Kyeong Soo (Joseph) Kim, Ph.D.

Senior Associate Professor
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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

Senior Associate Professor 9/2021–Present
Department of Communications and Networking, School of Advanced Technology, Xi'an Jiaotong-Liverpool University, Suzhou, China

Associate Professor 9/2020–8/2021
Department of Communications and Networking, School of Advanced Technology, Xi'an Jiaotong-Liverpool University, Suzhou, China

Associate Professor 7/2014–8/2020
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, International Conference on Information, System and Convergence Applications (ICISCA) 2015 2015
For a first-authored paper titled "On Energy-Efficient Time Synchronization based on Source Clock Frequency Recovery in Wireless Sensor Networks," which was presented at the ICISCA 2015 in Kuala Lumpur, Malaysia, Jun. 2015.

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; application of deep learning in communication and networking systems.

Research Experience

Scalable Representation of RSSIs for Multi-Building and Multi-Floor Indoor Localization Based on Deep Neural Networks 6/2022-9/2022
Senior Associate Professor, Xi'an Jiaotong-Liverpool University, Suzhou, China

- Xi'an Jiaotong-Liverpool University Summer Undergraduate Research Fellowships (SURF) under grant reference number SURF-2022076 (6,000 RMB).
- Principal Investigator

Scalable and Energy-Efficient Multi-Building and Multi-Floor Indoor Localisation/Navigation based on Deep Neural Networks with a Multivariate Database 6/2020–5/2023
Associate Professor, Xi'an Jiaotong-Liverpool University, Suzhou, China

- Xi'an Jiaotong-Liverpool University Postgraduate Research Scholarship (PGRS) under grant reference number PGRS1912001 (approximately 500,000 RMB in tuition and living expenses).
- Principal Investigator

Analysis of XJTLUIndoorLoc Multivariate Dataset for DNN-Based Indoor Localization 6/2019-9/2019
Associate Professor, Xi'an Jiaotong-Liverpool University, Suzhou, China

- Xi'an Jiaotong-Liverpool University Summer Undergraduate Research Fellowships (SURF) under grant reference number SURF-201913 (7,090 RMB).
- Principal Investigator

Feasibility Study of XJTLU Campus-Wide Indoor Localization System Based on Deep Neural Networks 1/2019–3/2022
Associate Professor, Xi'an Jiaotong-Liverpool University, Suzhou, China

- Xi'an Jiaotong-Liverpool University Key Programme Special Fund (KSF) – Exploratory Research Programme under grant reference number KSF-E-25 (200,000 RMB).
- Principal Investigator

Building Environmental Informatics and Resource Optimization Roadmap Based on Visual Big Data Analysis 7/2018–9/2021
Associate Professor, Xi'an Jiaotong-Liverpool University, Suzhou, China

- Xi'an Jiaotong-Liverpool University Key Programme Special Fund (KSF) – Exploratory Research Programme under grant reference number KSF-E-04 (200,000 RMB).
- Co-Principal Investigator

Trajectory Estimation of Mobile Users/Devices based on Wi-Fi Fingerprinting and Deep Neural Networks 6/2018-9/2018
Associate Professor, Xi'an Jiaotong-Liverpool University, Suzhou, China

- Xi'an Jiaotong-Liverpool University Summer Undergraduate Research Fellowships (SURF) under grant reference number SURF-201830 (6,000 RMB).
- Principal Investigator

Energy-Efficient Time Synchronisation and Data Bundling Schemes for Wireless Sensor Networks 6/2018–5/2021
Associate Professor, Xi'an Jiaotong-Liverpool University, Suzhou, China

- Xi'an Jiaotong-Liverpool University Research Development Fund (RDF) under grant reference number RDF-16-02-39 (482,500 RMB).
- Principal Investigator

Research on the Mismatch Phenomenon and Differential Power Processing Technique in PV Power System 2017
Associate Professor, Xi'an Jiaotong-Liverpool University, Suzhou, China

- Jiangsu Science Research Programme (100,000 RMB).
- Co-Principal Investigator

Information Modelling and Real-time Monitoring System for Smart Construction 2017
Associate Professor, Xi'an Jiaotong-Liverpool University, Suzhou, China

- Jiangsu University Natural Science Research Programme under grant reference number 17KJB560011 (30,000 RMB).
- Co-Principal Investigator

Indoor Localisation based on Wi-Fi Fingerprinting with Fuzzy Sets 6/2017-9/2017
Associate Professor, Xi'an Jiaotong-Liverpool University, Suzhou, China

- Xi'an Jiaotong-Liverpool University Summer Undergraduate Research Fellowships (SURF) under grant reference number SURF-201739 (10,500 RMB).
- Principal Investigator

Feasibility Assessment and Roadmap for XJTLU Campus Information and Visitor Service System as A Test Bed for Large-Scale Location-Aware Services in SIP 4/2017–8/2017
Associate Professor, Xi'an Jiaotong-Liverpool University, Suzhou, China

- Xi'an Jiaotong-Liverpool University Research Institute for Smart and Green Cities (RISGC) Seed Grant Programme 2016-2017 under grant reference number RISGC-2017-4 (20,000 RMB).
- Principal Investigator

Occupancy-Driven Intelligent Control of HVAC System for Saving Energy and Enhancing Thermal Comfort 4/2017–8/2017
Associate Professor, Xi'an Jiaotong-Liverpool University, Suzhou, China

- Xi'an Jiaotong-Liverpool University Research Institute for Smart and Green Cities (RISGC) Seed Grant Programme 2016-2017 under grant reference number RISGC-2017-1 (20,000 RMB).
- Co-Principal Investigator

Network Traffic Control Schemes and Service Plans exploiting Excess Bandwidth in Shared Access Networks 1/2015–12/2017
Associate Professor, Xi'an Jiaotong-Liverpool University, Suzhou, China

- Xi'an Jiaotong-Liverpool University Research Development Fund (RDF) under grant reference number RDF-14-01-25 (95,000 RMB).
- Principal Investigator

Molecular Information Carriers for Communications in Nano-Scale Environments 12/2014–12/2016
Associate Professor, Xi'an Jiaotong-Liverpool University, Suzhou, China

- Xi'an Jiaotong-Liverpool University Research Development Fund (RDF) under grant reference number RDF-14-01-29 (100,000 RMB).
- Co-Principal Investigator

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

- Xintao Huan, "Energy-efficient time synchronization in wireless sensor networks", Jun. 2021.
- Jaehoon Cha (*Co-supervisor*), "Research on information analysis of multi-channel data with machine learning", Sep. 2020.
- 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

- Kiyyaa Dadi Hundie, "Application of Machine Learning Techniques to Intelligent Reflecting Surfaces," Jun. 2022.
- Mithileysh Sathiyanarayanan, "Multi-channel deficit round robin scheduling for hybrid TDM/WDM optical networks", Oct. 2012.

MSc

- Brice Emmanuel Feukoua Nzeale, "On the strategy of network evolution to 5G and beyond for Cameroon," Jun. 2022.
- Chuangang Wang, "Detection of transmission line defects based on neural networks running on ultrascale FPGA platforms," Jun. 2022.
- Jiajing Qiu, "The implementation of a prototype indoor localization system," Jun. 2022.
- Mengfan Li, "Lightweight real-time nipple detection based on YOLOX," Jun. 2022.
- Siyuan Fan, "Realization of laundry symbols image classification based on neural network," Jun. 2022.
- Wei Liu, "Implementation and performance analysis of packet encryption with FPGA SmartNIC," Jun. 2022.
- Zhicai Li, "IoT security attack detection based on machine learning," Jun. 2022.
- Yuxuan Fang, "The comparison and combination of Azure load balancer and application gateway", Jun. 2021.
- Abdalla Elmokhtar Ahmed Elesawi, "Hierarchical multi-building and multi-floor indoor localization based on deep neural networks", Jun. 2021.
- Jiaqi Liu, "DNN based indoor trajectory prediction based on simulated indoor trajectory data", Jun. 2021.
- Sihao Li, "Validation of optimization message bundling with delay and synchronization constraints in wireless sensor networks", Jun. 2021.
- Linlin Zhang, "Optimal message bundling with delay and synchronization constraints in WSN," Jun. 2020.
- Yilin Sun, "On the scalability of energy-efficient time synchronization schemes for wireless sensor network," Jun. 2020.
- Pengfei Jiang, "Position estimation of mobile users/devices based on Wi-Fi received signal strengths with convolutional neural networks," Jun. 2020.
- Jia Kan, "MTFS: Merkle tree based file system,", Jun. 2019.
- Yangyu Wang, "Multi-hop extension of wireless sensor network time synchronization", Jun. 2017.
- Qimeng Liao, "Energy-efficient time synchronization scheme simulation based on asynchronous source clock frequency recovery in asymmetric wireless sensor network", Jun., 2016.
- Ramya Sasidharan Pillai, "Wi-Fi robot localization using Kalman filters", Oct. 2010.
- Trinath Koukuntla, "GMPLS extensions for hybrid optical switching", Jun. 2009.

Teaching Experience

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

- *Analogue and Digital Communications II (EEE301)*
  - Comprehensive coverage and in-depth discussions of the theory and design of digital communication systems at a level appropriate for the fourth year undergraduate students.
  - *Module Leader*
- *Multimedia Communications (EEE415/CAN406)*
  - Introduction to multimedia communications, where insight into the problems encountered while transmitting multimedia data in error prone environment and the ways to provide error resiliency at a source and conceal errored or lost data at a receiver are discussed
  - *Module Leader*
  - *Postgraduate taught*
- *Data Communication and Communication Networks (EEE413/CAN405)*
  - 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

Book and Book Chapters

- Kyeong Soo Kim, Simulation Reproducibility with Python and Pweave, In Antonio Virdis and Michael Kirsche (Eds.), Recent Advances in Network Simulation: The OMNeT++ Environment and its Ecosystem, Chapter 8, Springer/EAI 2019.

Journals[1]

- Kyeong Soo Kim and Seungyeop Kang, "Clock skew compensation algorithm immune to floating-point precision loss," *IEEE Communications Letters*, vol. 26, no. 4, pp. 902-906, Apr. 2022. [**SCIE**]
- Jaehoon Cha, Moon Keun Kim, Sanghyuk Lee, and Kyeong Soo Kim, "Investigation of applicability of impact factors to predict solar irradiance: Comparative analysis using machine learning algorithms," *Applied Sciences*, vol. 11, no. 18:8533, Sep. 14, 2021. [**SCIE**]
- Xintao Huan, Kyeong Soo Kim, Sanghyuk Lee, Eng Gee Lim, and Alan Marshall, "Improving multi-hop time synchronization performance in wireless sensor networks based on packet-relaying gateways with per-hop delay compensation," *IEEE Transactions on Communications*, vol. 69, no. 9, pp. 6093-6105, Sep. 2021. [**SCIE**]

[1] SCI has been merged to SCI Expanded (SCIE) (https://clarivate.com/webofsciencegroup/solutions/webofscience-scie/).

- Xintao Huan, Kyeong Soo Kim, and Junqing Zhang, "NISA: Node identification and spoofing attack detection based on clock features and radio information for wireless sensor networks," *IEEE Transactions on Communications*, vol. 69, no. 7, pp. 4691-4703, Jul. 2021. [**SCIE**]
- Xintao Huan and Kyeong Soo Kim, "Per-hop delay compensation in time synchronization for multi-hop wireless sensor networks based on packet-relaying gateways," *IEEE Communications Letters*, vol. 24, no. 10, pp. 2300-2304, Oct., 2020. [**SCIE**]
- Jaehoon Cha, Kyeong Soo Kim, and Sanghyuk Lee, "Hierarchical auxiliary learning," *Machine Learning: Science and Technology*, vol. 1, no. 4, pp. 1-11, Sep. 11, 2020. [**Scopus/CNKI**]
- Xintao Huan, Kyeong Soo Kim, Sanghyuk Lee, Eng Gee Lim, and Alan Marshall, "A beaconless asymmetric energy-efficient time synchronization scheme for resource-constrained multi-hop wireless sensor networks," *IEEE Transactions on Communications*, vol. 68, no. 3, pp. 1716–1730, Mar. 2020. [**SCIE**]
- Xintao Huan and Kyeong Soo Kim, "On the practical implementation of propagation delay and clock skew compensated high-precision time synchronization schemes with resource-constrained sensor nodes in multi-hop wireless sensor networks," *Computer Networks*, vol. 166, Jan. 2020. [**SCIE**]
- Eunmi Lee, Jinbae Sul, Kyeong Soo Kim, Van Huy Pham, and Sanghyuk Lee, "What does big data tell us? Analysis of urban civil complaints," *Sustainability*, vol. 11, no. 21:6140, Nov. 4, 2019. [**SCIE**]
- Sanghyuk Lee, Jaehoon Cha, Moon Keun Kim, Kyeong Soo Kim, Van Huy Pham, and Mark Leach, "Neural network-based building energy consumption prediction with training data generation and sensitivity analysis," *Processes*, vol. vol. 7, no. 10:731, Oct. 12, 2019. [**SCIE**]
- Kyeong Soo Kim, Sanghyuk Lee, Tiew On Ting, and Xin-She Yang, "Atomic scheduling of appliance energy consumption in residential smart grids," *Energies*, vol. 12, no. 19:3666, Sep. 25, 2019. [**SCIE**]
- Xintao Huan, Kyeong Soo Kim, Sanghyuk Lee, and Moon Keun Kim, "Optimal message bundling with delay and synchronization constraints in wireless sensor networks," *Sensors*, vol. 19, no. 18:4027, Sep. 18, 2019. [**SCIE**]
- Kyeong Soo Kim, Ruihao Wang, Zhenghang Zhong, Zikun Tan, Haowei Song, Jaehoon Cha, and Sanghyuk Lee, "Large-scale location-aware services in access: Hierarchical building/floor classification and location estimation using Wi-Fi fingerprinting based on deep neural networks," (*Extended version of the FOAN 2017 paper*), *Fiber and Integrated Optics*, pp. 1–13, Apr. 27, 2018. [**SCIE**]
- Kyeong Soo Kim, Sanghyuk Lee, and Kaizhu Huang, "A scalable deep neural network architecture for multi-building and multi-floor indoor localization based on Wi-Fi fingerprinting," *Big Data Analytics*, vol. 3, no. 4, pp. 1–17, Apr. 19, 2018. [**CNKI**]
- Sanghyuk Lee, Jaehoon Cha, Nipon Theera-Umpon, and Kyeong Soo Kim, "Analysis on similarity measure for non-overlapped data," *Symmetry*, vol. 9, no. 5, pp. 1–11, May, 2017. [**SCIE**]
- Kyeong Soo Kim, Sanghyuk Lee, and Eng Gee Lim, "Energy-efficient time synchronization based on asynchronous source clock frequency recovery and reverse two-way message exchanges in wireless sensor networks," *IEEE Transactions on Communications*, vol. 65, no. 1, pp. 347–359, Jan. 2017. [**SCIE**]
- Tiew On Ting, Jieming Ma, Kyeong Soo Kim, and Kaizhu Huang, "Multicores and GPU utilization in parallel swarm algorithm for parameter estimation of photovoltaic model," *Applied Soft Computing*, vol. 40, pp. 58–63, Mar. 2016. [**SCIE**]
- 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. [**SCIE**]
- 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. [**SCIE**]
- 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. [**SCIE**]
- Kyeong Soo Kim, "Asynchronous source clock frequency recovery through aperiodic packet streams," *IEEE Communications Letters*, vol. 17, no. 7, pp. 1455–1458, Jul. 2013. [**SCIE**]

- 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. [**SCIE**]
- 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. [**SCIE**]
- 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. [**SCIE**]
- 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. [**SCIE**]
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- "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

Senior Member, IEEE	2019–Present
Member, IET	2014–Present
Member, IEEE	1997–2019

Professional Activities

Topic Board Editor for *Electronics*	2021–Present
Reviewer for major journals and conferences including *IEEE Transactions on Communications*, *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 Transactions on Instrumentation and Measurement*, *IEEE Communications Magazine*, *IEEE Communications Letters*, *IEEE Photonics Technology Letters*, *IEEE Sensors*, *IET Electronics Letters*, *IET Networks*, *IET Communications*, *IEICE Transactions on Communications*, *Computer Networks*, *Computer Standards & Interfaces*, *Information Sciences*, *ETRI Journal*, *International Journal of Computers and Applications*, *Wiley Transactions on Emerging Telecommunications Technologies*, *Optics*, and *International Journal of Distributed Sensor Networks*	1995–Present

Technical Program Committee Member, Fiber Optics in Access Networks (FOAN) 2022	2022
Program Committee Member, The 7th International Workshop on GPU Computing and AI (GCA'22)	2022
Program Co-Chair, 2022 International Symposium on Blockchain and Metaverse (ISBM 2022)	2022
Technical Program Committee Member, ICUFN 2022	2022
Technical Program Committee Member, GLOBECOM 2022: Communication QoS, Reliability and Modeling Symposium	2022
Technical Program Committee Member, GLOBECOM 2022: Next-Generation Networking and Internet Symposium	2022
Technical Program Committee Member, ICC 2022: Communications QoS, Reliability, and Modeling Symposium	2022
Technical Program Committee Member, ICC 2022: Next-Generation Networking and Internet Symposium	2022
Technical Program Committee Member, GLOBECOM 2022: Wireless Communications Symposium	2022
Technical Program Committee Member, The 4th International Conference on Artificial Intelligence in Information and Communication (ICAIIC 2022)	2022
Program Committee Member, The 6th International Workshop on GPU Computing and AI (GCA'21)	2021
Technical Program Committee Member, ICUFN 2021	2021
Panels Chair, EAI CollaborateCom 2021 - 17th EAI International Conference on Collaborative Computing: Networking, Applications and Worksharing	2021
Technical Programme Committee Member, WS08 IEEE ICC 2021 Workshop on Emerging Topics in 6G Communications	2021
Technical Program Committee Member, GLOBECOM 2021: Communication QoS, Reliability and Modeling Symposium	2021
Technical Program Committee Member, GLOBECOM 2021: Next-Generation Networking and Internet Symposium	2021
Technical Program Committee Member, The 3rd International Conference on Artificial Intelligence in Information and Communication (ICAIIC 2021)	2021
Technical Program Committee Member, ICC 2021: Communications QoS, Reliability, and Modeling Symposium	2021
Technical Program Committee Member, GLOBECOM 2020: Communication QoS, Reliability and Modeling Symposium	2020
Technical Program Committee Member, GLOBECOM 2020: Next-Generation Networking and Internet Symposium	2020
Program Committee Member, The 5th International Workshop on GPU Computing and AI (GCA'20)	2020
Technical Program Committee Member, ICC 2020: Communications QoS, Reliability, and Modeling Symposium	2020
Technical Program Committee Member, Fiber Optics in Access Networks (FOAN) 2019	2019
Publicity Chair, 6th OMNeT++ Community Summit	2019
Program Committee Member, The 4th International Workshop on GPU Computing and AI (GCA'19)	2019
Program Committee Member, GLOBECOM 2019: Next-Generation Networking and Internet Symposium	2019
Program Committee Member, SGTDP 2019	2019
Technical Program Committee Member, GLOBECOM 2019: Communication QoS, Reliability and Modeling Symposium	2019
Technical Program Committee Member, ICUFN 2019	2019
Technical Program Committee Member, ICCAIS 2019	2019

Technical Program Committee Member, ICC 2019: Communications QoS, Reliability, and Modeling Symposium	2019
Technical Program Committee Member, Fiber Optics in Access Networks (FOAN) 2018	2018
Publicity Chair, 5th OMNeT++ Community Summit	2018
Technical Program Committee Member, ICUFN 2018	2018
Technical Program Committee Member, GLOBECOM 2018: Next-Generation Networking and Internet Symposium	2018
Technical Program Committee Member, GLOBECOM 2018: Communication QoS, Reliability and Modeling Symposium	2018
Technical Program Committee Member, ICC 2018: Communications QoS, Reliability, and Modeling Symposium	2018
Technical Program Committee Member, Fiber Optics in Access Networks (FOAN) 2017	2017
Publicity Chair, 4th OMNeT++ Community Summit	2017
Technical Program Committee Member, GLOBECOM 2017: Next-Generation Networking and Internet Symposium	2017
Technical Program Committee Member, GLOBECOM 2017: Communication QoS, Reliability and Modeling Symposium	2017
Technical Program Committee Member, ICC 2017: Communications QoS, Reliability, and Modeling Symposium	2017
Publicity Chair, 3rd OMNeT++ Community Summit	2016
Steering Committee Member, Fiber Optics in Access Networks (FOAN) 2016	2016
Program Committee Member, CIBCB2016	2016
Technical Program Committee Member, GLOBECOM 2016: Communication QoS, Reliability and Modeling Symposium	2016
Technical Program Committee Member, ICC 2016: Communications QoS, Reliability, and Modeling Symposium	2016
Publicity Chair, 2nd OMNeT++ Community Summit	2015
Program Committee Member, Fiber Optics in Access Networks (FOAN) 2015	2015
Technical Program Committee Member, GLOBECOM 2015: Communication QoS, Reliability and Modeling Symposium	2015
Program Committee Member, ICCP-2015	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

English Bible Instructor, Suzhou Korean United Church 6/2016–Present

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.