

Jaehoon Jeong

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Status:

- **Ph.D. Candidate** in the Department of Computer Science and Engineering at the University of Minnesota (UoM) – Twin Cities
 - **Advisors - Prof. David Du and Tian He**
- **Research Assistant** in the Department of Computer Science and Engineering (<http://www.cs.umn.edu/>)

Education:

- **University of Minnesota**, Minneapolis, MN
Department of Computer Science and Engineering
Ph.D. – Expected in Summer 2009, GPA: 3.772/4.0
Thesis Title - Wireless Sensor Networking for Intelligent Transportation Systems
Advisor - Prof. David Du and Tian He
- **Seoul National University**, Seoul, Korea
School of Electrical Computer Engineering
M.S. – Feb. 2001, GPA: 3.73/4.3
Thesis - Design and Implementation of One-way IP Performance Measurement Tool
Advisor - Prof. Yanghee Choi
- **Sungkyunkwan University**, Suwon, Korea
Department of Information Engineering
B.S. – Feb. 1999, GPA: 3.8/4.5 (Upper: 4.27/4.5)
Thesis - Location Management for Searching in Mobile Communication
Advisor - Prof. Youngik Eom

Experience:

- **2004.9-2008: Department of Computer Science, University of Minnesota, USA**
 - **2008.5-2008. 10: Data Forwarding in Vehicular Ad-hoc Networks (VANET)** – funded by National Science Foundation (NSF). In this project, I have researched on a data forwarding in vehicular ad-hoc networks. I investigated a data forwarding using both individual vehicle trajectory and vehicular traffic statistics in road networks. This work will be submitted to ICDCS'09 this November.
 - **2006.5-2008. 4: Sensor Networking Project for Intelligent Transportation Systems** - funded by Digital Technology Center (DTC), University of Minnesota and National Science Foundation (NSF). In this project, I have researched on the sensor networking for the intelligent transportation systems, such as road networks. I designed and published the Autonomous Passive Localization system (call APL) for wireless sensors deployed on road networks. I proposed and published a vehicle tracking algorithm using minimal tracking area (called minimal contour) in order to save sensor energy. I am now researching on the energy-aware surveillance system for the road networks using the characteristics of road networks.

- **2005.5-2006. 5: Intelligent Storage based on Object-based Storage Device (OSD), DISC Project** - funded by US Industry (such as Sun Microsystems and StorageTek) and Korean Government Research Institute (i.e., ETRI). In this project, I implemented the communications and security modules (such as the security manager and policy manager) for OSD based on ISO T10 specification. The implementation has been publicly released in [SourceForge.net](http://sourceforge.net/projects/disc-osd/) (<http://sourceforge.net/projects/disc-osd/>) in 2007 and the paper related to the implementation has been published to a storage conference called MSST in 2006.
- **2004.8-2006. 5: Simulation and Modeling for Storage Area Network (SIMON), SIMON Project** - funded by US Navy. In this project, I designed and implemented a simple version of SIMON simulator in 2004. With the simulation and real experiment, we proved the validity of the SIMON concept. We also worked for the hybrid simulation approach for the SIMON simulator.
- **2001-2004.8: Electronics and Telecommunications Research Institute (ETRI), Korea**
Research Engineer – Next Generation Internet Standards Research Team
 - **2002.1-2004.2: Project titled IPv6 Auto-Configuration Networking Technology Standardization (6ANTS)**
In this project, we developed and implemented basic routing protocol and auto-configuration technology for auto-networking in IPv6 mobile environments, such as IPv6 mobile ad hoc network (MANET) and mobile network (NEMO). The auto-configuration technology consists of the IPv6 unicast address auto-configuration, IPv6 multicast allocation, multicast DNS, and service discovery. Especially, I have led in the development of the auto-configuration technology and ad hoc routing protocols for IPv6 mobile ad hoc networks. Also, I have developed wireless mobile router based on MPC855T board and embedded linux with other company called CREWAVE for MANET testbed. The results of this project have been being standardized in IETF (Internet Engineering Task Force).
 - **2001.2-2001.12: Project titled IPv6 Network and Application Testbed (6NEAT)**
In this project, we implemented IPv6 applications, such as videoconferencing tools and tested them over Trans-Eurasia Information Network (TEIN) with several European countries such as University College London (UCL). Also, we participated in 6WINIT project as one of the international partners, of which the purpose is to validate the introduction of the new mobile wireless internet in Europe. I designed and implemented Active Measurement Tool (AMTv6) for measuring one-way IP performance metrics in IPv6 network.
- **1999-2000: Department of Computer Engineering, Seoul National University, Korea**
Research Assistant – Multimedia & Computer Communications Lab., Dr. Yanghee Choi
 - **2000.5-2000.11: Project titled Development of One-way IP Performance Measurement Tool, Active Measurement Tool (AMT)**
In this project, we developed and implemented one-way IP performance measurement tool for Korea Telecom commercial Internet, KORNET. I designed and implemented main modules of control and measurement systems of AMT.
 - **1999.3-1999.12: Project titled A High-quality Multimedia Distribution Service over the Internet (SmartNET)**
In this project, we implemented a high-quality multimedia distribution service based on MPEG-1 video/audio over the Internet, namely VoD service. I implemented the user interface based on MFC in this project.

Intern Experience:

- **2007.5.14-2007.8.31: SGI, Eagan, MN, USA**
 - **Engineering Work: CXFS Project for the SGI's Cluster File System for High-Performance Computing**

In this project, I extended the Wireshark that is one of popular network analysis tools. Given Interface Description Language (IDL) files for CXFS message protocol, the Wireshark is required to be automatically updated in order to capture packets related to new interfaces specified in the IDL files. I designed and implemented Parsers based on Lex/Yacc to allow both the automation of Wireshark update and the display of IDL interface parameters, given the IDL files.

- **2006.6.1-2006.8.31: McData, Plymouth, MN, USA**
 - **Engineering Work:** Dana Project for the McDATA second generation switch (called iWSM) for SAN Internetworking
In this project, I set up the testbed and extended the testing tool program for testing the iWSM boxes. The first work was to set up the testbed for testing the IPsec implementation in the iWSM using Ixia's IxANVL that is one of the most popular protocol testing tools. Also, I designed the extension of the IxANVL tool for the iWSM IPsec testing. The second work was to extend the windows-based testing program (called MessageBox) for testing the iWSM box. The program is implemented using Visual C++ and WinBatch. Especially, I extended the user-interface functions (such as the window resizing and text-coloring for debugging) and the character caret control in the terminal that is used to provide Command Line Interface (CLI).

Teaching Experience:

- Teaching Assistant: Wireless Sensor Networks (CSCI-5980), Computer Science and Engineering, University of Minnesota, Spring 2006. Graduate level course on the introduction to the wireless sensor networks.
- Teaching Assistant: Data Communications and Computer Networks (CSCI-5211), Computer Science and Engineering, University of Minnesota, Fall 2005. Graduate level course on the introduction to the data communication and computer network for understanding the Internet.
- Teaching Assistant: Electronic Circuit 1, Computer Engineering, Seoul National University, Fall 2000. Sophomore level course on introduction to the Electronic Circuit.
- Lecturer: Windows Programming (MFC) and UNIX Network Programming, BIT Training Center (BTC) (<http://www.bit.co.kr/english/product/441.htm>), 1999-2000. – BTC is a subsidiary IT Institute of BIT Computer (<http://www.bit.co.kr/english/Index.htm>) to educate and deliver highly skilled programmers to the industry.

Related Courses:

- **Graduate Courses**
 - **Ph.D. Courses:** Data Communications and Computer Networks (CSCI-5211), Advanced Algorithms and Data Structures (CSCI-5421), Advanced Computer Networks and Their Applications (CSCI-8211), Numerical Analysis (CSCI-5302), Artificial Intelligence I (CSCI-5511), Probability and Statistics Theory (MATH-5651), New Trends in Database Systems (CSCI-5980), Prediction and Filtering Theory (MATH-5654), Machine Learning (CSCI-5525), Introduction to Stochastic Processes (MATH-5652), Graph Theory and Non-Enumerative Combinatorics (MATH-5707), Statistical Analysis (STAT-5021).
 - **M.S. Courses:** Advanced Multimedia, Computer Communication Networks, Security in Computer Systems, Advanced Computer System Performance Evaluation, Topics in Internet, Advanced Operating Systems, Advanced Database, Advanced Programming Language.

- **Undergraduate Courses**
 - Simulation Engineering, Theory of Computation, Computer Networks, Electronics Circuits, Communication Theory, Information Theory I & II, Data Communications, Signal and Systems, Digital Signal Processing, Introduction to Statistics.

Technical/Special Skills:

- **OS:** Windows and Unix (Solaris, Linux, FreeBSD)
- **Programming:** C/C++, MFC, Java, Tcl/Tk, Lisp, Scheme, Lex/Yacc, Fortran, Latex and HTML
- **Network Simulation and Math Package:** ns-2, SMPL and Matlab
- **Protocols:**
 - **Network:** TCP/IP, IPv6, MIPv6, NEMO, MANET, MPLS, Diffserv, etc.
 - **Storage:** iSCSI, OSD, FC-AL, SSA, etc.

Professional Activities:

- **2002.1-2007.9:** IETF Standardization, especially in IPv6 (Working Group), DNSOP WG, Autoconf WG and NEMO WG
- **2001.1-2001.12:** Secretariat in IPv6 Forum Korea
- **2001.3-2001.12:** Chair of Measurement WG in APAN-KR
- **1999.1-2000.12:** Member of Video WG and Measurement WG in APAN-KR

Professional Services:

- **Conference Paper Review:** IEEE Infocom'09, IEEE ICOIN'09, ACM MobiHoc'08, IEEE ICDCS'08, IEEE MASS'08, IEEE Milcom'08, IEEE Globecom'08, IEEE ICNP'07, IEEE ICC'06, IEEE Workshop on Wireless Local Networks'05.
- **Journal Paper Review:** IJSNet'06
- **Committee Service:** UMN Computer Science DGS Advisory Committee (2007.9-2008.4)

Community Services:

- **2008.3-2008.Present:** Teacher at Taekwondo (Korean Martial Art) Class, MN, USA.
- **2007.9-2008.6:** Teacher at Sunday School of Catholic Church, Saint Andrew Kim, MN, USA
- **1996.2-2001.1:** Teacher at Sunday School of Catholic Church, Chang4-dong, Seoul, Korea
- **1993.11-1996.1:** Military Service in Korea Army

Awards and Grants:

- **NSF Travel Grant for INFOCOM'07:** Anchorage, Alaska, May 2007.
- **Computer Engineering Scholarship:** Seoul National University, 1999.
- **Information Engineering Scholarship:** Sungkyunkwan University, 1997-1998.

Publications:

- **International Conference & Journal Papers**
 - "VISA: Virtual Scanning Algorithm for Dynamic Protection of Road Networks", Jaehoon Jeong, Yu Gu, Tian He and David Du, Submitted to IEEE Infocom'09, August 2008.
 - "APL: Autonomous Passive Localization for Wireless Sensors Deployed in Road Networks", Jaehoon Jeong, Shuo Guo, Tian He and David Du, IEEE Infocom'08, April 2008.

- “MCTA: Target Tracking Algorithm based on Minimal Contour in Wireless Sensor Networks”, Jaehoon Jeong, Taehyun Hwang, Tian He and David Du, IEEE Infocom’07 Mini-Symposia, May 2007.
- “Energy-Aware Scheduling with Quality of Surveillance Guarantee in Wireless Sensor Networks”, Jaehoon Jeong, Sarah Sharafkandi and David Du, 2nd ACM/SIGMOBILE Workshop on Dependability Issues in Wireless Ad Hoc Networks and Sensor Networks (DIWANS), September 2006.
- “Experiences in Building an Object-Based Storage System based on the OSD T-10 Standard”, David Du, Dingshan He, Changjin Hong, Jaehoon Jeong, Vishal Kher, Yongdae Kim, Yingping Lu, Aravindan Raghuvveer and Sarah Sharafkandi, accepted to Conference on Mass Storage Systems and Technologies (MSST), January 2006.
- “Design and Implementation of IPv6 Address Autoconfiguration for AODV in Mobile Ad Hoc Networks”, Youngmin Kim, Sanghyun Ahn, Youngju Lee, Jaehoon Jeong and Jaehoon Lee, The 2005 US-Korea Conference on Science, Technology & Entrepreneurship (UKC 2005), University of California at Irvine, August 2005.
- “Name Directory Service based on MAODV and Multicast DNS for IPv6 MANET”, Jaehoon Jeong, Jungsoo Park and Hyoungjun Kim, IEEE VTC 2004-Fall, Los Angeles, CA, USA, September 26-29, 2004.
- “Dynamic Tunnel Management Protocol for IPv4 Traversal of IPv6 Mobile Network”, Jaehoon Jeong, Jungsoo Park and Hyoungjun Kim, IEEE VTC 2004-Fall, Los Angeles, CA, USA, September 26-29, 2004.
- “Route Optimization for Mobile Nodes in Mobile Network based on ND-Proxy”, Jaehoon Jeong, Kyeongjin Lee, Jungsoo Park and Hyoungjun Kim, IEEE VTC 2004-Spring, Milan, Italy, May 17-19, 2004.
- “Auto-Networking Technologies for IPv6 Mobile Ad Hoc Networks”, Jaehoon Jeong, Jungsoo Park and Hyoungjun Kim, ICOIN 2004, Busan, Korea, February 18-20, 2004.
Reprinted in **Lecture Notes in Computer Science (LNCS), Number 3090**, October 2004.
- “DNS Name Service based on Secure Multicast DNS for IPv6 Mobile Ad Hoc Networks”, Jaehoon Jeong, Jungsoo Park and Hyoungjun Kim, ICACT 2004, Phoenix Park, Korea, February 9-11, 2004.
- “Name Service in IPv6 Mobile Ad-hoc Network connected to the Internet”, Jaehoon Jeong, Jungsoo Park and Hyoungjun Kim, IEEE PIMRC 2003, Beijing, China, September 2003.
- “The Autoconfiguration of Recursive DNS Server and the Optimization of DNS Name Resolution in Hierarchical Mobile IPv6”, Jaehoon Jeong, Kyeongjin Lee, Jungsoo Park, Heecheol Lee and Hyoungjun Kim, IEEE VTC 2003-Fall, Orlando, USA, October 2003.
- “The Extended BGP4+ Algorithm for Multihoming”, Jongwook Woo, Seunghyup Ryu, Jaiyong Lee, Jaehoon Jeong, Jungsoo Park and Hyoungjun Kim, ITC-CSCC2003, Korea, July 2003.
- “Service Discovery based on Multicast DNS in IPv6 Mobile Ad-hoc Networks”, Jaehoon Jeong, Jungsoo Park and Hyoungjun Kim, IEEE VTC 2003-Spring, Jeju, Korea, April 22-25, 2003.
- “Name Service in IPv6 Mobile Ad-hoc Network”, Jaehoon Jeong, Jungsoo Park, Hyoungjun Kim and Kishik Park, ICOIN 2003, Jeju, Korea, February 2003.
Reprinted in **Lecture Notes in Computer Science (LNCS), Number 2662**, August 2003.
- “NDR: Name Directory Service in Mobile Ad-Hoc Network”, Jaehoon Jeong, Jungsoo Park and Hyoungjun Kim, ICACT 2003, Korea, January 2003.
- “Implementation of Service Location Protocol and Remote Device Control for IPv6 based Home Networking”, Hyunwook Cha, Jungsoo Park, Jaehoon Jeong and Hyoungjun Kim, ICACT 2003, Korea, January 2003.
- “Autoconfiguration Technologies for IPv6 Multicast Service in Mobile Ad-hoc Networks”, Jaehoon Jeong and Jungsoo Park, IEEE ICON 2002, Singapore, August 2002.
- “Autoconfiguration Technology for IPv6-based Mobile Ad-hoc Network”, Jaehoon Jeong and Jungsoo Park, ICIS 2002, Korea, August 2002.

- “Methodology for One-way IP Performance Measurement on Sub-path or Link in use of IPv6 Extension Header”, Jaehoon Jeong, Jungsoo Park, Seungyun Lee and Yongjin Kim, ICACT 2002, Korea, February 2002.
- “Design and Implementation of One-way IP Performance Measurement Tool”, Jaehoon Jeong, Seungyun Lee, Yongjin Kim and Yanghee Choi, ICOIN 2002, Jeju, Korea, January 2002. Reprinted in *Lecture Notes in Computer Science (LNCS)*, Number 2343, July 2002.
- **IETF (Internet Engineering Task Force) RFC and Internet Drafts**
 - “IPv6 DNS Configuration based on Router Advertisement”, [RFC 5006](#), Jaehoon Jeong, Soohong Daniel Park, Luc Beloeil and Syam Madanapalli, September 2007.
 - “IPv6 Host Configuration of DNS Server Information Approaches”, [RFC 4339](#), Jaehoon Jeong et al., February 2006.
 - “Ad Hoc IP Address Autoconfiguration”, draft-jeong-adhoc-ip-addr-autoconf-02.txt, Jaehoon Jeong, Jungsoo Park, Hyoungjun Kim and Dongkyun Kim, July 2005.
 - “Requirements for Ad Hoc IP Address Autoconfiguration”, draft-jeong-manet-addr-autoconf-reqts-01.txt, Jaehoon Jeong, Jung-Soo Park, Kenichi Mase, Youn-Hee Han, Badis Hakim and Jean-Marie Orset, submitted to IETF-59 Meeting, Seoul, Korea, February 2004.
 - “ND-Proxy based Route and DNS Optimizations for Mobile Nodes in Mobile Network”, draft-jeong-nemo-ro-ndproxy-02.txt, Jaehoon Jeong, Kyeongjin Lee, Jungsoo Park and Hyoungjun Kim, submitted to IETF-59 Meeting, Seoul, Korea, February 2004.
 - “DNS Service for Mobile Ad Hoc Networks”, draft-jeong-manet-dns-service-00.txt, Jaehoon Jeong, Jungsoo Park and Hyoungjun Kim, submitted to IETF-59 Meeting, Seoul, Korea, February 2004.
 - “Ad Hoc IP Address Autoconfiguration for AODV”, draft-jeong-manet-aodv-addr-autoconf-00.txt, Jaehoon Jeong, Jungsoo Park, Hyoungjun Kim and Dongkyun Kim, submitted to IETF-59 Meeting, Seoul, Korea, February 2004.
 - “Route Optimization for Mobile Nodes in Mobile Network based on Prefix Delegation”, draft-leekj-nemo-ro-pd-01.txt, Kyeongjin Lee, Jaehoon Jeong, Jungsoo Park and Hyoungjun Kim, submitted to IETF-58 Meeting, Minneapolis, Minnesota, USA, October 2003.
 - “The Autoconfiguration of Recursive DNS Server and the Optimization of DNS Name Resolution in Hierarchical Mobile IPv6”, draft-jeong-hmipv6-dns-optimization-01.txt, Jaehoon Jeong, Jungsoo Park, Kyeongjin Lee and Hyoungjun Kim, submitted to IETF-57 Meeting, Vienna, Austria, July 2003.
 - “IPv6 Router Advertisement based DNS Autoconfiguration”, draft-jeong-ipv6-ra-dns-autoconf-00.txt, Jaehoon Jeong, Byungyeob Kim, Jungsoo Park and Hyoungjun Kim, presented in IETF-57 Meeting, Vienna, Austria, July 2003.
 - “Unique DNS Name Generation”, draft-jeong-name-generation-01.txt, Jaehoon Jeong, Jungsoo Park and Hyoungjun Kim, submitted to IETF-56 Meeting, San Francisco, CA, USA, March 2003.
 - “Unicast Routing based Multicast Routing Protocol for Mobile Ad Hoc Networks (UMR)”, draft-jeong-umr-manet-00.txt, Jaehoon Jeong and Jungsoo Park, submitted to IETF-54 Meeting, Yokohama, Japan, June 2002.
 - “One-way Delay Measurement using IPv6 Source Routing”, draft-jeong-1way-delay-ipv6-source-routing-00.txt, Jaehoon Jeong, Jungsoo Park, Seungyun Lee and Yongjin Kim, submitted to IETF-53 Meeting, Minneapolis, MN, USA, February 2002.
- **Patents**
 - “Method for Communication with IPv4 Internet in IPv6 Mobile Network Environment”, Jaehoon Jeong, Jungsoo Park, Hyoungjun Kim and Hyoungho Lee, submitted to Korean Patent, August 2004.
 - “Route Optimization Method for Mobile Nodes in IPv6 Mobile Network on the basis of Neighbor Discovery Proxy”, Jaehoon Jeong, Kyeongjin Lee, Jungsoo Park and Hyoungjun Kim, submitted to Korean Patent, October 2003.

- “Route Optimization for Mobile Nodes in Mobile Network based on Prefix Delegation”, Kyeongjin Lee, Jaehoon Jeong, Jungsoo Park and Hyoungjun Kim, submitted to Korean Patent, November 2003.
- “Method for generating Unique Domain Name based on Network Device Identifier”, Jaehoon Jeong, Jungsoo Park and Hyoungjun Kim, submitted to Korean Patent, December 2002.

Presentation in Workshop:

- “Sensor Networking for Intelligent Transportation Systems”, Jaehoon Jeong, BK-21 Invited Talk, Kyungpook National University, Daegu, Korea, July 2008.
- “MANET Implementation and Test”, Jaehoon Jeong, KRnet 2004 Conference, Seoul, Korea, June 2004.
- “IP Autoconfiguration for MANET”, Jaehoon Jeong, Wireless Access Network and NS-2 Workshop, Seoul, Korea, April 2004.
- “Ad Hoc IP Address Autoconfiguration”, Jaehoon Jeong, Internet Standard Technology Workshop, Seoul, Korea, February 2004.
- “Ad Hoc Standard Routing Protocol (RFC3561) and IPv6 Technologies for IPv6 MANET”, Jaehoon Jeong, IPv6 Standardization Workshop, Seoul, Korea, October 2003.
- “Autoconfiguration Technologies in IPv6 Mobile Ad Hoc Networks”, Jaehoon Jeong, APAN2003 Meeting, Busan, Korea, August 2003.
- “MANET Auto-Configuration”, Jaehoon Jeong, KRnet2003 Conference, Seoul, Korea, June 2003.
- “IPv6 Autoconfiguration Technology for Ad Hoc Networks”, Soyeon Ahn and Jaehoon Jeong, IPv6 Forum Korea Workshop, Jeju, Korea, October 2002.
- “IPv6 Deployment Technology for Ad Hoc Environment”, Jaehoon Jeong, Internet Standard Technology Workshop, Seoul, Korea, September 2002.
- “IPv6 Activities in Korea”, Jaehoon Jeong and Yongjin Kim, APAN2001 Meeting, Penang, Malaysia, August 2001.
- “AMTv6: Active Measurement Tool in IPv6 Network”, Jaehoon Jeong, APAN2001 Meeting, Penang, Malaysia, August 2001.
- “APAN-KR Measurement Activity”, Jaehoon Jeong, APAN2000 Meeting, Beijing, China, August 2000.
- “Digital Video Over IP”, Jaehoon Jeong and Haewon Lee, APAN-KR & KOREN Workshop, Daejeon, Korea, August 1999.

References:

- Available upon Request