Kyeong Soo (Joseph) Kim, Ph.D.

Associate Professor
Room P510A, Public Building
Department of Electrical and Electronic Engineering
Xi'an Jiaotong-Liverpool University
111 Ren'ai Road, Dushu Lake Higher Education Town, Suzhou Industrial Park
Suzhou 215123, Jiangsu Province, P. R. China
Tel: +86 (0)512 8188 4811 (O) / +86 136 5623 4275 (M)
E-mail: kyeongsoo.kim@xjtlu.edu.cn / kyeongsoo.kim@gmail.com
WWW: http://kyeongsoo.github.io/

Education

Ph.D., Electronics Engineering, Seoul National University, Seoul, Korea 8/1995
Dissertation: Analyses and Applications of Traffic Shaping Techniques in High-Speed Networks
Advisor: Prof. Byeong Gi Lee

M.S., Electronics Engineering, Seoul National University, Seoul, Korea 2/1991
Dissertation: A Study on Generic Flow Control (GFC) Protocol in Broadband ISDN Customer Premises Networks
Advisor: Prof. Byeong Gi Lee

B.S., Electronics Engineering, Seoul National University, Seoul, Korea 2/1989
With honors (Cum Laude)

Employment

Associate Professor 7/2014–Present
Department of Electrical and Electronic Engineering, Xi'an Jiaotong-Liverpool University, Suzhou, China

Associate Professor 8/2013–6/2014
College of Engineering, Swansea University, Swansea, Wales, UK

Senior Lecturer 8/2009–7/2013
College of Engineering, Swansea University, Swansea, Wales, UK

Senior Lecturer 8/2007–7/2009
Institute of Advanced Telecommunications, Swansea University, Swansea, Wales, UK

Principal Engineer 1/2001–7/2007
Advanced System Technology, STMicroelectronics, San Jose, California, US

STMicroelectronics Researcher-in-Residence 1/2001–3/2006
Stanford Networking Research Center (SNRC), Stanford University, Stanford, California, US

Member of Technical Staff 12/1997–12/2000
Passive Optical Network (PON) Systems R&D Group, Lucent Technologies, Murray Hill, New Jersey, US

Post-Doctoral Research Associate & Instructor 2/1996–11/1997
Dept. of Electrical Engineering, Washington University in St. Louis, St. Louis, Missouri, US

Special Researcher 8/1995–2/1996
Institute of New Media and Communications, Seoul National University, Seoul, Korea

Awards & Honors

Best Paper Award, Fiber Optics in Access Networks (FOAN) Workshop 2011
For a single-authored paper titled "A Research Framework for the Clean-Slate Design of Next-Generation Optical Access,", which was presented at the FOAN 2011, co-located with the ICUMT 2011 in Budapest, Hungary, Oct. 2011.

Certificate of Recognition, STMicroelectronics 2002
For pioneering a new presence for STMicroelectronics at Stanford

Bell Labs President's Silver Award, Bell Labs, Lucent Technologies 1999
For the development of world's first commercial ATM-PON-based Fiber-To-The-Home/Business (FTTH/B) systems

Post-Doctoral Research Scholarship, Korea Science and Engineering Foundation 2/1996–2/1997

Research Fellowship, Dept. of Electronics Eng., Seoul National University 9/1989–12/1989

Scholarship of Honor, Seoul National University 3/1988–12/1988

Research Interests

Clean-slate design of next-generation access/metro networks; pricing in access networks and smart grids; network architectures and protocols; scheduling and routing algorithms; wireless localization; synchronization in packet networks

Research Experience

Network Traffic Control Schemes and Service Plans exploiting Excess Bandwidth in Shared Access Networks 1/2015–Present
Associate Professor, Xi'an Jiaotong-Liverpool University, Suzhou, China

- Awarded Xi'an Jiaotong-Liverpool University Research Development Fund (14/15 Round 1; 95,000 RMB) for "Network Traffic Control Schemes and Service Plans exploiting Excess Bandwidth in Shared Access Networks".

Clean-Slate Design of Next-Generation Access (NGA) Research Initiative 8/2007–6/2014
Associate Professor, Swansea University, Swansea, Wales UK

- Proposed new Internet service provider (ISP) traffic control schemes allocating excess bandwidth among active subscribers while not compromising the service contracts specified by the original token bucket algorithm for conformant subscribers in shared access networks.
- Proposed a comprehensive research framework for a comparative analysis of candidate network architectures and protocols in the clean-slate design of next-generation access based on multivariate non-inferiority testing and a notion of equivalent circuit rate taking into account user-perceived performances, and a virtual test bed providing a complete experimental platform for the comparative analysis.

- Awarded twice (Dec. 2010 and Mar. 2011) Amazon Web Services (AWS) in Education Research Grant (credits of 7,500 USD each; 15,000 USD in total) for the use of AWS (i.e., Cloud Computing) for "Virtual Test Bed for Next-Generation Optical Access (NGOA)" (part of the Clean-Slate Design of Next-Generation Access (NGA) research initiative).
- Served as a Principal Investigator of a Swansea Group for Technology Strategy Board (TSB) project "Roadmap For Broadband Optical Internet Access Towards 10 Gbit/s Everywhere", a joint project initiated by Oclaro (former Bookham) together with four industrial (Ericsson, CIP, BT, and Gooch & Housego) and four academic (Cambridge, Swansea, Essex, and UCL) partners for a feasibility study of candidate solutions to achieve the objective of the *Photonics*[21] competition, "10 Gigabit/s everywhere".

Wireless LANs and MANs 3/2005–7/2007

Principal Engineer, STMicroelectronics, San Jose, California, US

- Served as a Master Editor initially for Simple Efficient Extensible Mesh (SEE-Mesh) proposal and later for joint SEE-Mesh/Wireless Mesh (Wi-Mesh) proposal for IEEE 802.11s that was being co-prepared by 38 companies/entities.
- Co-proposed Radio Aware-Optimized Link State Routing (RA-OLSR) protocol and address extension scheme based on 6 addresses for WLAN mesh, which was adopted by IEEE 802.11s and became part of a draft standard.
- Co-proposed scheduling mechanisms for connection-based over-the-air inter base station communications among collaborative self-coexistence IEEE 802.22 Wireless Regional Area Network (WRAN) systems.
- Co-proposed an enhanced adaptive channel selection algorithm for IEEE 802.16h.
- Working on scalable routing algorithms and efficient interworking with multiple portals in WLAN mesh.
- *Submitted 5 patent applications and 32 standard contributions.*

Next-Generation Access Networks 1/2003–3/2006

STMicroelectronics Researcher-in-Residence, Stanford Networking Research Center, Stanford University, Stanford, California, US

- Initiated "Next-Generation Access Networks" SNRC project with three research groups respectively working on xDSL/MIMO/Optical access.
- Co-proposed *Stanford University aCCESS-Hybrid Passive Optical Network* (SUCCESS-HPON), next-generation hybrid TDM/WDM optical access architecture.
- Designed and analyzed the performance of scheduling algorithms for WDM-PON under the SUCCESS-HPON architecture.
- Studied on next-generation hybrid access network architectures supporting copper, wireless, and optical fiber media.
- *Published 4 journal (1 invited) and 11 conference (5 invited) papers.*

Optical Internet 1/2001–12/2002

STMicroelectronics Researcher-in-Residence, Stanford Networking Research Center, Stanford, California, US

- Designed and analyzed the performance of scheduling and routing algorithms for unslotted optical CSMA/CA MAC protocol in metropolitan WDM ring networks using tunable transmitters.
- Co-designed and -implemented a hitless wavelength add-drop scheme for fast circuit provisioning.
- Prepared a technical roadmap for PON-based FTTH solutions for STMicroelectronics.
- *Published 1 invited journal and 3 conference papers.*

Passive Optical Network 12/1997–12/2000

Member of Technical Staff, Lucent Technologies, Murray Hill, New Jersey, US

- Participated in system engineering (including level 2 and 3 requirement specifications), system integration/testing, and Lab evaluation at customers' sites of ATM-PON-based FTTH/B systems based on Full Service Access Network (FSAN) specifications.
- Co-proposed algorithms and implementation schemes for protection switching and resource management for ATM-PON systems, including
  - Health-checking algorithms for protection Optical Subscriber Unit (OSU).
  - Fast protection switching schemes for Optical Line Termination (OLT).
  - Partial back pressure scheme for fairness guarantee among Ethernet User Network Interfaces (UNIs) in the same ONT.
  - A multi-table-based grant generator at OLT for improved granularity in bandwidth allocation.
- Implemented a platform-independent Tcl/Tk-based test automation framework to test ONUs with the OSU emulator with scripting capability.
- Standard contributions to FSAN OAN-WG on Dynamic Bandwidth Allocation (DBA) and protection switching.
- *Submitted 5 patent applications (all issued) and 5 standard contributions.*

High-Speed, Shared-Buffered, Multi-Channel ATM Switching 2/1996–11/1997

Researcher and Project Leader, Washington University in St. Louis, St. Louis, Missouri, US

- Analyzed the performance of Multi-Channel Deflection Crossbar (MCDC) and Multi-Channel Multicasting Crossbar (MMCC) systems.
- Developed high-level behavioral VHDL models and test bench for MMCC chips for functional verification.
- Co-proposed schemes to detect and identify defected switching elements in MCDC ATM switch.
- Managed a project, sponsored by LG-IC Ltd., Korea, for development of new high-speed, multi-channel ATM switching systems.
- *Published 1 conference paper and 2 technical reports.*

Broadband ISDN/ATM Technology 7/1989–2/1996

Researcher, Seoul National University, Seoul, Korea

- Proposed and analyzed the performances of two source clock frequency recovery schemes in packet networks – for CBR services, an adaptive clock method based on the Kalman filter with lowpass prefiltering, and for real-time VBR services, a modified Synchronous Residual Time Stamp (SRTS) scheme based on a three-level traffic shaper.
- Co-designed a S/W environment for performance evaluation of VBR video signal transmission in ATM networks using simulation.
- Co-designed ATM Adaptation Layer (AAL) boards – initially for AAL type 1 (CBR services only) and later for integrated types 1 & 2 (CBR and real-time VBR services) – for transmission of video and audio signals through ATM interface cards.
- Designed UNI Physical Layer of the first B-ISDN testbed in Korea, demonstrating the feasibility of ATM technology for integrated multimedia transmission.
- *Published 5 journal and 5 conference papers.*

Academic Supervision

PhD

- Kenneth Nwizege, "Adaptive data transfer for DSRC based vehicle networks", May, 2014.

MPhil

- Ghislain Maurice Norbert (Maurice) Isabwe, "Scalable and Extensible Architecture for IEEE 802.11s Wireless Mesh Networks", Jul. 2010.

MRes

- Mithileysh Sathiyanarayanan, "Multi-Channel Deficit Round Robin Scheduling for Hybrid TDM/WDM Optical Networks", Oct. 2012.

MSc

- Ramya Sasidharan Pillai, "Wi-Fi Robot Localization Using Kalman Filters", Oct. 2010.
- Trinath Koukuntla, "GMPLS Extensions for Hybrid Optical Switching", Jun. 2009.

Teaching Experience

Associate Professor, Xi'an Jiaotong-Liverpool University, Suzhou, China 7/2014–Present

- *Data Communication and Communication Networks (EEE413)*
  - Introduction to data communication and communication networks, covering protocol layers from data link to transport layers and advanced architectures and protocols for optical, wireless, and their hybrid networks
  - *Module Leader*
  - *Postgraduate taught*

Associate Professor/Senior Lecturer, Swansea University, Swansea, Wales, UK 8/2007–6/2014

- *Teaching Head of IAT and Programme Director of Communications Systems*
  - Creation and maintenance of new MSc/MRes programmes in photonics and wireless communications, and networking
  - Rationalisation of multiple communications/networking MSc/MRes programmes into one during the merger between IAT and the college of engineering
- *Software for Smartphone (EG-M42)*
  - Introduction to smartphone programming on Android platform with focus on wireless communications & networking technologies and interfacing with various sensors
  - Case study: Mobile healthcare, indoor wireless localisation
  - *Module Co-ordinator*
  - *Postgraduate taught*
- *Advanced Network Architectures (AT-M81)*
  - Review of traditional optical and wireless network architectures and communications modes
  - Study on next-generation network architectures and protocols including PONs, wireless mesh networks (WMNs), and hybrid optical and wireless networks
  - *Module Co-ordinator*
  - *Postgraduate taught*
- *Network Protocols and Architectures (AT-M40)*
  - Introduction to computer networks and overview of protocol layers from data link to transport layers and wired and wireless network architectures

  - *Module Co-ordinator*
  - *Postgraduate taught*
- *Practical Internet Technology II (EG-253)*
  - Practical experience of website administration and development, and Internet networking technologies and protocols covering Layers 3 (IP) and 4 (TCP/UDP)
  - *Module Instructor*
- *Group Design Exercise: Micro-mouse Project (EG-252)*
  - Open-ended group exercise for building a micro-mouse to develop knowledge and experience in embedded programming, sensor design and interfacing, calibration and test experiments, and web site hosting documents and enabling team collaborations
  - Lectures and Lab experiments with Freescale AW60 microcontroller for interfacing, interrupts and interrupt handling, timer/counter operations, and DAC/ADC
  - *Module Instructor*
- *Analog Design (EG-152)*
  - Lab-based module for design and analysis of analog circuits using both simulation (Multisim) and experiments with real circuit components.
  - Sequence of practical lab exercises leading to design, construction and testing of a waveform generator for EEE students and ECG circuit for medical engineering students at the end
  - *Module Instructor*

Instructor, Washington University in St. Louis, St. Louis, Missouri, US 7/1997–12/1997

- *Transmission Systems and Multiplexing (EE 591)*
  - Overview of modern transmission and networking systems from copper/cable, fiber, radio, and satellite communications to digital multiplexing hierarchies; with emphasis on emerging technologies like SONET & ATM/B-ISDN
  - *Graduate Course*
- *Signal Analysis for Electronic Systems and Circuits (EE 379)*
  - Introductory signals and systems analysis for DSP applications

Adjunct Professor, University of Missouri–St. Louis, St. Louis, Missouri, US 7/1997–8/1997

- *Signal Analysis for Electronic Systems and Circuits (JEE 279)*
  - Extension course for professionals in the field (combined with EE379)

Co-Instructor, Washington University in St. Louis, St. Louis, Missouri, US 1/1997–6/1997

- *Data Networks (EE 593A)*
  - Advanced topics in data networking including queueing theory, MAC and routing protocol analyses, and adaptive flow control
  - Lectures and personal discussion sessions; with Prof. Paul S. Min
  - *Graduate Course*

Help Session Instructor, Washington University in St. Louis, St. Louis, Missouri, US 9/1996–12/1996

- *Digital Logic (CS/EE 260M)*
  - Group help and personal discussion sessions

Publications

Journals

- Kyeong Soo Kim, "The effect of ISP traffic shaping on user-perceived performances in broadband shared access networks," *Computer Networks*, vol. 70. pp. 192-209, Sep, 2014.
- Kyeong Soo Kim, "Comments on "IEEE 1588 clock synchronization using dual slave clocks in a slave"," *IEEE Communications Letters*, vol. 18, no. 6, pp. 981-982, Jun. 2014.
- Kyeong Soo Kim, "On the excess bandwidth allocation in ISP traffic control for shared access networks," *IEEE Communications Letters*, vol. 18, no. 4, pp. 692-695, Apr. 2014.
- Kyeong Soo Kim, "Asynchronous source clock frequency recovery through aperiodic packet streams," *IEEE Communications Letters*, vol. 17, no. 7, pp. 1455-1458, Jul. 2013.
- Kyeong Soo Kim, "A research framework for the clean-slate design of next-generation optical access," (*Extended version of the FOAN 2011 Best Paper*) *Fiber and Integrated Optics – Special Issue on Second Fiber Optics in Access Networks (FOAN)*, vol. 31, issue 2, pp. 90-110, Apr. 2012.
- Farsheed Farjady, Kyeong Soo (Joseph) Kim, Nayla El Dahdah, and Nick J. Doran, "Cost-effective upgrade of WDM all-optical networks using overlay fibers and hop reduction links," *European Transactions on Telecommunications*, vol. 21, issue 6, pp. 563-566, Oct. 2010.
- Kyeong Soo Kim, David Gutierrez, Fu-Tai An, and Leonid G. Kazovsky, "Design and performance analysis of scheduling algorithms for WDM-PON under SUCCESS-HPON architecture," *IEEE/OSA Journal of Lightwave Technology*, vol. 23, no. 11, pp. 3716-3731, Nov. 2005.
- Fu-Tai An, David Gutierrez, Kyeong Soo Kim, Jung Woo Lee, and Leonid G. Kazovsky, "SUCCESS-HPON: A next-generation optical access architecture for smooth migration from TDM-PON to WDM-PON," *IEEE Communications Magazine – Optical Communications Supplement Special Issue on Optical Networking Testbeds (Part 2)*, vol. 43, no. 11, pp. S40-47, Nov. 2005.
- Fu-Tai An, Kyeong Soo Kim, David Gutierrez, Scott Yam, Eric Hu, Kapil Shrikhande, and Leonid G. Kazovsky, "SUCCESS: A next-generation hybrid WDM/TDM optical access network architecture," *IEEE/OSA Journal of Lightwave Technology*, vol. 22, no. 11, pp. 2557-2569, Nov. 2004.
- Kyeong Soo Kim and Leonid G. Kazovsky, "Design and performance evaluation of scheduling algorithms for unslotted CSMA/CA with backoff MAC protocol in multiple-access WDM ring networks," *Information Sciences*, vol. 149/1-2, pp. 135-148, Jan. 2003. (***Invited Paper***)
- Kyeong Soo Kim, "On the evolution of PON-based FTTH solutions," *Information Sciences*, vol. 149/1-2, pp. 21-30, Jan. 2003. (***Invited Paper***)
- Kyeong Soo Kim and Byeong Gi Lee, "KALP: A Kalman filter-based adaptive clock method with lowpass prefiltering for packet networks use," IEEE Trans. Commun., vol. 48, no. 7, pp. 1217-1225, Jul. 2000.
- Kyeong Soo Kim and Byeong Gi Lee, "Three-level traffic shaper and its application to source clock frequency recovery for VBR video services in ATM networks," *IEEE/ACM Trans. Networking*, vol. 3, no. 4, pp. 450-458, Aug. 1995.
- Kyeong Soo Kim and Byeong Gi Lee, "GA-based optimal dimensioning of three-level traffic shaper for statistical multiplexing in ATM networks," *Annals of Telecommunications*, vol. 50, no. 7-8, pp. 624-631, Jul./Aug. 1995.

- Kyeong Soo Kim and Byeong Gi Lee, "Analysis of output-controlled queueing systems in ATM Networks," *Journal of KICS (in Korean)*, vol. 20, no. 8, pp. 2246-2257, Aug. 1995.
- Kyeong Soo Kim and Byeong Gi Lee, "Source clock frequency recovery for VBR video services using three-level traffic shaper," *Journal of KICS (in Korean)*, vol. 20, no. 8, pp. 2173-2182, Aug. 1995.

Conferences and Workshops

- Kyeong Soo Kim, "Designing pricing schemes based on progressive tariff and consumer grouping in migration to a future smart grid," *accepted for presentation at ICICTS 2015*, Jan. 2015.
- Kyeong Soo Kim, "Toward fully-shared access: Designing ISP service plans leveraging excess bandwidth allocation," *Proc. of 2014 International Conference on ICT Convergence (ICTC 2014)*, Busan, Korea, pp. 897-900, Oct. 22-24, 2014.
- Kenneth S. Nwizege, Jianhua He, Kyeong Soo Kim, and Petar Igic, "Performance evaluation of adaptive context aware rate selection algorithm (ACARS) for road safety applications in vehicular network," *Proc. of the 7th European Modelling Symposium (EMS 2013)*, Manchester, UK, Nov. 2013.
- Luke Farmer and Kyeong Soo Kim, "Cooperative ISP traffic shaping schemes in broadband shared access networks," *Proc. of the 4th International Workshop on Fiber Optics in Access Networks (FOAN 2013)*, Almaty, Kazakhstan, Sep. 2013.
- Mithileysh Sathiyanarayanan and Kyeong Soo Kim, "Multi-channel deficit round-robin scheduling for hybrid TDM/WDM optical networks," *Proc. of the 4th International Congress on Ultra Modern Telecommunications and Control Systems (ICUMT 2012)*, St. Petersburg, Russia, Oct. 2012.
- Kyeong Soo Kim, "Effect of ISP traffic shaping on user-perceived performances in broadband access networks," *Proc. of the 4th International Congress on Ultra Modern Telecommunications and Control Systems (ICUMT 2012)*, St. Petersburg, Russia, Oct. 2012.
- Kyeong Soo Kim, "A research framework for the clean-slate design of next-generation optical access," (*Best Paper Award at FOAN 2011*) *Proc. of the 3rd International Congress on Ultra Modern Telecommunications and Control Systems (ICUMT 2011)*, Budapest, Hungary, Oct. 2011.
- Kyeong Soo Kim, Karin Ennser, and Yogesh K. Dwivedi, "Clean-slate design of next-generation optical access," (*Invited paper*) *Proc. of the 13th International Conference on Transparent Optical Networks (ICTON)*, Stockholm, Sweden, Jun. 2011.
- Kyeong Soo Kim, "Integration of OMNeT++ hybrid TDM/WDM-PON models into INET Framework," *OMNeT++ Workshop 2011*, Barcelona, Spain, Mar. 21, 2011.
- Kyeong Soo (Joseph) Kim, "An equivalent circuit rate-based study of next-generation optical access architectures," *OMNeT++ 2010 workshop*, Malaga, Spain, Mar. 19, 2010.
- Ghislain Maurice N. Isabwe and Kyeong Soo (Joseph) Kim, "A novel approach to WLAN mesh interworking with multiple mesh portals," *Proc. of IEEE MASS 2008 (MeshTech 2008 Workshop)*, Atlanta, GA, USA, Sep. 2008.
- Weixuan Huang, Jinho Choi, and Kyeong Soo Kim, "On the impact of channel outage on the throughput of fast retrial random access for OFDMA uplink," *Proc. of IEEE 67th Vehicular Technology Conference (VTC2008-Spring)*, Marina Bay, Singapore, May 2008.

- Kyeong Soo Kim, "Research issues in next-generation optical access networks: Lessons from the SUCCESS Initiative," *COST291 Workshop: The Role of Optical Networking in the Future Internet*, Vilanova i la Geltrú, Catalonia, Spain, Mar. 11, 2008

- Jung Woo Lee, David Gutierrez, Kyeong Soo Kim, and Leonid G. Kazovsky, "Achieving 100% throughput in WDM-PON under the SUCCESS-HPON architecture," *Proc. of GLOBECOM 2006*, San Francisco, CA, USA, Nov. 2006.

- Wei-Tao Shaw, David Gutierrez, Kyeong Soo Kim, Ning Cheng, ShingWa Wong, She-Hwa Yen, and Leonid G. Kazovsky, "Grid reconfigurable optical wireless network (GROW-Net) – A hybrid optical wireless access network," *Proc. of JCIS 2006*, Kaohsiung, Taiwan, Oct. 2006. (***Invited Paper***)

- David Gutierrez, Wei-Tai Shaw, Fu-Tai An, Kyeong Soo Kim, Yu-Li Hsueh, Matthew S. Rogge, ShingWa Wong, and Leonid G. Kazovsky, "Next generation optical access networks," *Proc. of BROADNETS 2006*, San Jose, CA, USA, Oct. 2006. (***Invited Paper***)

- David Gutierrez, Kyeong Soo Kim, Fu-Tai An, and Leonid G. Kazovsky, "SUCCESS-HPON: Migrating from TDM-PON to WDM-PON," *Proc. ECOC 2006*, Cannes, France, Sep. 2006.

- David Gutierrez, Kyeong Soo Kim, Salvatore Rotolo, Fu-Tai An, and Leonid G. Kazovsky, "FTTH standards, deployments and research issues," *Proc. of JCIS 2005*, Salt Lake City, UT, USA, pp. 1358-1361, Jul. 2005. (***Invited paper***)

- Kyeong Soo Kim, David Gutierrez, Fu-Tai An, and Leonid G. Kazovsky, "Batch scheduling algorithm for SUCCESS WDM-PON," *Proc. of GLOBECOM 2004*, Dallas, TX, USA, Nov. 2004.

- Kyeong Soo Kim, Fu-Tai An, David Gutierrez, and Leonid G. Kazovsky, "On the next-generation optical access architecture," *Prof. of IASTED International Conference on Optical Communications Systems and Networks (OCSN 2004)*, Banff, Canada, Jul. 2004.

- Fu-Tai An, Kyeong Soo Kim, Yu-Li Hsueh, Matthew S. Rogge, Wei-Tao Shaw, and Leonid G. Kazovsky, "Evolution, challenge and enabling technologies for future WDM-based optical access networks," *Proc. of JCIS 2003*, Research Triangle Park, NC, USA, pp. 1449-1453, Sep. 2003. (***Invited paper***)

- Yu-Li Hsueh, Fu-Tai An, Kyeong Soo Kim, and Leonid G. Kazovsky, "A new media access control protocol with quality of service and fairness guarantee in Ethernet-based passive optical networks," *Proc. of JCIS 2003*, Research Triangle Park, NC, USA, pp. 1392-1395, Sep. 2003.

- Fu-Tai An, Yu-Li Hsueh, Kyeong Soo Kim, Ian M. White, and Leonid G. Kazovsky, "A new dynamic bandwidth allocation protocol with quality of service in Ethernet-based passive optical networks," *Proc. of IASTED International Conference on Wireless and Optical Communication (WOC 2003)*, Banff, Canada, Jul. 2003.

- Fu-Tai An, Hopil Bae, Yu-Li Hsueh, Kyeong Soo Kim, Matthew S. Rogge, and Leonid G. Kazovsky, "A new media access control protocol guaranteeing fairness among users in Ethernet-based passive optical networks," *Technical Digest of OFC 2003*, Atlanta, GA, USA, MF107, pp. 134-135, Mar. 2003.

- Kyeong Soo Kim, Hiroshi Okagawa, Kapil Shrikhande, and Leonid G. Kazovsky, "Unslotted optical CSMA/CA MAC protocol with fairness control in metro WDM ring networks," *Proc. of GLOBECOM 2002*, Taipei, Taiwan, Nov. 2002.

- Kapil Shrikhande, Yoshiaki Ikoma, Akira Nakamura, Kyeong Soo Kim, Kazuyoshi Horie, and Leonid G. Kazovsky, "Hitless wavelength add-drop using a novel signaling protocol combined with hitless switching techniques," *Technical Digest of OFC 2002*, Anaheim, CA, USA, ThGG91, pp. 740-742, Mar. 2002.
- Kyeong Soo Kim, "On the evolution of PON-based FTTH solutions," *Proc. of JCIS 2002*, Research Triangle Park, NC, USA, pp. 1402-1405, Mar. 2002. (***Invited paper***)
- Kyeong Soo Kim and Leonid G. Kazovsky, "Design and performance evaluation of scheduling algorithms for unslotted CSMA/CA with backoff MAC protocol in multiple-access WDM ring networks," *Proc. of JCIS 2002*, Research Triangle Park, NC, USA, pp. 1303-1306, Mar. 2002.
- Kyeong Soo Kim, Kang Seok Seo, and Byeong Gi Lee, "On jitter characteristics in multi-node packet network environment: The white Gaussian noise assumption is valid?," *Proc. of ICT'99*, Cheju, Korea, Jun. 1999.
- Peter Y. Yan, Kyeong Soo Kim, Paul S. Min, and Manju V. Hegde, "Multi-channel deflection crossbar (MCDC): A VLSI optimized architecture for multi-channel ATM switching," *Proc. of INFOCOM'97*, Kobe, Japan, Apr. 1997.
- Kyeong Soo Kim and Byeong Gi Lee, "GA-based optimal dimensioning of three-level traffic shaper for statistical multiplexing in ATM networks," *Proc. of ICCC'95*, Seoul, Korea, pp. 479-484, Aug. 1995.
- Kyeong Soo Kim and Byeong Gi Lee, "Three-level traffic shaper and its application to source clock frequency recovery for VBR video services in ATM networks," *Proc. of ICCCN'93*, San Diego, CA, USA, pp. 251-256, Jun. 1993.
- Kyeong Soo Kim and Byeong Gi Lee, "A new BISDN GFC protocol supporting star, bus, and starred-bus network topology," *Proc. of ICEIC'91*, China, pp. (II-51)-(II-54), Aug. 1991.
- Kyeong Soo Kim and Byeong Gi Lee, "A new BISDN GFC protocol supporting star, bus, and starred-bus network topology," *Proc. of JCCI'91 (in Korean)*, Korea, pp. 79-82, Aug. 1991.

Technical Reports

- Kyeong Soo Kim, "Integration of OMNeT++ hybrid TDM/WDM-PON models into INET Framework," *Tech. Report*, School of Engineering, Swansea University, Nov. 2010.
- Kyeong Soo (Joseph) Kim, "An equivalent circuit rate-based study of 10-Gb/s next-generation optical access architectures," *Tech. Report*, School of Engineering, Swansea University, Sep. 2010.
- Minseok Oh, Kyeong Soo Kim, and Paul S. Min, "Fault identification and detection schemes in multi-channel deflection crossbar (MCDC) ATM switch," *Tech. Report*, WUEE-96-209, Dept. of Elec. Eng., Washington University in St. Louis, Sep. 1996.
- Peter Y. Yan, Kyeong Soo Kim, Paul S. Min, and Manju V. Hegde, "Multicasting multi-channel crossbar (MMCC): A shared buffered multicast multi-channel ATM switch," *Tech. Report*, WUEE-96-208, Dept. of Elec. Eng., Washington University in St. Louis, Sep. 1996.

Under Review

- Kyeong Soo Kim, "Deficit round-robin-based ISP traffic control scheme enabling excess bandwidth allocation in shared access networks," *submitted to IEEE Communications Letters*, Mar. 14, 2014.

Patents

Issued

- "Six-address scheme for multiple hop forwarding in wireless mesh networks," *US Patent No. 8,483,192*, Jul. 9, 2013 (with Liwen Chu and George Vlantis).
- "Multi-table based grant generator for improved granularity in an ATM-PON," *US Patent No. 6,980,519*, Dec. 27, 2005 (with D. N. Horn and J. H.J. Maessen).
- "Fast protection switching by snooping on upstream signals in an optical network," *US Patent No. 6,868,232*, Mar. 15, 2005 (with P.v. Eijk et al.).
- "Health check algorithm for protection circuit in optical network," *US Patent No. 6,778,781*, Aug. 17, 2004 (with P.v. Eijk et al.).
- "Fast protection switching by snooping on downstream signals in an optical network," *US Patent No. 6,771,908*, Aug. 3, 2004 (with P.v. Eijk et al.).
- "Partial back pressure (PBP) transmission technique for ATM-PON using rate controllers to reduce a maximum output rate from a peak rate to a controlled rate," *US Patent No. 6,721,797*, Apr. 13, 2004.

Pending/Under Filing

- "Block transmission scheme for IEEE 802.15.4 medium access," *Under filing*, Jan. 28, 2008 (with Jianhua He and Zuoyin Tang).
- "Path loop avoidance in RA-OLSR (radio aware-optimized link state routing protocol)," *Under filing*, May 2007 (with Liwen Chu and George Vlantis).
- "Coordinate channel selection in collated 802.11 networks," *Under filing*, Dec. 2006 (with Liwen Chu).
- "Method to decrease MP registration overhead in HWMP TBR (tree-based routing)," *Under filing*, Dec. 2006 (with Liwen Chu and George Vlantis).
- "Hybrid link state on-demand routing in wireless mesh networks," *Under filing*, Oct. 2006.

Standard Contributions

IEEE 802.11 Working Group on Wireless Local Area Networks

- Liwen Chu et al., "RA-OLSR comment resolution," IEEE 802.11-07/2125r2, Jul. 2007.
- Liwen Chu et al., "Updated texts for RA-OLSR," IEEE 802.11-07/2124r5, Jul. 2007.
- Mathilde Benveniste, Susan Hares, and Kyeong Soo Kim, "'Express' forwarding in a multi-hop wireless network," IEEE 802.11-07/0415r3, May 2007.
- Mathilde Benveniste, Susan Hares, and Kyeong Soo Kim, "Draft text changes for 'express forwarding' in a mesh," IEEE 802.11-07/0639r2, May 2007.
- Youiti Kado et al., "RA-OLSR comment resolution," IEEE 802.11-07/0626r2, May 2007.
- Youiti Kado et al., "Updated Texts for Clause 11A.7 RA-OLSR," IEEE 802.11-07/0627r1, May 2007.

- Kyeong Soo Kim et al., "Updated texts for frame addressing and forwarding in a mesh network," IEEE 802.11-07/0302r2, Mar. 2007.
- Meiyuan Zhao et al., "Terminology resolution," IEEE 802.11-07/0416r3, Mar. 2007.
- Hrishikesh Gossain et al., "Proxy frame forwarding," IEEE 802.11-07/0337r1, Mar. 2007.
- Youiti Kado et al., "Handling of associated legacy stations," IEEE 802.11-07/0318r3, Mar. 2007.
- Kyeong Soo Kim, Jefferson Owen, and George Vlantis, "Issues in mesh header field processing in payload encryption/decryption," IEEE 802.11-07/0354r1, Mar. 2007.
- Youiti Kado et al., "Scalable station association information handling (summary)," IEEE 802.11-07/0176r0, Jan. 2007.
- Kazuyuki Sakoda, Kyeong Soo Kim, and W. Steven Conner, "The definition of broadcast in mesh," IEEE 802.11-06/1732r1, Nov. 2006.
- Youiti Kado et al., "Scalable station association information handling," IEEE 802.11-06/1842r1, Nov. 2006.
- Jan Kruys et al., "Updated interworking text," IEEE 802.11-06/1787r3, Nov. 2006.
- Avinash Joshi et al., "HWMP specification," IEEE 802.11-06/1778r1, Nov. 2006.
- Guenael Strutt, Jan Kruys, and Kyeong Soo Kim, "RFI update Munich meeting," IEEE 802.11-06/1629r0, Nov. 2006.
- Guenael Strutt, Jan Kruys, Kyeong Soo Kim, and Avinash Joshi, "RFI update," IEEE 802.11-06/1487r0, Sep. 2006.
- Kyeong Soo Kim et al., "Action frame format and information elements specifications for RA-OLSR," IEEE 802.11-06/1395r2, Sep. 2006.
- Kyeong Soo Kim et al., "Updated RA-OLSR texts for clause 11A.5," IEEE 802.11-06/1481r0, Sep. 2006.
- Kyeong Soo Kim, Michael Bahr, Jan Kruys, and W. Steven Conner, "Proposed texts for TGs comment resolution," IEEE 802.11-06/1464r2, Sep. 2006.
- Liwen Chu, Kyeong Soo Kim, Jan Kruys, Shah Rahman, and George Vlantis, "Extension to 6-address scheme for TGs mesh," IEEE 802.11-06/0841r1, Jul. 2006.
- Wei-Peng Chen et al., "TBR centralized routing extension (slides)," IEEE 802.11-06/0631r2, May 2006.
- Wei-Peng Chen et al., "TBR centralized routing extension," IEEE 802.11-06/0630r1, May 2006.
- Osama Aboul-Magd et al., "Joint SEE-Mesh/Wi-Mesh proposal to 802.11 TGs," IEEE 802.11-06/0328r0, Feb. 2006.
- Santosh Abraham et al., "802.11 TGs simple efficient extensible mesh (SEE-Mesh) proposal," IEEE 802.11-05/0562r0, Jun. 2005.
- Liwen Chu et al., "ST+UCLA TGs mesh network proposal," IEEE 802.11-05/0379r0, May 2005.

IEEE 802.16 Working Group on Broadband Wireless Access

- Liwen Chu and Kyeong Soo Kim, "Action item from session #46: Text and figure fixing comment 544," IEEE C802.16h-06/129, Jan. 2007.
- Liwen Chu, George Vlantis, Wendong Hu, and Kyeong Soo Kim, "Enhancements to the optimization of channel distribution," IEEE C802.16h-06/101, Nov. 2006.
- Jerry Sydir et al., "Harmonized contribution on 802.16j (mobile multihop relay) usage models," IEEE C802.16j-06/015, Sep. 2006.

IEEE 802.22 Working Group on Wireless Regional Area Networks

- Wendong Hu, Liwen Chu, George Vlantis, and Kyeong Soo Kim, "Scheduling for connection based over-the-air inter base station communications," IEEE 802.22-06/0228r0, Nov. 2006.
- Wendong Hu, Liwen Chu, George Vlantis, and Kyeong Soo Kim, "Scheduling for connection based over-the-air inter base station communications," IEEE 802.22-06/0072r0, May 2006.

Full Service Access Network (FSAN) Group

- Kyeong Soo Kim, "Lucent technologies DBA contributions," *FSAN OAN-WG meeting*, Atlanta, GA, USA, Dec. 2000.
- Kyeong Soo Kim, "Comments on the FSAN technical requirements for DBA (Version E, Sep. 4, 2000)," *FSAN OAN-WG meeting*, Paris, France, Oct. 2000.
- Kyeong Soo Kim, Han Boekhosrt, and R.C.J. Smets, "Lucent DBA-capable MAC algorithm and its initial OPNET simulation results," *FSAN OAN-WG meeting*, Paris, France, Oct. 2000.
- Kyeong Soo Kim, "Lucent's proposal for DBA," *FSAN OAN-WG Meeting*, Berlin, Germany, Sep. 2000.
- Kyeong Soo Kim, "General remarks on DBA and protection switching for ATM-PON and comments for the FSAN technical requirements," *FSAN OAN-WG Meeting*, Makuhari, Japan, Jun. 2000.

Invited Talks

- "A Research Framework for the Clean-Slate Design of Next-Generation Optical Access," *Seminar*, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea, Aug. 22, 2011.
- "Data Networks: Next-generation optical access toward 10 Gb/s everywhere," *Academic Weeks Videoconference Session with Pakistan COMSATS Institute of Information Technology (CIIT)*, Swansea University, Swansea, Wales UK, Dec. 14, 2010.
- "Photonics21 – Next generation optical Internet access: Roadmap for broadband optical Internet access towards 10 Gb/s everywhere," *Seminar*, Gwangju Institute of Science and Technology (GIST), Gwangju, Korea, Aug. 17, 2008.
- "Photonics21 – Next generation optical Internet access: Roadmap for broadband optical Internet access towards 10 Gb/s everywhere," *Seminar*, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea, Aug. 10, 2008.

- "Photonics21 – Next generation optical Internet access: Roadmap for broadband optical Internet access towards 10 Gb/s everywhere," *Seminar*, Inha University, Incheon, Korea, Jul. 30, 2008.
- "Photonics21 – Next generation optical Internet access: Roadmap for broadband optical Internet access towards 10 Gb/s everywhere," *Seminar*, Seoul National University, Seoul, Korea, Jul. 29, 2008.
- "Photonics21 – Next generation optical Internet access: Roadmap for broadband optical Internet access towards 10 Gb/s everywhere," *Seminar*, Ewha Womans University, Seoul, Korea, Jul. 28, 2008.
- "Next generation optical and access networks," *2nd EU-Korea Cooperation Forum on ICT Research*, Brussels, Belgium, Dec. 2008.
- "IEEE 802.11s Tutorial – Overview of the Amendment for Wireless Local Area Mesh Networking," *IEEE 802 Plenary Tutorial*, Dallas, TX, USA, Nov. 13, 2006 (with W. Steven Conner, Intel Corp., Jan Kruys, Cisco Systems, and Juan Carlos Zuniga, InterDigital Comm. Corp.).
- "Next-Generation Optical Access Architecture," *Seminar*, Dept. of Electrical and Systems Eng., Washington University in St. Louis, St. Louis, MO, USA, Dec. 3, 2004.
- "AST Optical Access R&D Programs," *Seminar*, Seoul National University, Seoul, Korea, July. 30, 2004.
- "Next-Generation Optical Access Architecture," *Seminar*, Dept. of Electrical and Computer Eng., University of California, Davis, CA, USA, May. 14, 2004 (with Fu-Tai An, Stanford University).
- "Next-Generation Optical Access Network Architecture," *SNRC Industry Seminar Series*, Stanford University, Stanford, CA, USA, Feb. 24, 2004.
- "Past, Present, And Future of Fiber-To-The-Home Solutions," *EE201A Seminar*, Stanford University, Stanford, CA, USA, Dec. 3, 2001.
- "On Resource Management for ATM-PON Systems," *Expert Seminar*, ETRI, Daejeon, Korea, June 1999.

Professional Society Membership

Member, IEEE 1997–Present

Professional Activities

Reviewer for major journals and conferences including *IEEE/ACM Transactions on Networking*, *IEEE/OSA Journal of Lightwave Technology*, *IEEE Journal on Selected Areas on Communications*, *IEEE Transactions on Circuits & Systems I*, *IEEE Transactions on Neural Networks and Learning Systems*, *IEEE Communications Magazine*, *IEEE Communications Letters*, *IEEE Photonics Technology Letters*, *IET Electronics Letters*, *IEICE Transactions on Communications*, *Computer Networks*, *Computer Standards & Interfaces*, *Information Sciences*, *ETRI Journal*, *International Journal of Computers and Applications*, and *Optics* 1995–Present

Publicity Chair, 2nd OMNeT++ Community Summit 2015

Program Committee Member, Fiber Optics in Access Networks (FOAN) 2015 — 2015

Program Committee Member, GLOBECOM 2015: Communication QoS, Reliability and Modeling Track — 2015

Session Chair, ICICTS 2015 — 2015

Publicity Chair, 1st OMNeT++ Community Summit — 2014

Program Committee Member & Session Chair, Fiber Optics in Access Networks (FOAN) 2013 — 2013

Program Committee Member, Fiber Optics in Access Networks (FOAN) 2012 — 2012

Program Committee Member & Session Chair, Fiber Optics in Access Networks (FOAN) 2011 — 2011

Program Committee Member, 5th IEEE Workshop on Enabling Technologies and Standards for Wireless Mesh Networking (MeshTech'11) — 2011

Program Committee Member, Fiber Optics in Access Networks (FOAN) 2010 — 2010

Program Committee Member, 4th IEEE Workshop on Enabling Technologies and Standards for Wireless Mesh Networking (MeshTech'10) — 2010

Program Committee Member, 4th International Universal Communication Symposium — 2010

Program Committee Member, 3rd IEEE Workshop on Enabling Technologies and Standards for Wireless Mesh Networking (MeshTech'09) — 2009

Program Committee Member, 3rd International Universal Communication Symposium — 2009

Program Committee Member, 2nd IEEE Workshop on Enabling Technologies and Standards for Wireless Mesh Networking (MeshTech'08) — 2008

Program Committee Member, 2nd International Symposium on Universal Communication — 2008

Program Committee Member, VTC 2008-Spring — 2008

Program Committee Member, PNC 2006 — 2006

Program Committee Member, ICC 2005, PNC 2005, & STFOC 2005 — 2005

Program Committee Member & Session Chair, GLOBECOM 2004 — 2004

Program Committee Member & Session Chair, PNC 2003 — 2003

Project Selection Committee Member, Stanford Networking Research Center — 2002
Program Committee Member & Session Chair, PNC 2002

Session Chair, ICT'99 — 1999

Public Services and Leadership Activities

Missionary and Part-Time Preacher, Swansea Korean United Church 12/2012–6/2014

Bible Instructor, Stanford Campus Korean Bible Study Group 5/2004–5/2005

Christian Campus Leader, Seoul National University HanSaRang Ministry 1/1993–12/1993

Second Lieutenant, Korean Army (Military Service) 8/1991–2/1992

References

Available upon request.