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Research interests

- | | |
|----------------|---|
| 2005 - Present | Wireless/Mobile Communication and Networking <ul style="list-style-type: none">- Viral Communications, Wireless/mobile ad-hoc, sensor, and mesh networks, Network Coding,- Distributed algorithm, Decentralized system- Futuristic Mobile devices Futuristic Vehicle <ul style="list-style-type: none">- A cooperative vehicle network for collision avoidance and social networks. Social Networks for Future Civic Media <ul style="list-style-type: none">- Interactive, mobile, personalized broadcast systems for novel journalism Society Dynamics, Location-based services |
| 2004 – Present | IVY Networks (as a founder), Pervasive Computing <ul style="list-style-type: none">- A concept of service-orient communication & networking based on holism. |
| 2000- 2005 | Quality of Services <ul style="list-style-type: none">- Support for real-time applications in wired/wireless/mobile environments, including QoS in Internet (e.g., IntServ, DiffServ, NSIS, RSVP, etc) and TCP/IP(v4/6) |
| 1998-1999 | Digital Communication Systems <ul style="list-style-type: none">- Coding and Modulation |

Work Experiences

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| Sept. 2006 - Present | Research Assistant, MIT Media Lab <ul style="list-style-type: none">- A Wirelessly Coordinated Control System for Future Vehicle- Future Civic Media- XCast: Interactive, Mobile, Personalized Broadcasts- BeyondChannel: Personalized TV Channel Interfaces- GPS-based Game, Virtual Pong- Power Consumption: GSM vs. VoWLAN- TICO: Mobile Ride Sharing System |
| Feb, 2002 – Aug. 2006 | Senior Research Staff, Samsung Electronics, Suwon, Korea
(Samsung Advanced Institute of Technology: SAIT) <ul style="list-style-type: none">- Plug-and-Access Interworking System Development
<i>Vertical handover system development</i>- Internet Engineering Task Force (IETF) Standardization
<i>Next Step In Signaling Working Group: A study for QoS Signaling protocols in IP-based mobile networks</i>- 4G Networks Task Force Activity- Ubiquitous Computing Task Force Activity |

- Jan. 2000 – Jan. 2002 **Research Assistant, Korea University, Seoul, Korea**
 - Korea Telecom (KT)
The development on IP packet delivery technology in IMT- 2000 network based on ATM,
 - Ministry of Information and Communication, Korea
A study for Next Generation Internet
 - Electronics & Telecommunications Research Institute (ETRI)
A study for supporting end-to-end Quality of Service between APNA-KR and CERNET on next generation Internet,
 - Korea University, Japan KDD Laboratory, and TsingHua University
- 1997 - 2001 **Private Tutor, Seoul, Korea**
 - Teaching students Mathematics, Science and English for primary and secondary schools
- Jan. 1995 – Mar. 1997 **Soldier, Republic of Korea Army, Daegu, Korea**
 - Served as a battle driver for Transportation troops

Activities

- 2008
- Invited Talks**
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- LG Elite, Seoul, Korea**
 - What is the Media Lab?
 - XCast project/ Viral Communications/ Living The Future
 - OLPC Demo/ Future Civic Media
- Samsung Electronics Digital Media, Suwon, Korea**
 - What is the Media Lab?
 - XCast project/ Viral Communications/ Living The Future
 - OLPC Demo/ Future Civic Media
- Korea Telecom (KT), Seoul, Korea**
 - What is the Media Lab?
 - Viral Communications/Living The Future
 - OLPC Demo/ Future Civic Media
 - The City Car
- SK Telecom (SKT), Seoul, Korea**
 - What is the Media Lab?
 - XCast project/ Viral Communications/ Living The Future
 - OLPC Demo/ Future Civic Media
- Samsung AIT (Advanced Institute of Technology), Kiheung, Korea**
 - What is the Media Lab?
 - XCast project/ Viral Communications/ Living The Future
 - OLPC Demo/ Future Civic Media
- NEC C&C Innovation Lab, Kyoto, Japan**
 - What is the Media Lab?
 - XCast project/ Viral Communications/ Living The Future/XCast Demo
 - OLPC Demo/ Future Civic Media
 - The City Car

	Hyundai Motor, Hwaseong, Korea
	- What is the Media Lab?
	- Viral Communications/ Vehicle Networks
	- OLPC Demo/ Future Civic Media
	- The City Car
2006	Speaker at KNet (Korea Internet Conference) 2006
	- QoS Signaling in Multihomed/Mobile Networks
2002 -2006	Editor of Internet Engineering Task Force (IETF) NSIS WG
	- Standardization activities for mobility-related area in Next Step In Signaling (NSIS) WG
2005	Reviewer for IEEE INFOCOM 2006
2005	Reviewer for IEEE Network Special Issue on 'Multimedia over Broadband Wireless Networks'
2005	Reviewer for ACM WINET Special Issue on 'Broadband Wireless Multimedia'
2005	Reviewer for VTC'F05 Wireless IP Networks
2004 – 2006	Secretariat of Samsung IPv6 Technology Forum
	- Research on All-IP, 4G, and next generation networks
2003 – 2006	Speaker and Researcher at IPv6 Forum Korea
	- Presentations and research activities
June, 2005	Teaching for Graduate Students
	- 'QoS Signaling in IP-based Mobile Networks,' Hanyang University, Seoul, Korea
May 2005 - 2006	Teaching for Samsung Employees
	- 'Next generation IP QoS signaling,' Samsung Cutting-edge Tech Education Center, Suwon, Korea
Mar. 2000 - Jan. 2002	Asia Pacific Advanced Network (APAN-KR) Activities
	- Networking Experimental experience as a member
2001	Advisor for Publication of Computer-learning Book
	- 'Just do it: the best ways to resolve troublesomeness of your computer' published by Gilbut
2003 – 2006	Teaching Service for Future Scientists
	- Teaching on science experiment for elementary school students
June, 2005- 2006	Manager for English Language Community
	- On/off-line activities, Internet café, 'SGGRE'

Skills

Computer Languages	Programming Languages: Python, C, C++, Fortran, Java, Java-script, Ajax, Operating Systems: Symbian, UNIX (FreeBSD), Linux, MS WindowsX, OS X (MAC) Simulation Tools: NS (Network Simulator)-v2, Arena, OPNET Devices: Cellular phone (Nokia N80), PDA, Tablet PC (N800), OLPC XO, VIA Mini-ITX Board Hardware: PIC microcontroller programming, design of Robotic Car
Networking	Demonstration on a wireless coordinated vehicle control system - Vehicle-to-Vehicle networking - Open House events at MIT Media Lab (2008)

Demonstration on a wireless P2P communication-based broadcasting system

- Social Event Networking platform
- Open House Event at MIT Media Lab (2007 - 2008)

Demonstration on QoS signaling Prototype for Support of Seamless

- Tech Fair at Samsung Electronics (2005)

Fast Handover

- Implementation on NSIS signaling protocols (2004 - 2005)

APAN-KR Korea University Network Engineering (2000 – 2001)

- ATM Switch & Router
 - i) *ForeRunner155WG, Forethought ASX-200BXE, CANS, PAXCOMM Netsteer-5000*
 - ii) *Operating Cisco Router 7200/7500 Series*
- Communications Protocols:
 - TCP/IP, Next-generation Internet Protocol (RSVP, NSIS, etc)*
- Experiments on DiffServ & Teleconferencing Test
 - i) *Testing DiffServ between. APNA-KR and CERNET on NGI*
 - ii) *Testing on comparing EF with AF PHB in a DiffServ test-bed of Korea University*
 - iii) *Teleconferencing Test using Multi-point Control Unit (MCU) in APAN-KR*

Publications

Conference & Journal

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- | | |
|-----------|---|
| Nov. 2005 | [1] S.-H. Lee, S. Lee, B.-J. Lee, J. H. Bang, "A Next Generation QoS Signaling Protocol for IP-based Wireless/Mobile Networks," In Proc. 2nd Samsung Tech. Conference, Kiheung, Nov. (2005) |
| June 2005 | [2] S.-H. Lee, S.-H. Jeong, B.-J. Lee, J. H. Bang, "A Next Generation QoS Signaling Protocol for IP-based Mobile Networks," In Proc. 14th IST Mobile & Wireless Communications Summit, Dresden, June (2005) |
| May 2005 | [3] C. Shen, H. Schulzrinne, S.-H. Lee, J. H. Bang "Routing Dynamics Measurement and Detection for Next Step Internet Signaling Protocol (NSIS)," In Proc. E2EMON, Nice, May (2005) |
| Mar. 2004 | [4] S.-H. Jeong and S.-H. Lee, "Survey on IETF Mobility-aware QoS Signaling Protocols," Journal of Electronics Engineers of Korea, vol. 31, issue 3, Mar. (2004) 270-280 |
| Feb. 2003 | [5] S.-H. Lee, S.-J. Seok, C. G. Kang, and C.-H. Kang, "The two markers system for TCP and UCP flows in a differentiated services network," Computer Communications Journal, vol. 26, issue 2, Feb. (2003) 338- 350 |
| Oct. 2002 | [6] S.-J. Seok, S.-M. Hong, S.-H. Lee and C.-H. Kang, "A Dynamic Marking Scheme of Assured Service for Alleviating Unfairness among Service Level Agreement," in Proc. MMNS'02, LNCS 2496, Oct. (2002) 224-236 |
| Oct. 2002 | [7] S.-J. Seok, S.-H. Lee, S.-M. Hong and C.-H. Kang, "Unfairness of Assured Service and a Rate Adaptive Marking Strategy," in Proc. Qofis'02, LNCS 2511, Oct. (2002) 47-56 |
| July 2002 | [8] S.-J. Seok, S.-H. Lee, and C.-H. Kang, "G-Marking: Improved Marking Method for Multiple-Domain Differentiated Services," in Proc. of INC2002, July (2002) 271-278 |

July 2002 [9] S.-J. Seok, S.-H. Lee, J. Park and C.-H. Kang, "Characteristics of Assured Service and an Alternative RIO Scheme in Differentiated Services Networks," International Journal of Computer Systems Science & Engineering, Vol.17, No.4, July (2002) 251-262

Feb. 2002 [10] S.-H. Lee, "Two-differentiated Marking Strategies for TCP and UDP flows in a Differentiated Services Network, " published by Master Thesis, Korea University, Feb. (2002)

Oct. 2001 [11] S.-H. Lee, S. J. Seok, S. J. Lee, and C. H. Kang, "Study of TCP and UDP flows in a differentiated services network using Two Markers System," in Proc. MMNS'01, LNCS 2216, Chicago, Oct. (2001) 198-203

Sept. 2001 [12] S.-H. Lee, S. J. Seok, S. J. Lee, S. K. Youm, and C. H. Kang, "Two-differentiated marking strategies for TCP flows in a differentiated services network," in Proc. QofIS'01, LNCS 2156, Coimbra, Sept. (2001) 207-221

May 2001 [13] J.-H. Ryu, S.-H. Lee, J.-H. Lee, C.-H. Kang "QoS Guarantees using RSVP in Mobile IPv6," Proceedings on 3Gwireless, May (2001)

Apr. 2001 [14] S. H. Lee, J. Lee, J. H. Ryu, and C. H. Kang. "A hierarchical mobility management scheme using predictive movement detection algorithm for TCP performance improvement" In Proc.JCCI 2001, Muju, April (2001) 627-630

Internet Drafts

Mar. 2008 [1] C. Shen, H. Schulzrinne, S.-H. Lee, and J. Bang, "NSIS Operation Over IP Tunnels," draft-ietf-nsis-tunnel-04 (work in progress), Mar. 2008

Sept. 2007 [2] C. Shen, H. Schulzrinne, S.-H. Lee, and J. Bang, "NSIS Operation Over IP Tunnels," draft-ietf-nsis-tunnel-03 (work in progress), Sept. 2007

Mar. 2007 [3] C. Shen, H. Schulzrinne, S.-H. Lee, and J. Bang, "NSIS Operation Over IP Tunnels," draft-ietf-nsis-tunnel-01 (work in progress), Mar. 2007

Oct. 2006 [4] C. Shen, H. Schulzrinne, S.-H. Lee, and J. Bang, "NSIS Operation Over IP Tunnels," draft-ietf-nsis-tunnel-00 (work in progress), Oct. 2006

June. 2006 [5] C. Shen, H. Schulzrinne, S.-H. Lee, and J. Bang, "NSIS Operation Over IP Tunnels," draft-ietf-nsis-tunnel-00 (work in progress), June. 2006

Oct. 2005 [6] S.-H. Lee, S.-H. Jeong, H. Tschofenig, X. Fu, and J. Manner, "Applicability Statement of NSIS Protocols in Mobile Environments," draft-ietf-nsis-applicability-mobility-signaling-03 (work in progress), Oct. 2005

Oct. 2005 [7] S.-H. Jeong, S.-H. Lee, J. G. Karagiannis, and G. Lieshout, "3GPP QoS Model for Networks Using 3GPP QoS Classes, " draft-jeong-nsis-3gpp-qosm-02 (work in progress), Oct. 2005

Oct. 2005 [8] C. Shen, H. Schulzrinne, S.-H. Lee, and J. Bang, "NSIS Operation Over IP Tunnels," draft-shen-nsis-tunnel-01 (work in progress), Oct. 2005

July 2005 [9] S.-H. Lee, S.-H. Jeong, H. Tschofenig, X. Fu, and J. Manner, "Applicability Statement of NSIS Protocols in Mobile Environments," draft-ietf-nsis-applicability-mobility-signaling-02 (work in progress), July 2005

July 2005 [10] S.-H. Jeong, S.-H. Lee, J., and G. Karagiannis, "3GPP QoS Model for Networks Using 3GPP QoS Classes," draft-jeong-nsis-3gpp-qosm-01 (work in progress), July 2005

July 2005 [11] S. Lee, S.-H Lee, S. Jeong, J. Bang, and B.J. Lee, "NSIS Signaling Protocols in Multihomed Mobile Networks," draft-lee-nsis-multihoming-mobility-00, (work in progress), July 2005

July 2005	[12] C. Shen, H. Schulzrinne, S.-H. Lee, and J. Bang, "NSIS Operation Over IP Tunnels," draft-shen-nsis-tunnel-00 (work in progress), July 2005
May 2005	[13] S.-H. Jeong, S.-H. Lee, J. Bang, and B.-J. Lee, "3GPP QoS Model for Networks Using 3GPP QoS Classes," draft-jeong-nsis-3gpp-qosm-00 (work in progress), May 2005
Feb. 2005	[14] S.-H. Lee, S.-H. Jeong, H. Tschofenig, X. Fu, and J. Manner, "Applicability Statement of NSIS Protocols in Mobile Environments," draft-ietf-nsis-applicability-mobility-signaling-01 (work in progress), Feb. 2005.
Oct. 2004.	[15] S.-H. Lee, S.-H. Jeong, H. Tschofenig, X. Fu, and J. Manner, "Applicability Statement of NSIS Protocols in Mobile Environments," draft-ietf-nsis-applicability-mobility-signaling-00 (work in progress), Oct. 2004.
Oct. 2004.	[16] C. Shen, H. Schulzrinne, and S.-H. Lee, "Internet Routing Dynamics and NSIS Related Considerations," draft-shen-nsis-routing-00, Oct. 2004
July 2004	[17] S.-H. Lee, S.-H. Jeong, H. Tschofenig, X. Fu, and J. Manner, "Applicability Statement of NSIS Protocols in Mobile Environments," draft-manyfolks-signaling-protocol-mobility-01, July 2004
Jan. 2004	[18] R. Bless, X. Fu, R. Hancock, S.-H. Jeong, C. Kappler, S.-H. Lee, J. Manner, P. Mendes, and H. Tschofenig, "Mobility and Internet Signaling Protocols," draft-manyfolks-signaling-protocol-mobility-00, Jan. 2004
Oct. 2003	[19] S.-H. Lee, S.-H. Jeong, BJ Lee, and J. Bang, "Mobility Functions in the QoS NSLP," draft-lee-nsis-mobility-nslp-00, Oct. 2003
Oct. 2003	[20] S.-H. Jeong, S.-H. Lee, BJ Lee, and J. H. Bang, "Mobility Functions in the NTLTP," draft-jeong-nsis-mobility-ntlp-01, Oct. 2003
July 2003	[21] S.-H. Lee, J. H. Bang, BJ. Lee and S.-H. Jeong, "Mobility Functions in the QoS NSLP," draft-lee-nsis-mobility-nslp-00, July 2003
July. 2003	[22] S.-H. Jeong, S.-H. Lee, BJ Lee, and J. Bang, "Mobility Functions in the NTLTP," draft-jeong-nsis-mobility-ntlp-00, July. 2003
June 2003	[23] S.-H. Lee, S.-H. Jeong, and J. H. Bang, "QoS Signaling for IP-based Radio Access Networks," Internet Draft, June 2003

Patents

2005	[1] Sung-Hyuck Lee et al, "Optimized Decision Mechanism on Soft-State Timer in Mobile Networks," Korea Patent, US, Europe, China and Japan Patent pending
2005	[2] Sung-Hyuck Lee et al, "A Mechanism on QoS state update supporting for mobile nodes in IP-based multihomed mobile networks" Korea Patent, US, Europe, China and Japan Patent pending
2005	[3] Sung-Hyuck Lee et al, "A Mechanism on Crossover Node Discovery and State Update supporting for QoS signaling/data packets on tunnel path of Mobile IP-based networks" US, Europe, China, and Korea Patent pending
2005	[4] Sung-Hyuck Lee et al, "A Mechanism supporting for QoS signaling protocols on tunneling path of IP-based networks " US, Europe, China, Japan, and Korea Patent pending
2005	[5] Sung-Hyuck Lee et al, "A General Mechanism supporting for QoS signaling protocols on tunneling path of IP-based networks " US, Europe, China, Japan and Korea Patent pending
2005	[6] Sung-Hyuck Lee et al, " QoS interaction scheme end-to-end QoS between 3GPP and

- non-3GPP networks” Korea Patent/ US, Europe, China and Japan Patent pending
- 2004 [7] Sung-Hyuck Lee et al, “Resource Reservation Method using Multiple Interfaces In Mobile Environments” US and Korea Patent pending
- 2004 [8] Sung-Hyuck Lee et al, “QoS signaling method for seamless handover in IP-based mobile networks” US, China, Japan and Korea Patent pending
- 2003 [9] Sung-Hyuck Lee et al, “Crossover Router discovery method for seamless handover in IP-based mobile networks,” US and Korea Patent pending
- 2003 [10] Sung-Hyuck Lee et al, “Resource Reservation Method” US, Europe, China, Japan and Korea Patent
- 2003 [11] Sung-Hyuck Lee et al, “Queue management method” Korea Patent and US Patent
- 2003 [12] Sung-Hyuck Lee et al, “Priority-based feedback scheme of ROHC to enhance the Robustness” US, Europe, China, Japan and Korea Patent
- 2003 [13] Sung-Hyuck Lee et al, “A Fast Resource Reservation and Elimination Scheme in Mobile/Wireless environments, ” Korea Patent/ US, Europe, China and Japan Patent
- 2003 [14] Sung-Hyuck Lee et al, “Transportation method based on buffer management in UDP/TCP/IP Networks ” US, Europe, China, Japan and Korea Patent

Awards

- Jan. 2006 **Samsung Best Standardization Award’05**
- IETF standardization activities, rewarded by Samsung Electronics
- Dec. 2005 **‘Top Ten’ ranked for Patent Application’05 in SAIT, Samsung Electronics**
- Dec. 2004 **Samsung Best Technology Forum Award’04**
- Samsung IPv6 Forum, rewarded by Samsung Electronics
- Dec. 2004 **Samsung Best Standardization Award’04**
- IETF standardization activities, rewarded by Samsung Electronics
- Dec. 2004 **6 Sigma Best Practice Award’04**
- ‘A Study on an Optimized QoS Signaling Protocol in Mobile Environments,’ rewarded by Samsung Electronics
- Oct. 2004 **Breakthrough Award’04**
- Technology innovation, rewarded by Samsung Electronics
- 2004 **Value of Customer Prize’04**
- Customer satisfaction, rewarded by Samsung Electronics
- 2000 - 2001 **BK (Brain Korea) Fellowship**
- Excellent Research Results, rewarded by Korea Government