Joongheon Kim

Last update on September 8, 2020

Associate Professor, Korea University – School of Electrical Engineering, Seoul, Republic of Korea
Vice Director, Korea University – Artificial Intelligence Engineering Research Center, Seoul, Republic of Korea
Associate Editor (2020–), IEEE Transactions on Vehicular Technology
- Email: joongheon@korea.ac.kr • WWW: https://joongheon.github.io

Positions

Korea University

- ***Faculty Member (09/2019–):* School of Electrical Engineering (Communications, Networks, and RF Track)**
  – *Director (09/2019–):* Artificial Intelligence and Mobility (AIM) Laboratory
- *Vice Director (10/2019–):* Artificial Intelligence Engineering Research Center (KU-AIERC)
- *Adjunct Professor (03/2021–):* Department of Semiconductor Engineering
- *Affiliated Faculty Member (09/2019–):* Research Institute of Information and Communications Technology
- *Affiliated Faculty Member (09/2019–):* Future Network Center

Academic Societies

- **IEEE**, *Senior Member (2018–)*, Member of IEEE Communications Society, IEEE Vehicular Technology Society, etc
- **Korean Institute of Communications and Information Sciences (KICS)**, *Life Member (2018–)*
- **Korean Institute of Information Scientists and Engineers (KIISE)**, *Life Member (2019–)*

Educational Backgrounds

- **University of Southern California (USC) – Viterbi School of Engineering**, Los Angeles, California, USA
  – Ph.D. (08/2009–08/2014) in Computer Science (Advisor: *Prof. Andreas F. Molisch*, Department of Electrical Engineering)
  – M.S. (05/2014) in Computer Science with specialization in High Performance Computing and Simulations
  – M.S. (05/2012) in Electrical Engineering
- **Korea University**, Seoul, Republic of Korea
  – M.S. (03/2004–02/2006) in Computer Science and Engineering (Advisor: *Prof. Wonjun Lee*, School of Information Security)
  – B.S. (03/1999–02/2004) in Computer Science and Engineering

Awards and Honors

Research and Academic Excellence

- **IEEE Systems Journal Best Paper Award (Top 7 among 793 accepted papers in 2019: 0.88%)** – *IEEE Systems Council* 03/2020
  Towards Characterizing Blockchain-based Cryptocurrencies for Highly-Accurate Predictions (w/ Muhammad Saad, Jinchun Choi, DaeHun Nyang, Aziz Mohaisen)
- **Korea Regional Conference Paper Awards** – *KICS Winter/Spring/Fall Conferences*
  Quantum Heuristic Solver using QAOA for the Maximum Independent Set Problem (w/ Seunghyeok Oh, Jaeho Choi) 02/2020
  Multi-Drone Scheduling for High-Reliable and High-Performance UAV-based Surveillance Networking (w/ Junghyun Kim) 02/2020
- **Gold Paper Award** – *IEEE Seoul Section Student Paper Contest* 12/2019
  Stabilized Super-Resolution Deep Learning Adaptation for UAV-Assisted Mobile Edges: A Lyapunov Optimization Approach (w/ Jaesung Yoo, Dohyun Kim)
- **Outstanding Contribution Award** – *KICS* 11/2019
- **IEEE Vehicular Technology Society (VTS) Seoul Chapter Award** – *IEEE Asia Pacific Wireless Communications Symposium* 08/2019
  Joint Offloading and Streaming in Mobile Edges: A Deep Reinforcement Learning Approach (w/ Soohyun Park, Junhui Kim, Dohyun Kwon, Myungjae Shin)
- **Haedong Young Scholar Award** – *KICS* and *Haedong Foundation* 12/2018
  For recognizing a researcher under the age of 40 who has made outstanding contributions to communication sciences R&D
- **Next Generation and Standards (NGS) Division Recognition Award** – *Intel Corporation* Q1/2015
  For developing a 3-dual sector mmWave backhaul link software stack with mesh, relay, and load balancing capability for modular antenna array (MAA) proof-of-concept (POC)
- **Annenberg Graduate Fellowship Award** – *University of Southern California* 02/2009
  Awarded with Ph.D. Admission – 4 Year Full Scholarship ($30,000/year for 4 years, i.e., $120,000)
- **Outstanding Research Paper Award** – *LG Electronics CTO Office, Multimedia Research Laboratory* 01/2008
- **RFID Expert Group President Award** – *The 3rd RFID/USN Research Paper Contest* 10/2007
- **ETRI President Award** – *The 2nd RFID/USN Research Paper Contest* 11/2006
- **Korea Association of RFID/USN (KARUS) President Award** – *The 1st RFID/USN Research Paper Contest* 10/2005
- **Scholarships for Academic Excellence** – *Korea University* Fall 1999, Fall 2000

Teaching and Supervision Excellence

- **Granite Tower (Seok-Tap) Best Teaching Award** – *Korea University* (Computer Language and Laboratory, EGRN151) Fall 2019
- **Excellence in Teaching** – *Chung-Ang University* Fall 2018, Fall 2017, Fall 2016
- **Certificate of Achievement (13th Place)** – *ACM International Collegiate Programming Contest (ICPC)* 11/2016

R&D Positions

Full-Time Positions

- **Korea University – College of Engineering**, Seoul, Republic of Korea
  – *Assistant Professor (09/2019–)*, School of Electrical Engineering – Artificial Intelligence and Mobility Lab
- **Chung-Ang University – College of Computer Science and Software**, Seoul, Republic of Korea
  – *Assistant Professor (03/2016–08/2019)*, School of Computer Science and Engineering – Distributed Platforms and Security Lab
- **Intel Corporation – Platform Engineering Group**, Silicon Valley (Santa Clara), California, USA
  – *Systems Engineer (09/2013–02/2016)*, mmWave Standards and Advanced Technology (mSAT) Team (with Dr. Ali S. Sadri)
- **University of Southern California (USC) – Viterbi School of Engineering**, Los Angeles, California, USA
  – *Annenberg Graduate Fellow (08/2009)*, Awarded with Ph.D. admission from USC (2009)
  – *Ph.D. Research Assistant (01/2011–08/2014)*, Communication Sciences Institute (Advised by Prof. Andreas F. Molisch)
- **InterDigital**, San Diego, California, USA
  – *Intern (05/2012–08/2012)*, Wireless Systems Evolution Department
- **LG Electronics CTO Office**, Seoul, Republic of Korea
  – *Research Engineer (01/2006–08/2009)*, Multimedia Research Laboratory, Seocho R&D Campus
- **Korea University – Department of Computer Science and Engineering**, Seoul, Republic of Korea
  – *M.S. Research/Teaching Assistant (03/2004–02/2006)*, Network Research Laboratory (Advised by Prof. Wonjun Lee)

Consulting Positions

- **Samsung SDS** (05/2020–08/2020), Object Removal Deep Learning Algorithm Design and Implementation
- **Samsung Electronics** (02/2020–08/2020), Nonlinear Regression Deep Learning Algorithm Design and Implementation

---

R&D Projects

University/Center-Level Projects

- **5G/Unmanned Vehicle Research Center (5G/UV-RC)** 06/2020–12/2020
  Funded by *Institute for Information and Communications Technology Promotion (IITP)*
  – **University IT Research Center (ITRC)**, PI: Hanyang University (Korea)
- **Human Resource Development for the Biomedical Unstructured Big Data Analysis** 08/2018–12/2021
  Funded by *Institute for Information and Communications Technology Promotion (IITP)* [2018-0-01833; Co-PI]
  – **University IT Research Center (ITRC)**, PI: Seoul National University Hospital (Korea)
- **Intelligent Internet of Energy (IoE) Data Research Center** 02/2020–05/2020
  Funded by *Institute for Information and Communications Technology Promotion (IITP)*
  – **University IT Research Center (ITRC)**, PI: Kookmin University (Korea)

Government-Funded Projects

- **Integrated Perception Technology Developments for Public Safety Platforms** 06/2019–05/2023
  Funded by *National Research Foundation of Korea* and *Korean National Police Agency* [2019M3E3A1084054, Grant: $400,000; Co-PI]
- **Development of Quantum Deep Reinforcement Learning Algorithm using QAOA** 10/2019–04/2022
  Funded by *Ministry of Science and ICT* [2019M3E4A1080391, Grant: $258,500; Primary-PI]
- **Distributed Secure Platform for Scalable Clinical OMOP CDM Models** 04/2019–03/2022
  Funded by *Ministry of Health and Welfare* [HI19C0572, Grant: $90,000; Co-PI]
- **mmWave Radar and Deep Reinforcement Learning based Optimal Policy Autonomous Driving** 06/2019–02/2022
  Funded by *National Research Foundation of Korea* [2019R1A2C4070663, Grant: $275,000; Primary-PI]
- **Development of Privacy-Reinforcing Distributed Transfer-Iterative Learning Algorithm** 07/2019–12/2021
  Funded by *Ministry of Health and Welfare* [HI19C0842, Grant: $150,000; Co-PI]
- **Virtual Presence in Moving Objects through 5G (PriMO-5G)** 06/2018–05/2021
  Funded by *Institute for Information and Communications Technology Promotion (IITP)* [2018-0-00170, Grant: $246,464; Co-PI]
- **Network Engineering: Development and Application of Novel Data Science Driven Framework for Efficient Network Design** 06/2017–05/2020
  Funded by *National Research Foundation of Korea* **(Basic Research Lab)** [2017R1A4A1015675, Grant: $150,000; Co-PI]
- **mmWave High-Speed Networking Platform Design for Next-Generation Convergence Services** 06/2016–05/2019
  Funded by *National Research Foundation of Korea* [2016R1C1B1015406, Grant: $150,000; Primary-PI]
  – Selected as **Initial Innovation Lab** [Grant: $60,000]
- **Feasibility Study of 60 GHz IEEE 802.11ad for Virtual Reality (VR) Platforms** 04/2017–12/2017
  Funded by *Institute for Information and Communications Technology Promotion (IITP)* [Grant: $33,333; Primary-PI]

Industry-Funded Projects

- **Super-Resolution Performance Optimization in Mobile Platforms** 05/2020–08/2020
  Funded by *Samsung SDS* [Grant: $15,000; Primary-PI]
- **Deep Learning Algorithms for mVOC Concentration Analysis** 03/2020–06/2020
  Funded by *Samsung Electronics* [Grant: $12,000; Primary-PI]
- **Visual Recognition Software Implementation using Deep Learning Tools** 05/2019–11/2019
  Funded by *Hyundai NGV* and *Hyundai/Kia Motors Company* [Grant: $59,500; Primary-PI]
- **A Priori Techniques Research for Efficient Multi-Edge Computing** 06/2017–12/2017
  Funded by *Samsung Electronics Software Center* [Grant: $80,000; Co-PI]

Government-Funded Research Institute Projects

- **Multi-GPU based Automotive HPC Platform Development** 04/2020–10/2020
  (A Development of Driving Decision Engine for Autonomous Driving using Driving Experience Information)
  Funded by *Electronics and Telecommunications Research Institute* [19HS2720 (IITP 2017-0-00068), Grant: $20,000; Primary-PI]
- **Cooperative Deep Reinforcement Learning for Online Game Multi-Agents** 04/2020–08/2020
  (Human-Agent Cooperation Algorithm Design in Multi-Agent Environment)
  Funded by *Electronics and Telecommunications Research Institute* [19YE1400, Grant: $28,000; Primary-PI]
- **Verification Testbed Implementation for Privacy-Preserving Trust Data Generation** 10/2019–11/2019
  Funded by *Electronics and Telecommunications Research Institute* [Grant: $44,000; Co-PI]
- **Measurement and Analysis of Multi-Task GPU Scheduling Delays** 05/2019–10/2019
  (A Development of Driving Decision Engine for Autonomous Driving using Driving Experience Information)
  Funded by *Electronics and Telecommunications Research Institute* [19HS2720 (IITP 2017-0-00068), Grant: $40,000; Primary-PI]
- **Probabilistic Decision Making and Econometric Methods for Micro-Grid** 05/2017–04/2019
  Funded by *Korea Electric Power Corporation (KEPCO) Research Institute* [R17XA05-41, Grant: $143,128; Primary-PI]
- **GPU Scheduling Performance Analysis under Queueing Delay Considerations** 05/2018–10/2018
  (A Development of Driving Decision Engine for Autonomous Driving using Driving Experience Information)
  Funded by *Electronics and Telecommunications Research Institute* [18HS1420 (IITP 2017-0-00068), Grant: $40,000; Primary-PI]
- **Improving Massive Deep Learning Training via Computation and Communication Acceleration** 04/2018–10/2018
  (Development of HPC System for Accelerating Large-Scale Deep Learning)
  Funded by *Electronics and Telecommunications Research Institute* [18HS1710 (IITP 2016-0-00087), Grant: $30,000; Primary-PI]
- **Parsing Techniques for Artificial Neural Network (ANN) Data Processing** 09/2017–11/2017
  (A Development of Driving Decision Engine for Autonomous Driving using Driving Experience Information)
  Funded by *Electronics and Telecommunications Research Institute* [17HS2720 (IITP 2017-0-00068), Grant: $40,000; Primary-PI]

University of Southern California (USC) – Viterbi School of Engineering (Ph.D. Research Projects)

- **Video Aware Wireless Networks (VAWN) Research Program**
  Funded by *Intel Labs*, *Verizon Wireless*, and *Cisco Systems*; Under the guidance of Prof. Andreas F. Molisch (University of Southern California, USA) and Prof. Giuseppe Caire (Technische Universität Berlin, Germany)
- **60 GHz Real-Time Wireless Video Broadcasting**
  Supported by a Gift from *Disney Research Zürich*; Under the guidance of Prof. Andreas F. Molisch (University of Southern California, USA), Prof. Yafei Tian (Beihang Univ, China), and Dr. Stefan Mangold (Disney Research Zürich, Switzerland)

Selected Publications

- Citation: 3386+, H-Index: 24+, i10-Index: 90+; obtained from Google Scholar Profile (as of September 8, 2020)
- The Complete List of Publications: `https://joongheon.github.io/publications.html`

Dissertation, Books, and Book Chapters

Ph.D. Dissertation

- *Elements of Next-Generation Wireless Video Systems: Millimeter-Wave and Device-to-Device Algorithms*, Ph.D. Dissertation (Computer Science), University of Southern California, Los Angeles, California, USA, August 2014.

Book Chapters

- Dynamic Decision-Making for Stabilized Deep Learning Software Platforms, *Advances in Deep Learning (Artificial Intelligence Book Series)*, IntechOpen, Month Year., (Editor: M.A. Aceves-Fernandez) (w/ S. Park, D. Kim)
- Chapter 9. Device-to-Device Communications, *Towards 5G: Applications, Requirements and Candidate Technologies*, Wiley, January 2017., (Editors: R. Vannithamby, S. Talwar) (w/ A.F. Molisch, M. Ji, D. Burghal, A.S. Tehrani)
- Chapter 19. Millimeter-Wave (mmWave) Medium Access Control: A Survey, *Opportunities in 5G Networks: A Research and Development Perspective*, CRC Press Taylor and Francis Group, April 2016., (Editor: F. Hu)
- Chapter 17. Millimeter-Wave (mmWave) Radio Propagation Characteristics, *Opportunities in 5G Networks: A Research and Development Perspective*, CRC Press Taylor and Francis Group, April 2016., (Editor: F. Hu)
- Chapter 22. Weighted Localized Clustering: A Coverage-Aware Reader Collision Arbitration Protocol in RFID Networks, *Handbook on Mobile and Ubiquitous Computing: Status and Perspective*, CRC Press Taylor and Francis Group, October 2012., (Editors: L.T. Yang, E. Syukur, S.W. Loke) (w/ E. Kim, W. Lee, D. Kim, J. Choi, J. Jung, C.K. Shin)
- Chapter 2.5.4.1. Coverage-Time Optimized Dynamic Clustering for Two-Tiered WM2Nets, *Wireless Mesh Networking*, McGraw-Hill, August 2008., (Editor: G. Aggelou) (w/ W. Lee, E. Kim, T.K. Shih)

Magazines and Journals

■ IEEE/ACM/Representative

[TMC.accept] Supremo: Cloud-Assisted Low-Latency Super-Resolution in Mobile Devices, *IEEE Transactions on Mobile Computing*, v(n):ppp–ppp, Month Year. (w/ J. Yi, S. Kim, S. Choi)

[TWC.accept] Joint Distributed Link Scheduling and Power Allocation for Content Delivery in Wireless Caching Networks, *IEEE Transactions on Wireless Communications*, v(n):ppp–ppp, Month Year. (w/ M. Choi, A.F. Molisch)

[IOTJ.accept] Multiagent DDPG-based Deep Learning for Smart Ocean Federated Learning IoT Networks, *IEEE Internet of Things Journal*, v(n):ppp–ppp, Month Year. (w/ D. Kwon, J. Jeon, S. Park, S. Cho)

[TMC.accept] A Personalized Preference Learning Framework for Caching in Mobile Networks, *IEEE Transactions on Mobile Computing*, v(n):ppp–ppp, Month Year. (w/ A. Malik, K.S. Kim, W.-Y. Shin)

[ISJ.accept] Intelligent Active Queue Management for Stabilized QoS Guarantees in 5G Mobile Networks, *IEEE Systems Journal*, v(n):ppp–ppp, Month Year. (w/ S. Jung, J.-H. Kim)

[ISJ.accept] Multiscale LSTM-Based Deep Learning for Very-Short-Term Photovoltaic Power Generation Forecasting in Smart City Energy Management, *IEEE Systems Journal*, v(n):ppp–ppp, Month Year. (w/ D. Kim, D. Kwon, L. Park, S. Cho)

[JCN'20.08] Self-Adaptive Power Control with Deep Reinforcement Learning for Millimeter-Wave Internet-of-Vehicles Video Caching, *IEEE/KICS Journal of Communications and Networks*, 22(4):326–337, August 2020. (w/ D. Kwon, D. Mohaisen, W. Lee)

[Access'20.06] Blind Signal Classification Analysis and Impact on User Pairing and Power Allocation in Nonorthogonal Multiple Access, *IEEE Access*, 8:100916–100929, June 2020. (w/ M. Choi)

[TII'20.05] Cooperative Management for PV/ESS-Enabled Electric-Vehicle Charging Stations: A Multiagent Deep Reinforcement Learning Approach, *IEEE Transactions on Industrial Informatics*, 16(5):3493–3503, May 2020. (w/ M. Shin, D.-H. Choi)

[ISJ'20.03] Towards Characterizing Blockchain-based Cryptocurrencies for Highly-Accurate Predictions, *IEEE Systems Journal*, 14(1):321–332, March 2020. (w/ M. Saad, J. Choi, D. Nyang, A. Mohaisen), ***(IEEE Systems Journal Best Paper Award, Top 7 among 793 accepted papers in 2019: 0.88%)***

[JCN'20.02] Numerical Approximation of Millimeter-Wave Frequency Sharing between Cellular Systems and Fixed Service Systems, *IEEE/KICS Journal of Communications and Networks*, 22(1):37–45, February 2020. (w/ S. Han, J.-W. Choi)

[TWC'19.12] Markov Decision Policies for Dynamic Video Delivery in Wireless Caching Networks, *IEEE Transactions on Wireless Communications*, 18(12):5705–5718, December 2019. (w/ M. Choi, A. No, M. Ji)

[TWC'19.10] Dynamic Power Allocation and User Scheduling for Power-Efficient and Delay-Constrained Multiple Access Networks, *IEEE Transactions on Wireless Communications*, 18(10):4846–4858, October 2019. (w/ M. Choi, J. Moon)

[IOTJ'19.10] Two-Stage IoT Device Scheduling with Dynamic Programming for Energy Internet Systems, *IEEE Internet of Things Journal*, 6(5):8782–8791, October 2019. (w/ L. Park, C. Lee, A. Mohaisen, S. Cho)

[TVT'19.10] Blind Signal Classification for Non-Orthogonal Multiple Access in Vehicular Networks, *IEEE Transactions on Vehicular Technology*, 68(10):9722–9734, October 2019. (w/ M. Choi, D. Yoon)

[TCAD'19.09] TEI-ULP: Exploiting Body Biasing to Improve the TEI-Aware Ultra-Low Power Methods, *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, 38(9):1758–1770, September 2019. (w/ W. Lee, T. Kang, J.-J. Lee, K. Han, M. Pedram)

[TMC'19.07] Seamless Dynamic Adaptive Streaming in LTE/Wi-Fi Integrated Network under Smartphone Resource Constraints, *IEEE Transactions on Mobile Computing*, 18(7):1647–1660, July 2019. (w/ J. Koo, J. Yi, M.A. Hoque, S. Choi)

[TVT'19.05] Auction-Based Charging Scheduling With Deep Learning Framework for Multi-Drone Networks, *IEEE Transactions on Vehicular Technology*, 68(5):4235–4248, May 2019. (w/ M. Shin, M. Levorato)

[CM'19.03] New Challenges of Wireless Power Transfer and Secured Billing for Internet of Electric Vehicles, *IEEE Communications Magazine*, 57(3):118–124, March 2019. (w/ L. Park, S. Jeong, D.S. Lakew, S. Cho)

[TIE'19.02] Joint Geometric Unsupervised Learning and Truthful Auction for Local Energy Market, *IEEE Transactions on Industrial Electronics*, 66(2):1499–1508, February 2019. (w/ L. Park, S. Jeong, S. Cho)

[IOTJ'18.12] Internet of Things for Smart Manufacturing System: Trust Issues in Resource Allocation, *IEEE Internet of Things Journal*, 5(6):4418–4427, December 2018. (w/ S. Jeong, W. Na, S. Cho)

[JSAC'18.11] SGCO: Stabilized Green Crosshaul Orchestration for Dense IoT Offloading Services, *IEEE Journal on Selected Areas in Communications*, 36(11):2538–2548, November 2018. (w/ N.-N. Dao, D.-N. Vu, W. Na, S. Cho)

[JSAC'18.06] Wireless Video Caching and Dynamic Streaming under Differentiated Quality Requirements, *IEEE Journal on Selected Areas in Communications*, 36(6):1245–1257, June 2018. (w/ M. Choi, J. Moon)

[Access'18.05] Soft Memory Box: A Virtual Shared Memory Framework for Fast Deep Neural Network Training in Distributed High Performance Computing, *IEEE Access*, 6:26493–26504, May 2018. (w/ S. Ahn, E. Lim, S. Kang)

[TVT'18.04] Adaptive Detector Selection for Queue-Stable Word Error Rate Minimization in Connected Vehicle Receiver Design, *IEEE Transactions on Vehicular Technology*, 67(4):3635–3639, April 2018. (w/ M. Choi, J. Moon)

[IOTJ'18.02] Energy-Efficient Mobile Charging for Wireless Power Transfer in Internet of Things Networks, *IEEE Internet of Things Journal*, 5(1):79–92, February 2018. (w/ W. Na, J. Park, C. Lee, K. Park, S. Cho)

[TII'17.12] Residential Demand Response for Renewable Energy Resources in Smart Grid Systems, *IEEE Transactions on Industrial Informatics*, 13(6):3165–3173, December 2017. (w/ L. Park, Y. Jang, S. Cho)

[IOTJ'17.10] Feasibility Study of 60 GHz Millimeter-Wave Technologies for Hyperconnected Fog Computing Applications, *IEEE Internet of Things Journal*, 4(5):1165–1173, October 2017. (w/ W. Lee)

[Access'17.09] A Software-based Monitoring Framework for Time-Space Partitioned Avionics Systems, *IEEE Access*, 5:19132–19143, September 2017. (w/ C. Shin, C. Lim, H. Roh, W. Lee)

[Access'17.08] Energy-Efficient Stabilized Automatic Control for Multicore Baseband in Millimeter-Wave Systems, *IEEE Access*, 5:16584–16591, August 2017. (w/ J.-J. Lee, J.-K. Kim, W. Lee)

[Access'17.06] Adaptive Resource Balancing for Serviceability Maximization in Fog Radio Access Networks, *IEEE Access*, 5:14548–14559, June 2017. (w/ N.-N. Dao, J. Lee, D.-N. Vu, J. Paek, S. Cho, K. Chung, C. Keum)

[VTM'17.03] The Useful Impact of Carrier Aggregation: A Measurement Study in South Korea for Commercial LTE-Advanced Networks, *IEEE Vehicular Technology Magazine*, 12(1):55–62, March 2017. (w/ S. Lee, S. Hyeon, H. Roh, W. Lee)

[TVT'16.12] Performance of Video Streaming in Infrastructure-to-Vehicle Telematic Platforms With 60-GHz Radiation and IEEE 802.11ad Baseband, *IEEE Transactions on Vehicular Technology*, 65(12):10111–10115, December 2016. (w/ S.-C. Kwon, G. Choi)

[Access'16.12] Numerical Simulation Study for Frequency Sharing between Micro-Cellular Systems and Fixed Service Systems in Millimeter-Wave Bands, *IEEE Access*, 4:9847–9859, December 2016. (w/ L. Xian, A.S. Sadri)

[TON'16.08] Quality-Aware Streaming and Scheduling for Device-to-Device Video Delivery, *IEEE/ACM Transactions on Networking*, 24(4):2319–2331, August 2016. (w/ G. Caire, A.F. Molisch), ***(Selected as one of Best Reading Papers in Device-to-Device***

Communications by IEEE Communications Society)

[TII'15.12] Energy-Efficient Dynamic Packet Downloading for Medical IoT Platforms, *IEEE Transactions on Industrial Informatics*, 11(6):1653–1659, December 2015.

[TSMC'15.11] Stochastic Decision Making for Adaptive Crowdsourcing in Medical Big-Data Platforms, *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, 45(11):1471–1476, November 2015. (w/ W. Lee)

[JCN'14.10] Fast Millimeter-Wave Beam Training with Receive Beamforming, *IEEE/KICS Journal of Communications and Networks*, 16(5):512–522, October 2014. (w/ A.F. Molisch)

[CL'14.09] Joint Coding and Stochastic Data Transmission for Uplink Cloud Radio Access Networks, *IEEE Communications Letters*, 18(9):1619–1622, September 2014. (w/ S.-N. Hong)

[CL'14.07] A Low-Complexity Algorithm for Neighbor Discovery in Wireless Networks, *IEEE Communications Letters*, 18(7):1119–1122, July 2014. (w/ S.-N. Hong)

[CL'14.03] Fast and Low-Power Link Setup for IEEE 802.15.3c Multi-Gigabit/s Wireless Sensor Networks, *IEEE Communications Letters*, 18(3):455–458, March 2014. (w/ A. Mohaisen, J.-K. Kim)

[TBC'13.09] Joint Scalable Coding and Routing for 60 GHz Real-Time Live HD Video Streaming Applications, *IEEE Transactions on Broadcasting*, 59(3):500–512, September 2013. (w/ Y. Tian, S. Mangold, A.F. Molisch)

[TCE'07.11] Movement-Aware Vertical Handoff of WLAN and Mobile WiMAX for Seamless Ubiquitous Access, *IEEE Transactions on Consumer Electronics*, 53(4):1268–1275, November 2007. (w/ W. Lee, E. Kim, I. Lee, C. Lee), ***(Citations: 100+)***

[TCE'07.05] Coverage-Time Optimized Dynamic Clustering of Networked Sensors for Pervasive Home Networking, *IEEE Transactions on Consumer Electronics*, 53(2):433–441, May 2007. (w/ W. Lee, E. Kim, D.-W. Kim, H. Kim)

[CL'07.01] Optimized Transmission Power Control of Interrogators for Collision Arbitration in UHF RFID Systems, *IEEE Communications Letters*, 11(1):22–24, January 2007. (w/ W. Lee, E. Kim, D. Kim, K. Suh)

Conference and R&D Event Contributions (Selected)

■ Top-Tier Conference Contributions (Full Papers)

[ICDCS'20] Understanding the Potential Risks of Sharing Elevation Information on Fitness Applications (w/ Ü. Meteriz, N.F. Yildiran, D. Mohaisen), **(Accept Rate: 17.98% (105/584))**

[IJCAI'19] Randomized Adversarial Imitation Learning for Autonomous Driving (w/ M. Shin), **(Accept Rate: 17.89% (850/4752))**

[ICDCS'18] ShmCaffe: A Distributed Deep Learning Platform with Shared Memory Buffer for HPC Architecture (w/ S. Ahn, E. Lim, W. Choi, A. Mohaisen, S. Kang), **(Accept Rate: 20.63% (78/378))**

[MM'17] REQUEST: Seamless Dynamic Adaptive Streaming over HTTP for Multi-Homed Smartphone under Resource Constraints (w/ J. Koo, J. Yi, M.A. Hoque, S. Choi), **(Accept Rate: 27.63% (189/684))**

[MobiSys'10] Energy-Efficient Rate-Adaptive GPS-based Positioning for Smartphones (w/ J. Paek, R. Govindan), **(Accept Rate: 19.84% (25/126))**, ***(Citations: 500+)***

■ IEEE/ACM Conference Contributions

[ICML'20] XOR Mixup: Privacy-Preserving Data Augmentation for One-Shot Federated Learning, *Wksp. Federated Learning for User Privacy and Data Confidentiality* (w/ M. Shin, C. Hwang, J. Park, M. Bennis, S.-L. Kim)

[ICC'20] User Scheduling and Power Allocation for Content Delivery in Caching Helper Networks (w/ M. Choi, A.F. Molisch)

[WCNC'20] Cache Allocations for Consecutive Requests of Categorized Contents: Service Provider's Perspective (w/ M. Choi, A.F. Molisch, D.-J. Han, J. Moon)

[ICAIIC'20] Power Demand Forecasting Using Long Short-Term Memory Neural Network for Smart Grid (w/ V.H. Nguyen, V. Bui, Y.M. Jang)

[ICAIIC'20] RNN-based Deep Learning for One-Hour Ahead Load Forecasting (w/ V. Bui, V.H. Nguyen, D. Kim, Y.M. Jang)

[ICOIN'20] Learning-Based Dot-Grid Alignment for Projection Distortion Correction (w/ D. Kim, D. Kwon, S. Park)

[ICOIN'20] The Useful Quantum Computing Techniques for Artificial Intelligence Engineers (w/ J. Choi, S. Oh)

[ICOIN'20] Privacy-Sensitive Parallel Split Learning (w/ J. Jeon)

[ICOIN'20] Fast and Reliable Offloading via Deep Reinforcement Learning for Mobile Edge Video Computing (w/ S. Park, Y. Kang, Y. Tian)

[GLOBECOM'19] Multi-Agent Deep Reinforcement Learning for Cooperative Connected Vehicles (w/ D. Kwon)

[ISSSPC'19] Stabilized Super-Resolution Deep Learning Adaptation for UAV-Assisted Mobile Edges: A Lyapunov Optimization Approach, *IEEE Seoul Section Student Paper Content* (w/ J. Yoo, D. Kim), ***(Gold Paper Award)***

[ICTC'19] A Tutorial on Quantum Approximate Optimization Algorithm (QAOA): Fundamentals and Applications (w/ J. Choi)

[ICTC'19] Overview of Distributed Federated Learning: Research Issues, Challenges, and Biomedical Applications (w/ J. Jeon, J. Huh, H. Kim, S. Cho)

[5GWF'19] PriMO-5G: Making Firefighting Smarter with Immersive Videos through 5G (w/ K.W. Sung, E. Mutafungwa, R. Jantti, M. Choi, J. Jeon, D. Kim, J. Cost-Requena, A. Nordlow, S. Sharma, G. Destino, Y. Deng, T. Mahmoodi, M. Ullmann, A. Nahler, Y. Kyung, S. Kim, S. Seo, S.-L. Kim)

[APWCS'19] Joint Offloading and Streaming in Mobile Edges: A Deep Reinforcement Learning Approach (w/ S. Park, J. Kim, D. Kwon, M. Shin), ***(IEEE Vehicular Technology Society (VTS) Seoul Chapter Award)***

[IJCNN'19] Depth-Controllable Very Deep Super-Resolution Network (w/ D. Kim, J. Kwon, T.-H. Kim)

[IJCNN'19] Adversarial Imitation Learning via Random Search (w/ M. Shin)

[ICC'19] Probabilistic Caching Policy for Categorized Contents and Consecutive User Demands (w/ M. Choi, D. Kim, D.-J. Han, J. Moon)

[ICBC'19] Mempool Optimization for Defending Against DDoS Attacks in PoW-based Blockchain Systems (w/ M. Saad, L. Njilla, C.A. Kamhoua, D. Nyang, A. Mohaisen), **(Accept Rate: 19.61% (30/153))**

[ICAIIC'19] Cyclic Parameter Sharing for Privacy-Preserving Distributed Deep Learning Platforms (w/ J. Jeon, D. Kim)

[ICAIIC'19] Hardness on Style Transfer Deep Learning for Rococo Painting Masterpieces (w/ K.S. Kim, D. Kim)

[ICOIN'19] Optimal Trajectory Learning for UAV-BS Video Provisioning System: A Deep Reinforcement Learning Approach (w/ D. Kwon)

[ICTC'18] Opportunistic Medium Access for Hyper-Dense Beamformed IEEE 802.11ax Wireless Networks (w/ D. Kwon)

[ICTC'18] Very Short-Term Photovoltaic Power Generation Forecasting with Convolutional Neural Networks, (w/ D. Kim, S.-W. Hwang)

[SMC'18] Low-Complexity Online Model Selection with Lyapunov Control for Reward Maximization in Stabilized Real-Time Deep Learning

Platforms (w/ D. Kim, J. Kwon)

[ICUFN'18] Detecting Selfish Backoff Attack in IEEE 802.15.4 CSMA/CA using Logistic Classification (w/ K.S. Kim)

[MobiSys'18] Neural Network Syntax Analyzer for Embedded Standardized Deep Learning, *Wksp. Embedded and Mobile Deep Learning* (w/ M. Shin, A. Mohaisen, J. Park, K.H. Lee)

[ICASSP'18] Self-Adaptive Machine Learning Operating Systems for Security Applications (w/ K.S. Kim, D. Kwon, Y. Kim, J. Kim)

[ICOIN'18] Top-Down Parsing for Neural Network Exchange Format (NNEF) in TensorFlow-based Deep Learning Computation (w/ B. Seo, M. Shin, Y.J. Mo)

[ICOIN'18] Distributed Dynamic Power-Aware Buffering for Multi-Gbps Video Streaming in IEEE 802.11ad Fast Session Transfer (w/ D. Kwon)

[ICOIN'18] Proactive Detection of Algorithmically Generated Malicious Domains (w/ J. Spaulding, J. Park, A. Mohaisen)

[ICOIN'18] High-Dimensional Statistical Supervised Learning for Extracting Information in Steganography (w/ S. Hwang, K.S. Kim, Y. Kim, J. Kim, M. Park, S. Park)

[ICISCT'17] Hybrid Authentication Scheme in Peer-Aware Communication (w/ Y. Kim, S. Cho)

[ICUFN'17] Performance of Deep Learning Computation with TensorFlow Software Library in GPU-Capable Multi-Core Computing Platforms (w/ Y.J. Mo, J.-K. Kim, A. Mohaisen, W. Lee)

[ICIC'17] Queue-Aware Learning for Scheduling in Healthcare Clouds (w/ S. Cho)

[ICIC'17] Dynamic Decision-Making for Fine-Grained Energy-Efficient Control in Millimeter-Wave Access Platforms (w/ B. Seo, Y. Lee, S. Cho)

[EuCAP'16] Millimeter-Wave Outdoor Access Shadowing Mitigation using Beamforming Arrays (w/ R. Weiler, W. Keusgen, A. Maltsev, T. Kuhne, A. Pudeyev, L. Xian, M. Peter)

[GLOBECOM'15] 60 GHz Frequency Sharing Study between Fixed Service Systems and Small-Cell Systems with Modular Antenna Arrays, *Wksp. mmWave Backhaul Access* (w/ L. Xian, R. Arefi, A.S. Sadri)

[ICTC'15] Feasibility Study of Stochastic Streaming with 4K UHD Video Traces (w/ E.-S. Ryu)

[ICTC'15] Towards Robust UHD Video Streaming Systems using Scalable High Efficiency Video Coding (w/ E.-S. Ryu, Y. Ryu, H.-J. Roh, B.-G. Lee)

[SOSP'15] A Case for Bad big.LITTLE Switching: How to Scale Power-Performance in SI-HMP, *Wksp. Power-Aware Computing Systems* (w/ S. Yoo, Y. Shim, S. Lee, S.-A. Lee)

[IMS'15] Study of Coexistence between 5G Small-Cell Systems and Systems of the Fixed Service at 39 GHz Band (w/ L. Xian, A. Maltsev, R. Arefi, A.S. Sadri)

[ICC'14] Quality-Aware Millimeter-Wave Device-to-Device Multi-Hop Routing for 5G Cellular Networks (w/ A.F. Molisch)

[ICC'13] Quality-Aware Coding and Relaying for 60 GHz Real-Time Wireless Video Broadcasting (w/ Y. Tian, S. Mangold, A.F. Molisch)

[RWS'13] Enabling Gigabit Services for IEEE 802.11ad-Capable High-Speed Train Networks (w/ A.F. Molisch)

[PIMRC'11] Joint Optimization of HD Video Coding Rates and Unicast Flow Control for IEEE 802.11ad Relaying (w/ Y. Tian, A.F. Molisch, S. Mangold)

[CCNC'10] mmWave SVD-based Beamformed MIMO Communication Systems (w/ S. Tiraspolsky, B. Jeon, A. Rubtsov, A. Flaksman, V. Ermolayev)

[CCNC'09] Demonstration of Display Sharing over Multi-Gbps Wireless Video and Audio Network (w/ B. Jeon)

[CCNC'09] Optimal Beaconing for 60 GHz Millimeter Wave (w/ B. Jeon)

[COMSWARE'08] Cooperative Relaying Strategies for Multi-Hop Wireless Sensor Networks (w/ W. Lee)

[CIT'06] A Power Balanced Multipath Routing Protocol in Wireless Ad-Hoc Sensor Networks (w/ D. Kim, W. Lee, B.-N. Park, C. Shin, C. Shin)

[VTC'06-Spring] Energy-Aware Distributed Topology Control for Coverage-Time Optimization in Clustering-Based Heterogeneous Sensor Networks (w/ J. Choi, W. Lee)

[ICCCN'05] Effect of Localized Optimal Clustering for Reader Anti-Collision in RFID Networks (w/ W. Lee, J. Yu, J. Myung, E. Kim, C. Lee)

[VTC'05-Spring] Low-Energy Localized Clustering: An Adaptive Cluster Radius Configuration Scheme for Topology Control in Wireless Sensor Networks (w/ S. Kim, D. Kim, W. Lee, E. Kim)

■ Extended Abstracts, Demos, and Posters

[QTML'20] A Quantum Approach to the Minimum Dominating Set Problem (w/ J. Choi, S. Oh, S. Park)

[ICCV'19] Deep Multi-modal Unsupervised Pen Pressure Stylization (w/ D. Kim)

[QTML'19] A Quantum Approach to Max-Weight Independent Set Problem (w/ J. Choi)

[DSN'19] Privacy-Preserving Deep Learning Computation for Geo-Distributed Medical Big-Data Platforms (w/ J. Jeon, J. Kim, K. Kim, A. Mohaisen, J.-K. Kim)

[MobiSys'19] Demo: Light-Weight Programming Language for Blockchain (w/ J. Kim)

[MobiSys'19] Poster: Multi-Agent Deep Reinforcement Learning for Connected Vehicles (w/ D. Kwon, S. Park)

[ICML'19] Adversarial Imitation Learning via Random Search in Lane Change Decision-Making, *Wksp. AI for Autonomous Driving* (w/ M. Shin)

[CCS'18] Secure Compute-VM: Secure Big Data Processing with SGX and Compute Accelerators, *Wksp. System Software for Trusted Execution* (w/ S. Yoo, H. Kim)

[SECON'18] Recipient-Oriented Transaction for Preventing Double Spending Attacks in Private Blockchain (w/ H. Lee, M. Shin, K.S. Kim, Y. Kang)

[AsiaCCS'18] POSTER: Mining with Proof-of-Probability in Blockchain (w/ S. Kim)

[ICSE'18] Poster: A Novel Shared Memory Framework for Distributed Deep Learning in High-Performance Computing Architecture, *Companion Volume* (w/ S. Ahn, S. Kang)

[SOSP'17] A Reliable, Self-Adaptive Face Identification Framework via Lyapunov Optimization, *Wksp. AI Systems* (w/ D. Kim, J.Y. Bang)

[PAC'17] Dynamic Security-Level Maximization for Stabilized Parallel Deep Learning Architectures in Surveillance Applications (w/ Y.J. Mo, W. Lee, D. Nyang)

[SIGCOMM'16] A Longitudinal Analysis of .i2p Leakage in the Public DNS Infrastructure (w/ S.H. Jeong, A.R. Kang, H.K. Kim, A. Mohaisen)

[INFOCOM'16] Buffer-Stable Adaptive Per-Module Power Allocation for Energy-Efficient Millimeter-Wave Modular Antenna Array (MAA) Platforms

[GLOBECOM'14] Required Frequency Rejection in 39 GHz Millimeter-Wave Small Cell Systems, *Industry Program* (w/ L. Xian, A. Maltsev, R. Arefi, A.S. Sadri)

[ITA'14] Joint Scheduling and Stochastic Streaming for Device-to-Device Video Delivery, *Graduation Day Talk* (w/ A. Turci, G. Caire, A.F. Molisch)

[MobiCom'13] Demo: Adaptive Video Streaming for Device-to-Device Mobile Platforms (w/ F. Meng, P. Chen, H.E. Egilmez, D. Bethanabhotla, A.F. Molisch, M.J. Neely, G. Caire, A. Ortega)

Patents (Granted)

- **21 US Patents:** (US 10637154), (US 9973364), (US 9887755), (US 9786985), (US 9167562), (US 8842640), (US 8761063), (US 8738068), (US 8619741), (US 8605634), (US 8599731), (US 8565200), (US 8547889), (US 8503317), (US 8493949), (US 8493948), (US 8483171), (US 8422372), (US 8416782), (US 8411644), (US 8379612)
- **8 Korean Patents:** (KR 102052835), (KR 102015429), (KR 101663613), (KR 101619964), (KR 101606951), (KR 101567829), (KR 101558017), (KR 100779165)
- **5 European Patents:** (EP 2422578), (EP 2343836), (EP 2282601), (EP 2262342), (EP 2260669)
- **8 Chinese Patents:** (CN 102461318), (CN 102461050), (CN 102388658), (CN 102318430), (CN 102318425), (CN 102204115), (CN 102132602), (CN 102057739)
- **6 Japanese Patents:** (JP 5584209), (JP 5584205), (JP 5580308), (JP 5508403), (JP 5368573), (JP 5364785)

Teaching Experience and Research Supervision

Teaching Experience

Korea University – College of Engineering, *Faculty Member*

- **School of Electrical Engineering – Graduate Courses:** *Wireless and Mobile Networks* (ECE522 – Spring 2020); *Smart Mobile Platform* (ECE654 – Fall 2019)
- **School of Electrical Engineering – Undergraduate Courses:** *Probability and Random Process* (KECE209 – Spring 2020); *Digital System* (KECE207 – Spring 2020); *Computer Language and Laboratory* (EGRN151 – Fall 2019 ***(Granite Tower (Seok-Top) Best Teaching Award)***)

Chung-Ang University – College of Computer Science and Software, *Faculty Member*

- **School of Computer Science and Engineering – Graduate Courses:** *Optimal Design Theory and Applications* (Spring 2019, Spring 2018, Spring 2017); *Topics in Computer Science and Engineering* (Fall 2018, Fall 2017, Fall 2016)
- **School of Computer Science and Engineering – Undergraduate Courses:** *Numerical Analysis* (Spring 2019); *Compiler Design* (Spring 2019, Spring 2018, Spring 2017); *Principles of Programming Languages* (Fall 2018, Fall 2017, Fall 2016); *Algorithm Analysis* (Fall 2016); *Operating Systems* (Spring 2017, Spring 2016); *Calculus* (Spring 2017, Spring 2016); *Mobile Application Development* (Fall 2018, Fall 2017)

University of Southern California – Viterbi School of Engineering, *Teaching Assistant*

- *Wireless and Mobile Networks Design and Lab* [EE579] (Spring 2013), Lectured by **Professor Murali Annavaram**
  Graduate Course dedicated to Android Mobile Platform Research and Programming
- *Programming Systems Design* [CSci455x] (Spring 2012, Fall 2012), Lectured by **Professor Claire Bono**
  Undergraduate Course dedicated to Object-Oriented Programming (Java and C++) and Advanced Data Structures

Research Collaboration and Supervision

Postdoctorial Scholars

- **Dr. Minseok Choi** (09/2018–02/2019), *Faculty Member* at **Jeju National University**, Jeju, Korea

Ph.D. Courses

- **Soohyun Park** (03/2019–02/2024 (expected))
- **Seungyo Ryu** (09/2019–; Co-Advised by Prof. Dongseung Kim)
- **Yeongeun Kang** (03/2020–02/2025 (expected))
- **Junghyun Kim** (09/2020–08/2025 (expected))
- **Haemin Lee** (09/2020–08/2025 (expected))
- **Won Joon Yun** (03/2021–02/2026 (expected))

M.S. Courses

- **Kyeongseon Kim** (09/2017–08/2019), *Researcher* at **LG Electronics CTO Office, A.I. Research Lab**, Seoul, Korea
- **Dohyun Kwon** (03/2018–02/2020), *Researcher* at **Hyundai-Autoever**, Seoul, Korea
- **Dohyun Kim** (03/2018–02/2020), *Researcher* at **Naver Corporation**, Seongnam, Korea
- **MyungJae Shin** (03/2018–02/2020), *Researcher* at **Seoul National University Hospital**, Seoul, Korea
- **Jaeho Choi** (03/2019–02/2021)
- **Seunghoon Park** (03/2020–02/2022 (expected))
- **Jaesung Yoo** (09/2020–02/2022 (expected))
- **Seunghyeok Oh** (09/2020–08/2022 (expected))
- **Chihoon Hwang** (03/2021–02/2023 (expected))

Intel Corporation (Santa Clara, California, USA), *Graduate Interns*

- **Minseok Choi**, Ph.D. in EE from KAIST (02/2016–07/2016), now with **Jeju National University**, Jeju, Korea
- **Hidekazu Shimodaira**, Ph.D. in EEE from Tokyo Institute of Technology (07/2015–12/2015), now with **NTT DOCOMO**, Tokyo, Japan

USC Viterbi School of Engineering (Los Angeles, California, USA), *Graduate Students*

- **Feiyu Meng**, M.S. in EE from USC (Summer 2013, Fall 2013), now with **Apple**, Silicon Valley, CA, USA
- **Vivek Sankaravadivel**, M.S. in EE from USC (Spring 2011, Fall 2011), now with **Uber**, Silicon Valley, CA, USA

Professional Activities

Academic Activities in IEEE

Editorial Boards

- Associate Editor (2020–), *IEEE Transactions on Vehicular Technology*

Reviewers (Selected)

- *IEEE Communications Magazine, IEEE Multimedia, IEEE Journal on Selected Areas in Communications, IEEE/ACM Transactions on Networking, IEEE Transactions on Mobile Computing, IEEE Transactions on Microwave Theory and Techniques, IEEE Transactions on Wireless Communications, IEEE Transactions on Communications, IEEE Transactions on Vehicular Technology, IEEE Internet of Things Journal*

Talks and Presentations (Selected)

Tutorials and Special Session Talks in IEEE/ACM

- *Advanced Deep Learning Methods and Their Applications to Distributed and Network Platforms*
  IEEE International Conference on ICT Convergence (ICTC 2019) Special Session Talk (Jeju, Korea, 10/2019)
- *Distributed Platform Research for Emerging Deep Learning Applications*
  IEEE International Conference on Information Networking (ICOIN 2019) Tutorial (Kuala Lumpur, Malaysia, 01/2019)
- *Securing the Internet of Things: A Machine Learning Approach (Making Machine Learning Practical)*
  IEEE International Conference on Communications (ICC 2018) Tutorial (Kansas City, MO, USA, 05/2018)
  Joint Presentation wih Prof. Aziz Mohaisen (University of Central Florida, Orlando, FL, USA)

Invited Talks at World-Wide Universities and Research Institutes

- *Deep Reinforcement Learning Research and Its Applications to Networks*
  Huawei Nizhny Novgorod Research Center (Workshop: Fundamental and Applied Problems of Machine Learning) (Nizhny Novgorod, Russia, 12/2019)
- *Enabling Delay-Sensitive Robust Distributed Blockchain Mining via Econometric Methods*
  City University of Hong Kong (Hong Kong, 11/2018), Hosted by Prof. Cong Wang
- *Frequency Sharing Study between 5G Micro-Cellular Systems and Fixed Service Systems in Millimeter-Wave Bands*
  Intel Communications and Devices Group (iCDG) [Cellular Modem TechTalk] (Santa Clara, CA, USA, 01/2016)
- *Status of Millimeter-Wave and Device-to-Device Research*
  Nokia Research Center at Berkeley (Berkeley, CA, USA, 08/2014)
- *Advanced Device-to-Device Video Streaming: Theory and Implementation*
  Qualcomm Research Center (San Diego, CA, USA, 02/2014)

Tutorials and Special Session Talks at Korean Research Societies

- *Deep Learning Computation for Economic Theory and Its Applications*; **2020 KICS Summer Conference Tutorial** (Yong Pyong, Korea, 08/2020)
- *Deep Learning Applications to Computer Networking*; **2020 KICS Winter Conference Tutorial** (Yong Pyong, Korea, 02/2020)
- *Deep Neural Network Basics*; **2020 KICS Winter Conference Tutorial** (Yong Pyong, Korea, 02/2020)
- *Artificial Intelligence Methods for Networks*; **2019 KICS Fall Conference Special Session Talk** (Seoul, Korea, 11/2019)
- *Explainable AI (XAI) and Imitation Learning for Automotive Applications*; **2019 IEEK Hyundai Motors Special Session** (Jeju, Korea, 06/2019)
- *Deep Learning Basics and Representative Models*; **2019 KIPS Spring Conference Tutorial** (Seoul, Korea, 05/2019)
- *Deep Learning Methods for Advanced Network*; **2019 KICS Winter Conference Tutorial** (Yong Pyong, Korea, 01/2019)
- *GPU Computing Platforms and Software for Deep Learning*; **2017 KICS Summer Conference Tutorial** (Jeju, Korea, 06/2017)
- *Dynamic Control and Software for Next-Generation Distributed Platforms*; **2017 KCC Special Session on New Research** (Jeju, Korea, 06/2017)
- *Machine Learning Techniques for Mobile Computing*; **2017 KICS Winter Conference Tutorial** (Jungsun, Korea, 01/2017)

Invited Talks at Korean Research Institutes

- *Network Performance Enhancement via Deep Reinforcement Learning*; **LG U+** (Seoul, Korea, 10/2019)
- *AI Seminar: Foundations and Business Cases*; **SK Broadband** (Seoul, Korea, 10/2019)
- *Deep Learning Methods for Advanced Networks*; **Korea Electronics Technology Institute (KETI)** (Pankyo, Korea, 02/2019)
- *Making Deep Neural Network Practical in Resource Constrained Computing Systems*; **ETRI** (Daejeon, Korea, 02/2018)
- *Dynamic Optimization for Reliable and Robust Deep Learning Systems*; **ETRI** (Daejeon, Korea, 02/2018)
- *Adaptive Lyapunov Control for Stabilized Learning Platforms*; **ETRI** (Daejeon, Korea, 07/2017)
- *GPU Computing Platforms and Software for Deep Learning*; **ETRI** (Daejeon, Korea, 07/2017)
- *Trends in Energy IT in Big-Data Era*; **Korea Electric Power Corporation (KEPCO) Research Institute** (Daejeon, Korea, 05/2017)
- *Stochastic Control of 60 GHz Links for Distributed Virtual Reality Network Platforms*; **ETRI** (Daejeon, Korea, 11/2016)
- *5G Wireless Platforms: Standards and Hardware/Software Prototyping*; **ETRI** (Daejeon, Korea, 10/2016)
- *Millimeter-Wave Radio Propagation, Beam Management, Systems, and Embedded Prototyping*; **ETRI** (Daejeon, Korea, 08/2016)
- *Intel's 5G Research with Millimeter-Wave Modular Antenna Arrays*; **ETRI** (Daejeon, Korea, 10/2014)
- *Issues and Solutions for Millimeter-Wave Network Technologies*; **Samsung Electronics - Memory Business** (Hwasung, Korea, 01/2013)

Invited Talks at Korean Universities (Selected)

- *Research Trends in Distributed Bigdata Platforms*; **Seoul National University Hospital** (Seoul, Korea, 04/2019)
- *Deep Reinforcement Learning Methods for Vehicular Networks*; **UNIST** (UIsan, Korea, 03/2019)
- *Deep Reinforcement Learning: Algorithms and Applications*; **Korea University** (Seoul, Korea, 02/2019)
- *Distributed Deep Learning Platform for Medical Big-Data*, **Seoul National University Hospital** (Seoul, Korea, 10/2018)
- *Wireless Video Streaming via Lyapunov Optimization*; **KAIST** (Daejeon, Korea, 05/2018)
- *BlockChain Technologies and Applications*; **Korea University** (Seoul, Korea, 03/2018)
- *Reinforcement Learning Theory and Implementation*; **Korea University** (Seoul, Korea, 02/2018)
- *Deep Learning Theory and Implementation*; **Korea University** (Seoul, Korea, 02/2018)
- *Systems Research for Data-Intensive Learning Computation*; **Korea University** (Seoul, Korea, 10/2017)
- *Trends in 5G Millimeter-Wave Wireless Networking Research*; **POSTECH** (Pohang, Korea, 05/2017)
- *Markov Decision Process*; **Korea University** (Seoul, Korea, 01/2017)
- *Frequency Sharing Study between 5G Small-Cell Systems and Fixed Service Systems in Millimeter-Wave Bands*; **DGIST** (Daegu, Korea, 07/2016)

- *Stochastic Scheduling and Streaming for Device-to-Device Video Delivery*; **Seoul National University** (Seoul, Korea, 06/2016)
- *Intel's 5G Research with Millimeter-Wave Modular Antenna Arrays*; **Korea University** (Seoul, Korea, 11/2014)
- *Elements of Next-Generation Wireless Video Systems: Millimeter-Wave and D2D Algorithms*; **Korea University** (Seoul, Korea, 10/2014)
- *Issues and Solutions for Millimeter-Wave Network Technologies*; **Korea University** (Seoul, Korea, 01/2013)

Special Lectures (Full/Half Day Presentation) at Research Institutes and Societies

- *Deep Reinforcement Learning: Algorithms, Software, Applications, and Trends*, **OSIA** (Seoul, Korea, 11/2019)
- *Deep Reinforcement Learning*; **KICS Workshop** (Daejeon, Korea, 10/2019)
- *Deep Learning Theory and Software*; **Korea Institute for Robot Industry Advancement** (Daegu, Korea, 08/2019)
- *Deep Learning Basics and Software*; **KICS Workshop** (Seoul, Korea, 08/2019)
- *Deep Learning Theory and Software*; **IEIE Special Lecture Series** (Seoul, Korea, 08/2019)
- *Machine Learning (Advanced)*; **Korea Institute of Robot and Convergence** (Seoul, Korea, 07/2019)
- *Deep Reinforcement Learning: from Basics to Autonomous Driving Applications*; **KICS Workshop** (Seoul, Korea, 07/2019)
- *Deep Learning Programming with TensorFlow/Keras*; **Korea Institute for Robot Industry Advancement** (Daegu, Korea, 07/2019)
- *Deep Reinforcement Learning*; **KIISE Information Networking Society** (Seoul, Korea, 05/2019)
- *Machine Learning for Data Analytics*; **Intelligent Transport Society of Korea (ITS Korea)** (Anyang, Korea, 04/2019)
- *Deep Learning Programming with TensorFlow/Keras*; **Korea Institute for Robot Industry Advancement** (Daegu, Korea, 02/2019)
- *Deep Learning Programming with TensorFlow*; **Korea Institute for Robot Industry Advancement** (Gumi, Korea, 09/2018)
- *Deep Reinforcement Learning: Algorithms and Applications*, **OSIA** (Seoul, Korea, 02/2019)
- *Deep Learning Theory and TensorFlow Implementation*, **Korean Institute of Broadcast and Media Engineers** (Seoul, Korea, 02/2019)
- *Deep Learning Programming with TensorFlow*, **Korea Institute for Robot Industry Advancement** (Gumi, Korea, 09/2018)
- *The 1st KICS Lecture on TensorFlow-based Deep Learning Programming*, **KICS Workshop** (Seoul, Korea, 06/2018)
- *Machine Learning Basics*, **KIISE Database Society - Big Data Technology Winter School** (Seoul, Korea, 02/2018)

Special Lectures (Full/Half Day Presentation) at Industry

- *Artificial Intelligence (A.I.) Practice*, **KTDS** (2019)
- *Deep Learning Theory and Software*, **KT Education Center for Artificial Intelligence** (2017, 2018, 2019), **SK C&C** (2018, 2019), **PoscoICT** (2018), **BC Card** (2019)
- *Deep Learning and Natural Language Processing*, **PoscoICT** (2018), **LGCNS** (2018, 2019)
- *Natural Language Processing with Deep Learning Practice*, **LGCNS** (2018, 2019)
- *Natural Language Processing with Deep Learning Workshop*, **LGCNS** (2018, 2019)
- *Machine Learning Theory and Practice*, **PoscoICT** (2017), **KT Education Center for Artificial Intelligence** (2017, 2018), **LGCNS** (2018), **Shinhan Card** (2018), **SK C&C** (2019)
- *Learning Inference*, **KT Education Center for Artificial Intelligence** (2018)
- *Statistics and Statistical Inference for Big-Data Analytics*, **LGCNS** (2018)
- *Python Programming and TensorFlow*, **KTDS** (2017)

Exhibition/Demonstration at Conferences and Public R&D Events

- *Mobile Edge mmWave Backhaul and Access*; **Mobile World Congress (MWC) 2016** (Barcelona, Spain, 02/2016)
- *mmWave MAA Client Access & Backhaul Platform*; **Intel 360 degree 2016** (Anaheim, CA, 02/2016)
- *mmWave MAA Client Access & Backhaul Platform*; **IEEE GLOBECOM 2015 (Industry Demonstration ID-14)** (San Diego, CA, 12/2015)
- *mmWave Modular Antenna Array Client Access & Backhaul Platform*; **Intel Asia Innovation Summit 2015** (Taipei, Taiwan, 10/2015)
- *Enabling 5G Densification*; **Intel Developer Forum (IDF) 2015** (San Francisco, CA, USA, 08/2015)
- *Enabling 5G Densification*; **Intel Design and Test Technology Conference (DTTC) 2015** (Portland, OR, USA, 08/2015)
- *Enabling 5G Densification*; **Mobile World Congress (MWC) 2015** (Barcelona, Spain, 03/2015)
- *mmWave Modular Antenna Array for Next-Generation Wireless Networks*; **IEEE GLOBECOM 2014 (Expo)** (Austin, TX, USA, 12/2014)
- *Adaptive Video Streaming for Device-to-Device Mobile Platforms*; **ACM MobiCom 2013** (Miami, FL, USA, 10/2013)

Conference Activities and Services

Conference Activities

- **OC Patronage Chair**, 2022 IEEE International Conference on Communications (ICC)
- **TPC**, 2020 IEEE Wireless Communications and Networking Conference (WCNC)
- **TPC**, 2020 IEEE WCNC Workshop on Aerial Communications in 5G and Beyond Networks (AERCOMM)
- **TPC Co-Chair**, 2020 IEEE International Conference on Artificial Intelligence in Information and Communication (ICAIIC)
- **TPC Vice Co-Chair**, 2020 IEEE International Conference on Information Networking (ICOIN)
- **OC Secretary**, 2019 IEEE International Conference on ICT Convergence (ICTC)
- **TPC**, 2019 ACM International Symposium on Mobile Ad-Hoc Networking and Computing (MobiHoc)
- **TPC**, 2019 IEEE International Conference on Distributed Computing Systems (ICDCS)
- **TPC**, 2019 IEEE Vehicular Technology Conference (VTC Spring)
- **TPC Co-Chair**, 2019 IEEE International Conference on Networking, Architecture, and Storage (NAS)
- **TPC**, 2019 IEEE International Conference on Blockchain (Blockchain)
- **TPC**, 2019 IEEE International Conference on Communications in China (ICCC), Wireless Networking Track
- **TPC Co-Chair**, 2019 IEEE International Conference on Artificial Intelligence in Information and Communication (ICAIIC)
- **OC Publication Chair**, 2019 IEEE International Conference on Artificial Intelligence in Information and Communication (ICAIIC)
- **TPC Vice Co-Chair**, 2019 IEEE International Conference on Information Networking (ICOIN)
- **TPC**, 2019 IEEE International Conference on Ubiquitous and Future Networks (ICUFN)
- **TPC**, 2019 European Conference on Antennas and Propagation (EuCAP)
- **OC Secretary**, 2018 IEEE International Conference on ICT Convergence (ICTC)
- **TPC**, 2018 IEEE International Conference on Wireless Communications and Signal Processing (WCSP)
- **TPC**, 2018 ACM AsiaCCS Workshop on Security in Cloud Computing (SCC)
- **OC Special Session Organizing Chair**, 2018 IEEE ICASSP Special Session on Cybersecurity and Privacy
- **TPC Vice Co-Chair**, 2018 IEEE International Conference on Information Networking (ICOIN)
- **OC Publication Vice Chair**, 2017 IEEE VTS Asia Pacific Wireless Communications Symposium (APWCS)

- **Organizer**, 2015 IEEE GLOBECOM Workshop on Millimeter-Wave Backhaul and Access (mmWave)
- **TPC**, 2016 IEEE Vehicular Technology Conference (VTC Spring), Recent Results Track
- **TPC**, 2016 IEEE International Conference on Ubiquitous and Future Networks (ICUFN)
- **TPC Chair**, 2015 IEEE GLOBECOM Workshop on Millimeter-Wave Backhaul and Access (mmWave)
- **TPC**, 2015 IEEE Vehicular Technology Conference (VTC Spring), Recent Results Track
- **TPC**, 2015 European Conference on Antennas and Propagation (EuCAP)
- **TPC**, 2014 IEEE Vehicular Technology Conference (VTC Fall), Recent Results Track
- **TPC**, 2012 IEEE MASS Workshop on Internet of Things Technology and Architectures (IoTech)
- **Session Chairs**
  – 2018 IEEE International Conference on ICT Convergence (ICTC)
  – 2018 IEEE ICASSP Special Session on Cybersecurity and Privacy
  – 2015 IEEE GLOBECOM Workshop on Millimeter-Wave Backhaul and Access (mmWave)

References

- **Prof. Andreas F. Molisch**, *Ph.D. Research and Dissertation Advisor*
  – Solomon Golomb – Andrew and Erna Viterbi Chair at the University of Southern California (Los Angeles, California, USA)
  – Professor of Electrical and Computer Engineering at the University of Southern California (Los Angeles, California, USA)
  – URL: `https://wides.usc.edu/founder.html`
- **Prof. Wonjun Lee**, *M.S. Research and Thesis Advisor*
  – Professor of Information Security at Korea University (Seoul, Republic of Korea)
  – URL: `http://netlab.korea.ac.kr/wlee/`