Lim	2005.7
Practical Consideration in Trunk Engineering for Cellular Service	The International Conference on Information Networking, Lecture Notes in Computer Science(LNCS)	Kyung Geun Lee, JongSuh Park, Ho Soo Kim and Juwook Jang	Vol.3090, 544p – 522p, 2004.2
Energy-Efficient Signal Processing Using FPGAs	ACM International Symposium on Field-Programmable Gate Arrays(FPGA `03)	Seonil Choi, Ronald Scrofano, Ju-Wook Jang and Viktor K. Prasanna	p125 – p134, 2003.2
Energy-Efficient Discrete Cosine Transform on FPGAs	The International Conference on Engineering of Reconfigurable Systems and Algorithms `03 (ERSA `03)	Ronald Scrofano, Ju-Wook, Jang and Viktor K. Prasanna	Session 6, 3rd, 2003.6
Domain-Specific Modeling for Rapid System-Level Energy Estimation of Reconfigurable Architectures	The 2002 International Conference on ERSA	Seonil Choi, Ju-wook Jang, Sumit Mohanty and Viktor K. Prasanna	534p – 544p, 2002. 6
An Efficient Dynamic Load Balancing using the Dimension Exchange Method for Balancing of Quantized Loads on Hypercube Multiprocessors	13th IEEE International Parallel Processing Symposium	Hwakyung Rim, Ju-Wook Jang and Sungchun Kim	1999.4
An AT Optimal Mapping of Sorting onto the Mesh Connected Array without	12th IEEE International Parallel Processing Symposium	Ju-Wook Jang	1998.4

Comparators			
Energy-Efficient Matrix Multiplication on FPGAs	International Conference on Field Programmable Logic Applications 2002 (FPL 2002)	Ju-wook Jang, Seonil Choi and Viktor K. Prasanna	534p – 544p, 2002.8
A Model-based Methodology for Application Specific Energy Efficient Data Path Design Using FPGAs	The IEEE International Conference on ASAP	Mohanty, S., Seonil Choi, Ju-wook Jang and Prasanna, V.K.	76p – 87p, 2002.8
Minimizing energy dissipation of matrix multiplication kernel on Virtex-II	SPIE	S. Choi, V. K. Prasanna and J. W. Jang	Vol.4867, 2002.7
Area and Time Efficient Implementation of Matrix Multiplication on FPGAs	SPIE	Ju-wook Jang, Seonil Choi and Viktor K	Vol.4867, 2002.7
Energy-Efficient and Parameterized Designs for Fast Fourier Transform on FPGAs	IEEE International Conference on Acoustics, Speech, and Signal Processing 2003 (ICASSP 2003)	Seonil Choi, Gokul Govindu, Ju-Wook Jang and Viktor K. Prasanna	DISPS-L2, DISPS-L2.6, 2003.4
A Fast Parallel Sorting Algorithm on the k-dimensional Reconfigurable Mesh	International Conference on Architectures and Algorithm for Parallel Processing	Ju-Wook Jang and Kyunggeun Lee	1997
Efficient FFT Computation using Star Connected Processing Elements	International Conf. High Performance Computing	H. Kim and Ju-wook.Jang	1995
An Efficient Resource Management Method for Web Computing	Parallel and Distributed Computing and System(PDCS '99)	HS Maeng, TD Han, SD Kim and JW Jang	1999.11
Fast Quadtree Building on a Reconfigurable Mesh	Reconfigurable Architecture Workshop	Myung Kim, Ju-wook Jang	1996
A Bit Model of Reconfigurable Mesh	IEEE Proc. Reconfigurable Architecture Workshop	J. Jang, H. Park and V.K Prasanna	1994
A Peer-to-Peer Search Scheme over Mobile Ad hoc Networks	International Scientific-Practical Conference Communication 2004	Sei-yon Lee, Ju-wook Jang, Kyung-Geun Lee, Lan Quan and Tae-kyoung Cho	2004.8
An Improved Packet Pair Method for Filtering Estimation Noise and Fast Convergence in Measuring Bottleneck Bandwidth	International Conference on Parallel and Distributed Systems	Han-Seung Yoo and Ju-Wook Jang	763p – 767p, 2001.6
The Elusive Nature of Internet Traffic	Internet Computing and Electronic Commerce	Woo-Hyun Kim, Kyung-Geun Lee, Hyeong-Koo Park, Hyo-jin Lee and Ju-Wook Jang	1p – 6p, 2001.4

### [Books]

Intel Microprocessor, Green Publishing, 1992. 2

### [Courses taught]

- Graduate Level  
 Parallel Architectures and Algorithms  
 Wireless Internet  
 Internet Architecture  
 Advanced Internet

- Undergraduate Level  
 Computer Communications  
 Internet Communications  
 Advanced Microcontroller System  
 Design of Microprocessor System  
 Electric Circuit I, II

**[PC membership]**

Year	Journal/Proceedings	Position
2008	2008 International Conference on High Performance Computing & Simulation (HPCS 2008)	Program committee member
2008	Engineering of Reconfigurable System and Algorithms (ERSA'08)	Program committee member
2007	Engineering of Reconfigurable System and Algorithms (ERSA'07)	Program committee member
2007	The Fifth IASTED Asian Conference on Communication Systems and Networks (Asia CSN 2008)	Program committee member
2006	Engineering of Reconfigurable System and Algorithms (ERSA'06)	Program committee member
2005	Engineering of Reconfigurable System and Algorithms (ERSA'05)	Program committee member
2003	Engineering of Reconfigurable System and Algorithms (ERSA'03)	Program committee member
2000	ADCSM	Program committee member
1999	ISPAN	Program committee member
1997	International Conf. on Parallel and Distributed Systems	Publicity co-chair
1997	HPC-ASIA	Program committee member
1994	Reconfigurable Architecture Workshop	Program committee member

**[Projects performed]**

Title	Duration	Sponsor
Improved Throughput and QoS Fairness in Wireless Multi-hop	2009.5 ~ present	Ministry of Education, Science and Technology

Relay Networks		
The Design of MVDR Beam forming Available to Trade-off Energy, Latency and Area on the Reconfigurable SoC	2006. 3 ~ 2007. 2	MIC(The Ministry of Information and Communication)
Design and Implementation of Energy Efficient DCT on FPGAs	2005. 3 ~ 2006. 2	MIC(The Ministry of Information and Communication)
Design of a Parallel Matrix Multiplier which Provides Trade-offs among Latency, Area and Energy consumption	2004. 3 ~ 2005. 2	MIC(The Ministry of Information and Communication)
Development of Frame Scheduling and Routing for WiMAX multi-hop relay systems	2008. 2 ~ 2008. 10	Samsung Electronics
Development and Performance Analysis of Mesh/Relay Network Based on 802.16j	2007. 1 ~ 2007. 12	Samsung Electronics
Performance Enhancement of SIP Based on 3GPP	2005. 11 ~ 2006. 10	SK Telecom
Development of Ad-hoc Network Systems for Future Vehicles	2004.11 ~ 2005.10	Hyundai Motor
Development of Intelligent City Information Systems for Smart City	2005. 11 ~ present	Seoul Development Institute
Development of Mobile Data Transmission Systems	2006. 8 ~ 2007. 7	Small and Medium Business Administration
Secure IPv6 Multicast Conferencing	2005. 8 ~ 2005. 12	NCA (National Computerization Agency)
IPv6 System/Application Service Introduction and Utilization Activity in the Campus	2004. 7 ~ 2004. 12	NCA (National Computerization Agency)
Development of P2P Ad-hoc Networking Systems for Future Vehicles	2003. 12 ~ 2004. 6	NGV (Next Generation Vehicle)

**[MS and Ph. D. students supervised]**

MS: 62 students

Ph. D.: 6 students