

**Associate Professor**, Korea University – School of Electrical Engineering, Seoul, Republic of Korea

**Vice Director**, Korea University – Artificial Intelligence Engineering Research (KU-AIER) Center, Seoul, Republic of Korea

**Associate Editor**, *IEEE Transactions on Vehicular Technology*

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## Positions

### Korea University

- **Associate Professor – Faculty Member (09/2019–): School of Electrical Engineering**
  - *Director (09/2019–):* Artificial Intelligence and Mobility (AIM) Laboratory
  - *Adjunct Professor (03/2021–):* Department of Semiconductor Engineering
  - *Adjunct Professor (09/2019–):* Department of Electrical and Computer Engineering (Graduate School)
- **Vice Director (10/2019–):** Artificial Intelligence Engineering Research Center
- **Organizing Committee (07/2021–06/2022):** Institute of Data Science (IDS)

### Academia

- **Senior Member (2018–), IEEE**
    - *Member:* IEEE Communications Society, IEEE Vehicular Technology Society, etc
  - **Life Member (2018–), Korean Institute of Communications and Information Sciences (KICS)**
  - **Life Member (2019–), Korean Institute of Information Scientists and Engineers (KIISE)**
  - **Associate Editor (2020–), IEEE Transactions on Vehicular Technology**
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## 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 Cybersecurity)
    - B.S. (03/1999–02/2004) in Computer Science and Engineering
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## Awards and Honors

### Research and Academic Excellence (International)

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|---|---------|
| • <b>Best Paper Award</b> – 2021 <i>IEEE International Conference on Information Networking (ICOIN)</i><br>"Infrastructure-Assisted Cooperative Multi-UAV Deep Reinforcement Energy Trading Learning for Big-Data Processing"   | 01/2021 |
| • <b>Bronze Paper Award</b> – 2020 <i>IEEE Seoul Section Student Paper Contest</i><br>"Reliable Offloading Target Selection using Deep Reinforcement Learning for Large Fire Accident"  | 12/2020 |
| • <b>IEEE Systems Journal Best Paper Award (Top 7 among 793 accepted papers in 2019: 0.88%)</b> – <i>IEEE Systems Council</i><br>"Towards Characterizing Blockchain-based Cryptocurrencies for Highly-Accurate Predictions"   | 03/2020 |
| • <b>Gold Paper Award</b> – 2019 <i>IEEE Seoul Section Student Paper Contest</i><br>"Stabilized Super-Resolution Deep Learning Adaptation for UAV-Assisted Mobile Edges: A Lyapunov Optimization Approach"  | 12/2019 |
| • <b>IEEE Vehicular Technology Society (VTS) Seoul Chapter Award</b> – 2019 <i>IEEE Asia Pacific Wireless Communications Symposium</i><br>"Joint Offloading and Streaming in Mobile Edges: A Deep Reinforcement Learning Approach"  | 08/2019 |
| • <b>Next Generation and Standards (NGS) Division Recognition Award</b> – <i>Intel Corporation</i><br>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) | Q1/2015 |
| • <b>Annenberg Graduate Fellowship Award</b> – <i>University of Southern California</i><br>Awarded with Ph.D. Admission – 4 Year Full Scholarship (\$30,000/year for 4 years, i.e., \$120,000)  | 02/2009 |

### Research and Academic Excellence (Korea Regional)

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|--|---------|
| • <b>Encouragement Paper Award</b> – 2020 <i>KICS Fall Conference</i><br>"UAV Trajectory Optimization via Multi-Agent Deep Reinforcement Learning"   | 11/2020 |
| • <b>Encouragement Paper Award</b> – 2020 <i>KICS Summer Conference</i><br>"3D Modeling and WebVR Implementation Using Azure Kinect, Open3D, and Three.js"   | 08/2020 |
| • <b>Encouragement Paper Award</b> – 2020 <i>KICS Winter Conference</i><br>"Quantum Heuristic Solver using QAOA for the Maximum Independent Set Problem"   | 02/2020 |
| • <b>Encouragement Paper Award</b> – 2020 <i>KICS Winter Conference</i><br>"Multi-Drone Scheduling for High-Reliable and High-Performance UAV-based Surveillance Networking"                       | 02/2020 |
| • <b>Outstanding Contribution Award</b> – <i>KICS</i>  | 11/2019 |
| • <b>Haedong Young Scholar Award</b> – <i>KICS and Haedong Foundation</i><br>For recognizing a researcher under the age of 40 who has made outstanding contributions to communication sciences R&D | 12/2018 |
| • <b>Outstanding Research Paper Award</b> – <i>LG Electronics CTO Office, Multimedia Research Laboratory</i>   | 01/2008 |
| • <b>RFID Expert Group President Award</b> – <i>The 3rd RFID/USN Research Paper Contest</i>  | 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

- **Best Teaching Award** – *Korea University* (Computer Language and Laboratory, EGRN151) Fall 2020
- **Granite Tower (Seok-Tap) Best Teaching Award** – *Korea University* (Computer Language and Laboratory, EGRN151) Fall 2019

## R&D Positions

### Full-Time Positions

- **Korea University – College of Engineering**, Seoul, Republic of Korea
  - Associate Professor (03/2021–), School of Electrical Engineering
  - Adjunct Professor (03/2021–), Department of Semiconductor Engineering
  - Assistant Professor (09/2019–02/2021), School of Electrical Engineering
- **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
- **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)

### Advisory and Consulting Positions

- **Samsung Electronics (C-Lab), Seoul National University R&D Center**, Seoul, Republic of Korea
  - Advisory Professor (02/2020–08/2020), Nonlinear Regression Deep Learning Algorithm Design and Implementation

## R&D Projects

### University/Center-Level Projects

- **Intelligent 6G Wireless Access System Research Center** 04/2021–12/2025  
Funded by *Institute for Information and Communications Technology Promotion (IITP)* xxx, Grant: \$xxx,xxx; Co-PI]
- **Nano UAV Intelligence Systems Research Lab (NUiSRL)** 10/2020–12/2022  
Funded by *Agency for Defense Development (ADD)*  
– ADD Military Special Research Center, PI: Kwangwoon University (Korea)
- **5G/Unmanned Vehicle Research Center (5G/UV-RC)** 06/2020–12/2022  
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

- **K-Starlink: Dynamic Reconfigurable and Intelligent Space-Terrestrial Networks** 06/2021–05/2024  
Funded by *National Research Foundation of Korea (Basic Research Lab)* [xxx, Grant: \$xxx,xxx; Co-PI]
- **Integrated Perception Technology Developments for Public Safety Platforms** 06/2019–05/2023  
Funded by *National Research Foundation of Korea* [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

- **Mapping between Real World and Virtual Reality (VR) for End-Edged Cloud Real-Time VR Servers** 09/2020–09/2021  
Funded by *Samsung Electronics – Samsung Advanced Institute of Technology* [Grant: \$71,500; Primary-PI]
- **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

- **Research on Intelligent Agent-based CPS Security and Reliability** 05/2021–11/2021  
Funded by *Telecommunications Technology Association (TTA)* [xxx, Grant: \$50,000; Primary-PI]
- **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: 4348+, H-Index: 28+, i10-Index: 112+; obtained from Google Scholar Profile (as of May 16, 2021)

## 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

- Deep Learning Recipes for Connected and Autonomous Vehicles (CAV) Coordination and Control, *Deep Learning and Its Applications for Vehicle Networks*, CRC Press Taylor and Francis Group, Month Year. (Editor: F. Hu) (w/ S. Jung)
- Stochastic Decision Making under Uncertainty using Deep Learning, *Decision Making*, IntechOpen, Month Year., (Editor: F.P.G. Márquez) (w/ S. Jung)
- Dynamic Decision-Making for Stabilized Deep Learning Software Platforms, *Advances and Applications in Deep Learning*, IntechOpen, September 2020., (Editor: M.A. Aceves-Fernandez) (w/ S. Park, D. Kim)
- 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)

- 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)
- 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)
- 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)
- 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, 97 publications

### ■ IEEE, 56 publications

- [Access.major] Millimeter-Wave Beam Trading for Smart Ocean IoT Networks via Learning-Assisted Auction, *IEEE Access*, v(n):ppp-ppp, Month Year. (S. Jung, M. Shin, J. Kim, W. Lee)
- [TITS.major] Self-Configurable Stabilized Real-Time Detection Learning for Autonomous Driving Applications, *IEEE Transactions on Intelligent Transportation Systems*, v(n):ppp-ppp, Month Year. (W.J. Yun, S. Park, J. Kim, D. Mohaisen)
- [TVT.major] Quality-Aware Deep Reinforcement Learning for Streaming in Infrastructure-Assisted Connected Vehicles, *IEEE Transactions on Vehicular Technology*, v(n):ppp-ppp, Month Year. (W.J. Yun, D. Kwon, M. Choi, J. Kim, G. Caire, A.F. Molisch)
- [TVT.major] Infrastructure-Assisted On-Driving Experience Sharing for Millimeter-Wave Connected Vehicles, *IEEE Transactions on Vehicular Technology*, v(n):ppp-ppp, Month Year. (S. Jung, J. Kim, M. Levorato, C. Cordeiro, J.-H. Kim)
- [ISJ.minor] Securing Heterogeneous IoT with Intelligent DDoS Attack Behavior Learning, *IEEE Systems Journal*, v(n):ppp-ppp, Month Year. (N.-N. Dao, T. Phan, U. Sa'ad, J. Kim, T. Bauschert, D.-T. Do, S. Cho)
- [TMC.accept] Supremo: Cloud-Assisted Low-Latency Super-Resolution in Mobile Devices, *IEEE Transactions on Mobile Computing*, v(n):ppp-ppp, Month Year. (J. Yi, S. Kim, J. Kim, S. Choi)
- [ISJ.accept] LiteZKP: Lightning Zero-Knowledge Proof-based Blockchains for IoT and Edge Platforms, *IEEE Systems Journal*, v(n):ppp-ppp, Month Year. (E. Boo, J. Kim, J. Ko)
- [ISJ.accept] Intelligent Active Queue Management for Stabilized QoS Guarantees in 5G Mobile Networks, *IEEE Systems Journal*, 15(2):ppp-ppp, June 2021. (S. Jung, J. Kim, J.-H. Kim)
- [TMC'21.06] A Personalized Preference Learning Framework for Caching in Mobile Networks, *IEEE Transactions on Mobile Computing*, 20(6):2124–2139, June 2021. (A. Malik, K.S. Kim, J. Kim, W.-Y. Shin)
- [TVT'21.06] Orchestrated Scheduling and Multi-Agent Deep Reinforcement Learning for Cloud-Assisted Multi-UAV Charging Systems, *IEEE Transactions on Vehicular Technology*, 70(6):ppp-ppp, June 2021. (S. Jung, W.J. Yun, M. Shin, J. Kim, J.-H. Kim)
- [PIEEE'21.05] Communication-Efficient and Distributed Learning Over Wireless Networks: Principles and Applications, *Proceedings of the IEEE*, 109(5):796–819, May 2021. (J. Park, S. Samarakoon, A. Elgabri, J. Kim, M. Bennis, S.-L. Kim, M. Debbah)
- [TWC'21.04] Probabilistic Caching and Dynamic Delivery Policies for Categorized Contents and Consecutive User Demands, *IEEE Transactions on Wireless Communications*, 20(4):2685–2699, April 2021. (M. Choi, A.F. Molisch, D.-J. Han, D. Kim, J. Kim, J. Moon)
- [JCN'21.04] Stabilized Adaptive Sampling Control for Reliable Real-Time Learning-based Surveillance Systems, *Journal of Communications and Networks*, 23(2):128–136, April 2021. (D. Kim, S. Park, J. Kim, J.y. Bang, S. Jung)
- [JCN'21.04] Dynamic Video Delivery using Deep Reinforcement Learning for Device-to-Device Underlaid Cache-Enabled Internet-of-Vehicle Networks, *Journal of Communications and Networks*, 23(2):116–127, April 2021. (M. Choi, M. Shin, J. Kim)
- [ISJ'21.03] Multiscale LSTM-Based Deep Learning for Very-Short-Term Photovoltaic Power Generation Forecasting in Smart City Energy Management, *IEEE Systems Journal*, 15(1):346–354, March 2021. (D. Kim, D. Kwon, L. Park, J. Kim, S. Cho)
- [TWC'20.12] Joint Distributed Link Scheduling and Power Allocation for Content Delivery in Wireless Caching Networks, *IEEE Transactions on Wireless Communications*, 19(12):7810–7824, December 2020. (M. Choi, A.F. Molisch, J. Kim)
- [IOTJ'20.10] Multiagent DDPG-Based Deep Learning for Smart Ocean Federated Learning IoT Networks, *IEEE Internet of Things Journal*, 7(10):9895–9903, October 2020. (D. Kwon, J. Jeon, S. Park, J. Kim, S. Cho)
- [JCN'20.08] Self-Adaptive Power Control with Deep Reinforcement Learning for Millimeter-Wave Internet-of-Vehicles Video Caching, *Journal of Communications and Networks*, 22(4):326–337, August 2020. (D. Kwon, J. Kim, 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. (M. Choi, J. Kim)
- [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. (M. Shin, D.-H. Choi, J. Kim)
- [ISJ'20.03] Towards Characterizing Blockchain-based Cryptocurrencies for Highly-Accurate Predictions, *IEEE Systems Journal*, 14(1):321–332, March 2020. (M. Saad, J. Choi, D. Nyang, J. Kim, 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, *Journal of Communications and Networks*, 22(1):37–45, February 2020. (S. Han, J.-W. Choi, J. Kim)
- [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. (M. Choi, A. No, M. Ji, J. Kim)
- [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. (M. Choi, J. Kim, 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. (L. Park, C. Lee, J. Kim, 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. (M. Choi, D. Yoon, J. Kim)
- [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. Lee, T. Kang, J.-J. Lee, K. Han, J. Kim, 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. (J. Koo, J. Yi, J. Kim, 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. (M. Shin, J. Kim, 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. (L. Park, S. Jeong, D.S. Lakew, J. Kim, 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. (L. Park, S. Jeong, J. Kim, 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. (S. Jeong, W. Na, J. Kim, 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. (N.-N. Dao, D.-N. Vu, W. Na, J. Kim, 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. (M. Choi, J. Kim, 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. (S. Ahn, J. Kim, 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. (M. Choi, J. Kim, 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. Na, J. Park, C. Lee, K. Park, J. Kim, 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. (L. Park, Y. Jang, S. Cho, J. Kim)
- [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. (J. Kim, W. Lee)
- [Access'17.09] A Software-based Monitoring Framework for Time-Space Partitioned Avionics Systems, *IEEE Access*, 5:19132–19143, September 2017. (C. Shin, C. Lim, J. Kim, 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. (J. Kim, 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. (N.-N. Dao, J. Lee, D.-N. Vu, J. Paek, J. Kim, 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. (S. Lee, S. Hyeon, J. Kim, 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. (J. Kim, 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. (J. Kim, 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. (J. Kim, G. Caire, A.F. Molisch), (*Selected as one of Best Reading Papers in Device-to-Device Communications by IEEE Communications Society*), (*Citations: 100+*)
- [TII'15.12] Energy-Efficient Dynamic Packet Downloading for Medical IoT Platforms, *IEEE Transactions on Industrial Informatics*, 11(6):1653–1659, December 2015. (J. Kim)
- [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. (J. Kim, W. Lee)
- [JCN'14.10] Fast Millimeter-Wave Beam Training with Receive Beamforming, *Journal of Communications and Networks*, 16(5):512–522, October 2014. (J. Kim, 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. (S.-N. Hong, J. Kim)
- [CL'14.07] A Low-Complexity Algorithm for Neighbor Discovery in Wireless Networks, *IEEE Communications Letters*, 18(7):1119–1122, July 2014. (S.-N. Hong, J. Kim)
- [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. (J. Kim, 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. (J. Kim, 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. Lee, E. Kim, J. 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. (J. Kim, 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. (J. Kim, W. Lee, E. Kim, D. Kim, K. Suh)

#### ■ non-IEEE, 41 publications

- [ICTE'21.m] Truthful Electric Vehicle Charging via Neural-Architectural Myerson Auction, *ICT Express*, 7(n):ppp–ppp (2021). (w/ H. Lee, S. Jung)
- [IET'21.m] Empirically Comparing the Performance of Blockchain's Consensus Algorithms, *IET Blockchain*, v(n):ppp–ppp (2021). (w/ A. Ahmad, A. Alabduljabbar, M. Saad, D. Nyang, D. Mohaisen)
- [Electronics'21.04] Multi-behavior with Bottleneck Features LSTM for Load Forecasting in Building Energy Management System, *Electronics*, 10(9):1026 (2021). (w/ V. Bui, N.T. Le, V.H. Nguyen, Y.M. Jang)
- [JNCA'21.04] Contra-\*. Mechanisms for Countering Spam Attacks on Blockchain's Memory Pools, *Journal of Network and Computer Applications*, 179:102971 (2021). (w/ M. Saad, D. Nyang, D. Mohaisen)
- [ICTE'21.03] Distributed Deep Reinforcement Learning for Autonomous Aerial eVTOL Mobility in Drone Taxi Applications, *ICT Express*, 7(1):1–4 (2021). (w/ W.J. Yun, S. Jung, J.-H. Kim)
- [Electronics'21.02] Coordinated Multi-Agent Deep Reinforcement Learning for Energy-Aware UAV-based Big-Data Platforms, *Electronics*, 10(5):543 (2021). (w/ S. Jung, W.J. Yun, J.-H. Kim)

- [Sensors'21.02] Large-Scale Water Quality Prediction Using Federated Sensing and Learning: A Case Study with Real-World Sensing Big-Data, *Sensors*, 21(4):1462 (2021). (w/ S. Park, S. Jung, H. Lee, J.-H. Kim)
- [Electronics'20.10] Energy-Efficient Cluster Head Selection via Quantum Approximate Optimization, *Electronics*, 9(10):1669 (2020). (w/ J. Choi, S. Oh)
- [AppSci'20.10] Quantum Approximation for Wireless Scheduling, *Applied Sciences*, 10(20):7116 (2020). (w/ J. Choi, S. Oh)
- [Sustain'20.10] Faster Data Forwarding in Content-Centric Network via Overlaid Packet Authentication Architecture, *Sustainability*, 12(20):8746 (2020). (w/ T.-Y. Youn, D. Mohaisen, S. Seo)
- [Electronics'20.09] Joint Message-Passing and Convex Optimization Framework for Energy-Efficient Surveillance UAV Scheduling, *Electronics*, 9(9):1475 (2020). (w/ S. Jung, J.-H. Kim)
- [Electronics'20.08] Optimal User Selection for High-Performance and Stabilized Energy-Efficient Federated Learning Platforms, *Electronics*, 9(9):1359 (2020). (w/ J. Jeon, S. Park, M. Choi, Y.-B. Kwon, S. Cho)
- [EAI'20.06] Self-Controllable Super-Resolution Deep Learning Framework for Surveillance Drones in Security Applications, *EAI Endorsed Transactions on Security and Safety*, 7(23):e5 (2020). (w/ S. Park, Y. Kang, J. Park)
- [ETRI'20.04] Simulation and Measurement: Feasibility Study of Tactile Internet Applications for mmWave Virtual Reality, *ETRI Journal*, 42(2):163–174 (2020). (w/ W. Na, N.-N. Dao, E.-S. Ryu, S. Cho)
- [AppSci'20.03] Weather-Aware Long-Range Traffic Forecast Using Multi-Module Deep Neural Network, *Applied Sciences*, 10(6):1938 (2020). (w/ S. Ryu, D. Kim)
- [AppSci'20.03] Adaptive Real-Time Offloading Decision Making for Mobile Edges: Deep Reinforcement Learning Framework and Simulation Results, *Applied Sciences*, 10(5):1663 (2020). (w/ S. Park, D. Kwon, Y.K. Lee, S. Cho)
- [JAIHC'20.01] A Novel Network Virtualization based on Data Analytics in Connected Environment, *Journal of Ambient Intelligence and Humanized Computing*, 11(1):75–86 (2020). (w/ K.-H.N. Bui, S. Cho, J.J. Jung, O.-J. Lee, W. Na)
- [WPC'19.08] Semantic Hashtag Relation Classification Using Co-occurrence Word Information, *Wireless Personal Communications*, 107(3):1355–1365 (2019). (w/ S. Seo, J.-K. Kim, S.-I. Kim, J. Kim)
- [AppSci'19.06] Personalized Online Live Video Streaming using Softmax-based Multinomial Classification, *Applied Sciences*, 9(11):2297 (2019). (w/ K. Kim, D. Kwon, A. Mohaisen)
- [FGCS'19.04] Resource-Aware Relay Selection for Inter-Cell Interference Avoidance in 5G Heterogeneous Network for Internet of Things Systems, *Future Generation Computer Systems*, 93:877–887 (2019). (w/ N.-N. Dao, M. Park, J. Paek, S. Cho)
- [TETT'19.04] Thriving on Chaos: Proactive Detection of Command and Control Domains in Internet of Things-Scale Botnets using DRIFT, *Wiley Transactions on Emerging Telecommunications Technologies*, 30(4):e3505 (2019). (w/ J. Spaulding, J. Park, D. Nyang, A. Mohaisen)
- [EAI'18.12] Network-based Analysis and Classification of Malware using Behavioral Artifacts Ordering, *EAI Endorsed Transactions on Security and Safety*, 5(16):e2 (2018). (w/ A. Mohaisen, O. Alrawi, J. Park, D. Nyang, M. Mohaisen)
- [Sensors'18.10] Interference-Aware Adaptive Beam Alignment for Hyper-Dense IEEE 802.11ax Internet-of-Things Networks, *Sensors*, 18(10):3364 (2018). (w/ D. Kwon, S.-W. Kim, A. Mohaisen)
- [RTIP'17.09] QoS Optimal Real-Time Video Streaming in Distributed Wireless Image-Sensing Platforms, *Journal of Real-Time Image Processing*, 13(3):547–556 (2017). (w/ E.-S. Ryu)
- [Energies'17.09] A High-Efficient Low-Cost Converter for Capacitive Wireless Power Transfer Systems, *Energies*, 10(9):1437 (2017). (w/ I.-O. Lee, W. Lee)
- [PLOS'17.08] Adaptive MCS Selection and Resource Planning for Energy-Efficient Communication in LTE-M based IoT Sensing Platform, *PLoS ONE*, 12(8):e0182527 (2017). (w/ N.-N. Dao, M. Park, S. Cho)
- [IJDSN'17.08] Distributed and Reliable Decision-Making for Cloud-Enabled Mobile Service Platforms, *International Journal of Distributed Sensor Networks*, 13(8):1–9 (2017). (w/ A. Mohaisen)
- [IJAP'17.06] 60 GHz Modular Antenna Array (MAA) Link Budget Estimation with WiGig Baseband and Millimeter-Wave Specific Attenuation, *International Journal of Antennas and Propagation*, 9073465 (2017). (w/ L. Xian, A.S. Sadri)
- [MIS'17.03] Strategic Control of 60 GHz Millimeter-Wave High-Speed Wireless Links for Distributed Virtual Reality Platforms, *Mobile Information Systems*, 5040347 (2017). (w/ J.-J. Lee, W. Lee)
- [IJAP'16.12] Enhanced Next Generation Millimeter-Wave Multicarrier System with Generalized Frequency Division Multiplexing, *International Journal of Antennas and Propagation*, 9269567 (2016). (w/ H. Shimodaira, A.S. Sadri)
- [PLOS'16.12] Achievable Rate Estimation of IEEE 802.11ad Visual Big-Data Uplink Access in Cloud-Enabled Surveillance Applications, *PLoS ONE*, 11(12):e0167447 (2016). (w/ J.-K. Kim)
- [RTIP'16.08] Stochastic Stable Buffer Control for Quality-Adaptive HEVC Video Transmission in Enterprise WLAN Architectures, *Journal of Real-Time Image Processing*, 12(2):465–471 (2016). (w/ E.-S. Ryu)
- [PLOS'16.08] Adaptive Suspicious Prevention for Defending DoS Attacks in SDN-based Convergent Networks, *PLoS ONE*, 11(8):e0160375 (2016). (w/ N.-N. Dao, M. Park, S. Cho)
- [MTAP'15.10] Interference Impacts on 60 GHz Real-Time Online Video Streaming in Wireless Smart TV Platforms, *Multimedia Tools and Applications*, 74(19):8613–8629 (2015). (w/ S.-N. Hong)
- [IJEC'15.07] Error Concealment Mode Signaling for Robust Mobile Video Transmission, *International Journal of Electronics and Communications*, 69(7):1070–1073 (2015). (w/ E.-S. Ryu)
- [TS'15.05] Dynamic Two-Stage Beam Training for Energy-Efficient Millimeter-Wave 5G Cellular Systems, *Telecommunication Systems*, 59(1):111–122 (2015). (w/ S.-N. Hong)
- [CAEE'15.04] Adaptive Buffer Control for Distributed Autonomous Robust Routing in Mobile Surveillance Robots, *Computers and Electrical Engineering*, 43:306–316 (2015). (w/ S.-N. Hong)
- [EL'14.10] Quality of Video Streaming in 38 GHz Millimetre-Wave Heterogeneous Cellular Networks, *IET Electronics Letters*, 50(21):1526–1528 (2014). (w/ E.-S. Ryu)
- [IJDSN'14.03] Quality Analysis of Massive High-Definition Video Streaming in Two-Tiered Embedded Camera-Sensing Systems, *International Journal of Distributed Sensor Networks*, 634191 (2014). (w/ E.-S. Ryu)
- [SCR'13.12] The Sybil Attacks and Defenses: A Survey, *Smart Computing Review*, 3(6):480–489 (2013). (w/ A. Mohaisen)
- [EL'13.02] Distributed Stochastic Buffering for Enterprise WLAN Architectures, *IET Electronics Letters*, 49(4):302–304 (2013). (w/ E.-S. Ryu)

## Conference and R&D Event Contributions (Selected)

### ■ Top-Tier Conference, Top-Tier Workshop, and Awarded Proceeding Papers

- [ICOIN'21] Infrastructure-Assisted Cooperative Multi-UAV Deep Reinforcement Energy Trading Learning for Big-Data Processing

(S. Jung, W.J. Yun, J. Kim, J.-H. Kim), (**Best Paper Award**)

- [ICDCS'20] Understanding the Potential Risks of Sharing Elevation Information on Fitness Applications (Ü. Meteriz, N.F. Yildiran, J. Kim, D. Mohaisen), (**17.98% (105/584)**)
- [ICML'20] XOR Mixup: Privacy-Preserving Data Augmentation for One-Shot Federated Learning (M. Shin, C. Hwang, J. Kim, J. Park, M. Bennis, S.-L. Kim), *ICML Workshop on Federated Learning for User Privacy and Data Confidentiality*
- [IJCAI'19] Randomized Adversarial Imitation Learning for Autonomous Driving (M. Shin, J. Kim), (**17.89% (850/4752)**)
- [APWCS'19] Joint Offloading and Streaming in Mobile Edges: A Deep Reinforcement Learning Approach (S. Park, J. Kim, D. Kwon, M. Shin, J. Kim), (**IEEE Vehicular Technology Society (VTS) Seoul Chapter Award**)
- [ICML'19] Adversarial Imitation Learning via Random Search in Lane Change Decision-Making (M. Shin, J. Kim), *ICML Workshop on Artificial Intelligence for Autonomous Driving*
- [CCS'18] Secure Compute-VM: Secure Big Data Processing with SGX and Compute Accelerators (S. Yoo, H. Kim, J. Kim), *ACM CCS Workshop on System Software for Trusted Execution*
- [ICDCS'18] ShmCaffe: A Distributed Deep Learning Platform with Shared Memory Buffer for HPC Architecture (S. Ahn, J. Kim, E. Lim, W. Choi, A. Mohaisen, S. Kang), (**20.63% (78/378)**)
- [MobiSys'18] Neural Network Syntax Analyzer for Embedded Standardized Deep Learning (M. Shin, J. Kim, A. Mohaisen, J. Park, K.H. Lee), *ACM MobiSys Workshop on Embedded and Mobile Deep Learning*
- [MM'17] REQUEST: Seamless Dynamic Adaptive Streaming over HTTP for Multi-Homed Smartphone under Resource Constraints (J. Koo, J. Yi, J. Kim, M.A. Hoque, S. Choi), (**27.63% (189/684)**)
- [SOSP'17] A Reliable, Self-Adaptive Face Identification Framework via Lyapunov Optimization (D. Kim, J.Y. Bang, J. Kim), *ACM SOSP Workshop on A.I. Systems*
- [MobiSys'10] Energy-Efficient Rate-Adaptive GPS-based Positioning for Smartphones (J. Paek, J. Kim, R. Govindan), (**19.84% (25/126)**), (**Citations: 600+**)

### ■ Conference Contributions

- [ISWCS'21] *Semantic communicative multi-agent reinforcement learning: Theory and its applications to URLLC networks* (w/ W.J. Yun, B. Lee, S. Jung, J. Park, M. Bennis, Y.-C. Ko)
- [SMC'21] *Multi-agent deep reinforcement learning using attentive graph neural architectures for real-time strategy games* (w/ W.J. Yun, S. Yi)
- [DSN'21] *Spatio-temporal split learning* (w/ S. Park, S. Jung, S. Yoo), *Supplemental Volume*
- [ITC-CSCC'21] *Noise rejection in mmWave radar images using deep learning image processing methods* (w/ H. Baek, Y.J. Ha, S. Jung)
- [ITC-CSCC'21] *CNN-based hand gesture recognition using mmWave radar* (w/ M. Yoo, Y.J. Ha, S. Jung)
- [ITC-CSCC'21] *Deep learning auction for truthful secure UAV networking* (w/ H. Lee, S. Jung)
- [INFOCOM'21] *Visualization of deep reinforcement autonomous aerial mobility learning simulations* (w/ G. Lee, W.J. Yun, S. Jung, J.-H. Kim), *Demo*
- [ICOIN'21] *Quantum convolutional neural network for resource-efficient image classification: A quantum random access memory (QRAM) approach* (w/ S. Oh, J. Choi, J.-K. Kim)
- [ICOIN'21] *A tutorial on quantum graph recurrent neural network (QGRNN)* (w/ J. Choi, S. Oh)
- [ICOIN'21] *Proper cost Hamiltonian design for combinatorial optimization problems: A Boolean function approach* (w/ J. Choi, S. Oh, S. Park, J.-K. Kim)
- [ICOIN'21] *Non-local self-attention mechanism for real-time context embedding deep shadow removal network* (w/ D. Kim)
- [ICOIN'21] *Performance comparison of SRCNN, VDSR, and SRDenseNet deep learning models in embedded autonomous driving platforms* (w/ M. Shin, D. Kim, S. Park, Y. Kang, J. Kim, H. Lee, W.J. Yun, J. Choi, S. Park, S. Oh, J. Yoo)
- [ICOIN'21] *On the tradeoff between computation-time and learning-accuracy in GAN-based super-resolution deep learning* (w/ J.Y. Shim, J.-K. Kim)
- [ICOIN'21] *Auction-based truthful distributed resource allocation for smart grid systems* (w/ H. Ahn, J. Kim)
- [ICOIN'21] *Auction-based deep learning computation offloading for truthful edge computing: A Myerson auction approach* (w/ H. Lee, S. Park, J. Kim)
- [ICOIN'21] *Access management using Vickrey-Clarke-Groves auction in terrestrial-drone networks* (w/ J. Kim)
- [ICOIN'21] *Joint behavioral cloning and reinforcement learning method for Propofol and Remifentanyl infusion in Anesthesia* (w/ M. Shin)
- [ICOIN'21] *Performance evaluation of consensus protocols in blockchain-based audit systems* (w/ A. Ahmad, M. Saad, D. Nyang, D. Mohaisen)
- [ICOIN'21] *Efficient data delivery in content-centric network with stronger privacy of publisher* (w/ T.-Y. You, S.C. Seo)
- [ICOIN'21] *Bitcoin price forecasting via ensemble-based LSTM deep learning networks* (w/ M. Shin, D. Mohaisen)
- [ICOIN'21] *Generative adversarial attacks on fingerprint recognition systems* (w/ H.W. Kwon, J. Nam, Y.K. Lee)
- [ICPR'20] *S2I-Bird: Sound-to-image generation of bird species using generative adversarial networks* (w/ J.Y. Shim, J.-K. Kim)
- [QTML'20] *A quantum approach to the minimum dominating set problem* (w/ J. Choi, S. Oh, S. Park), *Poster*
- [ICTC'20] *On the performance of generative adversarial network (GAN) variants: A clinical data study* (w/ J. Yoo, J. Park, A. Wang, D. Mohaisen)
- [ICTC'20] *3D modeling and WebVR implementation using Azure Kinect, Open3D, and Three.js* (w/ W.J. Yun)
- [ICTC'20] *A tutorial on quantum convolutional neural networks (QCNN)* (w/ S. Oh, J. Choi)
- [ICTC'20] *Video placements and dynamic streaming services in wireless caching networks* (w/ M. Choi)
- [ICTC'20] *Economic theoretic LEO satellite coverage control: An auction-based framework* (w/ J. Kim, T.D. Ngo, P.S. Oh, S. Kwon, C. Han)
- [ICTC'20] *Reinforced edge selection using deep learning for robust surveillance in unmanned aerial vehicles* (w/ S. Park, J. Park, D. Mohaisen)
- [ICTC'20] *Kirchhoff's circuit law applications to graph simplification in search problems* (w/ J. Choi)
- [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, et. al.)
- [ICAII'20] *Power demand forecasting using long short-term memory neural network for smart grid* (w/ V.H. Nguyen, V. Bui, Y.M. Jang)
- [ICAII'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)
- [ICCV'19] *Deep multi-modal unsupervised pen pressure stylization* (w/ D. Kim), *Demo*
- [QTML'19] *A quantum approach to max-weight independent set problem* (w/ J. Choi), *Poster*
- [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)
- [DSN'19] *Privacy-preserving deep learning computation for geo-distributed medical big-data platforms* (w/ J. Jeon, et. al.), *Supplemental Volume*
- [MobiSys'19] *Demo: Light-weight programming language for blockchain* (w/ J. Kim), *Demo*
- [MobiSys'19] *Poster: Multi-agent deep reinforcement learning for connected vehicles* (w/ D. Kwon, S. Park), *Poster*
- [5GWF'19] *PriMO-5G: Making firefighting smarter with immersive videos through 5G* (w/ K.W. Sung, et. al.)
- [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, et. al.), **(19.61% (30/153))**
- [ICAII'19] *Cyclic parameter sharing for privacy-preserving distributed deep learning platforms* (w/ J. Jeon, D. Kim)
- [ICAII'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)
- [SECON'18] *Recipient-oriented transaction for preventing double spending attacks in private blockchain* (w/ H. Lee, M. Shin, K.S. Kim, Y. Kang), *Poster*
- [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)
- [AsiaCCS'18] *POSTER: Mining with proof-of-probability in blockchain* (w/ S. Kim), *Poster*
- [ICSE'18] *Poster: A novel shared memory framework for distributed deep learning in high-performance computing architecture* (w/ S. Ahn, S. Kang), *Companion Volume*
- [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, et. al.)
- [PAC'17] *Dynamic security-level maximization for stabilized parallel deep learning architectures in surveillance applications* (w/ Y.J. Mo, W. Lee, D. Nyang), *Poster*
- [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 platforms* (w/ Y.J. Mo, et. al.)
- [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)
- [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), *Poster*
- [INFOCOM'16] *Buffer-stable adaptive per-module power allocation for energy-efficient millimeter-wave modular antenna array (MAA) platforms*, *Poster*
- [EuCAP'16] *Millimeter-wave outdoor access shadowing mitigation using beamforming arrays* (w/ R. Weiler, et. al.)
- [GLOBECOM'15] *60 GHz frequency sharing study between fixed service systems and small-cell systems with modular antenna arrays* (w/ L. Xian, R. Arefi, A.S. Sadri), *Workshop on Millimeter-Wave Backhaul and Access: From Propagation to Prototyping*
- [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)
- [HotPower'15] *A case for bad big.LITTLE switching: How to scale power-performance in SI-HMP* (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, et. al.)
- [GLOBECOM'14] *Required frequency rejection in 39GHz millimeter-wave small cell systems* (w/ L. Xian, A. Maltsev, R. Arefi, A.S. Sadri), *Industry Program*
- [ICC'14] *Quality-aware millimeter-wave device-to-device multi-hop routing for 5G cellular networks* (w/ A.F. Molisch)
- [ITA'14] *Joint scheduling and stochastic streaming for device-to-device video delivery* (w/ A. Turci, G. Caire, A.F. Molisch), *Graduation Day Talk*
- [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), *Demo*
- [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* (J. Kim, 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)

## Patents (Granted), totally 55

- **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)
- **14 Korean Patents:** (KR 102244380), (KR 102240442), (KR 102240425), (KR 102234007), (KR 102178895), (KR 102167344), (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)
- **9 Chinese Patents:** (CN 107634349), (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)



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## Teaching Experience and Research Supervision

### Teaching Experience

#### **Korea University – Graduate Courses (Department of Electrical and Computer Engineering), Faculty Member**

- *Wireless and Mobile Networks (ECE522)*: Spring 2020
- *Wireless Network 1 (ITH524)*, Graduate School of Engineering and Technology: Spring 2021
- *Smart Mobile Platform (ECE654)*: Fall 2021, Fall 2020, Fall 2019
- *Design and Analysis of Wireless Communication Systems (ECE721)*: Spring 2021
- *IT R&D Policies 1 (ECE723)*: Fall 2020

#### **Korea University – Undergraduate Courses, Faculty Member**

- *Computer Language and Laboratory (EGRN151)*, School of Electrical Engineering: Fall 2021, Fall 2020 (**Best Teaching Award**), Fall 2019 (**Granite Tower (Seok-Top) Best Teaching Award**)
- *Introduction to Computers (SEMI103)*, Department of Semiconductor Engineering: Spring 2021
- *Digital System (KECE207)*, School of Electrical Engineering: Spring 2020
- *Probability and Random Process (KECE209)*, School of Electrical Engineering: Spring 2022, Spring 2021, Spring 2020
- *Digital System Design and Laboratory (KECE210)*, School of Electrical Engineering: Fall 2020
- *Data Communications (KECE316)*, School of Electrical Engineering: Fall 2020

#### **Chung-Ang University – Graduate Courses (College of Computer Science and Software), Faculty Member**

- *Optimal Design Theory and Applications*: Spring 2019, Spring 2018, Spring 2017
- *Topics in Computer Science and Engineering*: Fall 2018, Fall 2017, Fall 2016

#### **Chung-Ang University – Undergraduate Courses (College of Computer Science and Software), Faculty Member**

- *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

#### **Postdoctoral Scholars**

- **Dr. Minseok Choi** (09/2018–02/2019), jointly with **University of Southern California** (co-advised by Prof. Andreas F. Molisch)  
Currently, *Assistant Professor* at **Jeju National University**, Jeju, Korea
- **Dr. Soyi Jung** (03/2021–), jointly with **University of California at Irvine** (co-advised by Prof. Marco Levorato)  
Currently, *Research Professor* at **Korea University**, Seoul, Korea

#### **Ph.D. Course Students and Alumni**

- **Soohyun Park** (03/2019–)
- **Haemin Lee** (09/2020–)
- **Won Joon Yun** (03/2021–)
- **Youn-Seok Kwak** (03/2021–)
- **Hankyul Baek** (03/2021–)
- **Hyunsoo Lee** (03/2021–)
- **Yoo Jeong (Anna) Ha** (03/2021–)
- **GuSang Lee** (03/2022–)

#### **M.S. Course Students and Alumni**

- **Kyeongseon Kim** (09/2017–08/2019), *Researcher* at **LG Electronics**, 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), Working at Startup, Daejeon, Korea
- **Jaeho Choi** (03/2019–02/2021),
- **Seunghoon Park** (03/2020–02/2022)
- **Youngki Kim** (03/2021–02/2023, On-Leave from KETI), *Researcher* at **Korea Electronics Technology Institute**, Seongnam, Korea
- **Minjae Yoo** (03/2021–02/2023)

#### **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*
- **Guest Editor,** *Elsevier ICT Express – Special Issue on Mobile and Edge Computing Systems* 06/2021
- **Guest Editor,** *MDPI Electronics – Special Issue on Energy-Aware and Efficient Computing and Communications* 05/2021
- **Guest Editor,** *MDPI Electronics – Special Issue on Special Issue on Millimeter Wave Technology in 5G* 01/2020

### Talks and Presentations (Selected)

#### Tutorials and Special Session Talks in International Conferences

- *Multi-Agent Deep Reinforcement Learning for Connected and Autonomous Vehicles*  
**IEEE International Conference on A.I. in Information and Communication (ICAIIC 2021) Tutorial** (Online, 04/2021)
- *Trust Computing with Learning-based Auction for Distributed Systems*  
**International Workshop on Smart Info-Media Systems in Asia (SISA 2020) Keynote Speech** (Seoul, Korea, 12/2020)
- *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 with Prof. Aziz Mohaisen (University of Central Florida, Orlando, FL, USA)

#### Invited Talks at World-Wide Universities and Research Institutes

- *XOR Mixup: Privacy-Preserving Data Augmentation for One-Shot Federated Learning*  
**Huawei Research Center (Deep Learning/Machine Learning for Computer Vision)** (Nizhny Novgorod, Russia, 09/2020)
- *Deep Reinforcement Learning Research and Its Applications to Networks*  
**Huawei Research Center (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

- *Multi-Agent Deep Reinforcement Learning for Autonomous Vehicles; 2021 JCCI Mobile Machine Learning Special Session* (Online, 04/2021)
- *Trends in Multi-Agent Deep Reinforcement Learning for Distributed Computing; 2020 KICS Fall Conference Tutorial* (Seoul, Korea, 11/2020)
- *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

- *Trends in AI R&D for Edge/Mobile Platforms; SK Hynix* (Icheon, Korea, 09/2020)
- *Lyapunov Optimization and AI Applications to Mobility Platforms; Naver Labs - Robotics Lab* (Pankyo, Korea, 06/2020)
- *Distributed AI: Trends and Issues; ETRI* (Daejeon, Korea, 05/2020)
- *Federated Learning and Imitation Learning; ETRI* (Kwangju, Korea, 02/2020)
- *Federated and Imitation Learning; KT AI Tech Center* (Seoul, Korea, 12/2019)
- *Adversarial Imitation Learning and Federated Learning; ETRI* (Daejeon, Korea, 12/2019)
- *Distributed Learning and Deep Reinforcement Learning; ETRI* (Daejeon, Korea, 12/2019)
- *mmWave Radar and Sensors: Theory and Applications; LG Electronics* (Seoul, Korea, 11/2019)
- *Advanced Topics in Machine/Deep Learning; Posco ICT* (Pankyo, Korea, 11/2019)
- *mmWave Communications and Radar: Theory and Applications; ETRI* (Daejeon, Korea, 11/2019)
- *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)

- Reinforcement Learning; **Sunchon Nat'l University** (Online, 05/2021)
- Deep Learning and Data Science; **Sunchon Nat'l University** (Online, 04/2021)
- Reinforcement Learning: Introduction, MDP, Policy Gradient, and MADRL; **Chungbuk Nat'l University** (Cheongju, Korea, 03/2021)
- Deep Learning and Data Science; **Dongguk University** (Seoul, Korea, 02/2021)
- Deep Learning Trends in Distributed Computing; **University of Seoul** (Online, 01/2021)
- Deep Learning Computation for Economic Theory and Its Applications; **Kookmin University** (Online, 09/2020)
- Realizing Super-Resolution Deep Learning in Mobile Platforms; **POSTECH Wireless Summit** (Pohang, Korea, 07/2020)
- Federated and Distributed Deep Learning; **Seoul Nat'l University College of Medicine** (Seoul, Korea, 06/2020)
- Federated Learning for Medical and Mobile Platforms; **California State University Long Beach** (Long Beach, CA, USA, 01/2020)
- Federated and Imitation Learning Research Status; **KAIST** (Daejeon, Korea, 12/2019)
- Imitation and Federated Learning; **Seoul Nat'l University College of Medicine, ITRC/Medical Big Data Research Center (MBRC) Workshop** (Seoul, Korea, 11/2019)
- Federated and Imitation Learning; **Chung-Ang University** (Seoul, Korea, 11/2019)
- Federated and Imitation Learning Theory and Its Applications; **Korea Military Academy** (Seoul, Korea, 11/2019)
- Deep Reinforcement Learning; **Sunchon Nat'l University** (Sunchon, Korea, 11/2019)
- Imitation Learning and Its Applications; **Soongsil University** (Seoul, Korea, 10/2019)
- Imitation Learning and Its Applications to Autonomous Driving; **Hanyang University** (Seoul, Korea, 09/2019)
- Imitation Learning and Its Applications to Autonomous Driving; **Soongsil University** (Seoul, Korea, 08/2019)
- Mobile Caching; **Korea University** (Seoul, Korea, 07/2019)
- Deep Learning Basics and Representative Models; **Hallym University** (Chuncheon, Korea, 05/2019)
- Research Trends in Distributed Bigdata Platforms; **Seoul National University Hospital** (Seoul, Korea, 04/2019)
- Deep Reinforcement Learning Methods for Vehicular Networks; **UNIST** (Ulsan, Korea, 03/2019)
- Deep Reinforcement Learning: Algorithms and Applications; **Korea University** (Seoul, Korea, 02/2019)
- Deep Learning Programming with Keras; **Chonbuk National University** (Jinju, Korea, 11/2018)
- Deep Learning Programming with Keras; **Inha University** (Incheon, Korea, 11/2018)
- Distributed Deep Learning Platform for Medical Big-Data; **Seoul National University Hospital** (Seoul, Korea, 10/2018)
- Deep Learning Basics and TensorFlow Programming; **Chung-Ang University Red Cross College of Nursing** (Seoul, Korea, 07/2018)
- Wireless Video Streaming via Lyapunov Optimization; **KAIST** (Daejeon, Korea, 05/2018)
- Reinforcement Learning and Support Vector Machine; **Chungnam National University** (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)
- Decision Theory and Markovian Algorithms; **Soongsil University** (Seoul, Korea, 11/2017)
- Foundations of Deep Learning; **Soongsil University** (Seoul, Korea, 11/2017)
- Systems Research for Data-Intensive Learning Computation; **Korea University** (Seoul, Korea, 10/2017)
- Research Status in 60 GHz Multi-Gbps Wireless Embedded Platforms; **Soongsil University** (Seoul, Korea, 06/2017)
- Lyapunov Control for Parallelized Learning Platforms; **Dankook University** (Yongin, Korea, 06/2017)
- Trends in 5G Millimeter-Wave Wireless Networking Research; **POSTECH** (Pohang, Korea, 05/2017)
- Current Status of 60 GHz Millimeter-Wave Modular Antenna Array Research; **Hanyang University** (Seoul, Korea, 03/2017)
- Markov Decision Process; **Korea University** (Seoul, Korea, 01/2017)
- Introduction to mmWave Access, Backhaul, and 5G Cellular Networks; **Ajou University** (Suwon, Korea, 12/2016)
- Stochastic Optimization for Distributed Queueing Systems; **Konkuk University** (Seoul, Korea, 10/2016)
- Queue-Aware Scheduling and Streaming for Device-to-Device Video Delivery; **Hanbat National University** (Daejeon, Korea, 07/2016)
- mmWave Frequency Sharing between 5G Cellular Systems and Fixed Service Systems; **Andong National University** (Andong, Korea, 07/2016)
- 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)
- 5G Cellular and Advanced WiFi Platforms; **Gachon University** (Seongnam, Korea, 11/2015)
- 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)
- 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; **KIIE 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

- *Deep Multi-modal Unsupervised Pen Pressure Stylization; IEEE/CVF ICCV 2019* (Seoul, Korea, 11/2019)
- *Light-Weight Programming Language for Blockchain; ACM MobiSys 2019* (Seoul, Korea, 06/2019)
- *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 Track Chair**, 2022 IEEE Consumer Communications and Networking Conference (CCNC)
- **TPC Vice Co-Chair**, 2021 IEEE International Conference on Information Networking (ICOIN)
- **TPC**, 2021 IEEE Asia-Pacific Wireless Communication Systems (APWCS)
- **TPC**, 2021 IEEE International Conference on Communications (ICC), Wireless Communications Symposium
- **TPC**, 2021 IEEE Wireless Communications and Networking Conference (WCNC)
- **Workshop Organizing Chair**, 2021 IEEE ICOIN Workshop on Artificial Intelligence and Mobility (AIM)
- **OC Secretary**, 2020 IEEE International Conference on ICT Convergence (ICTC)
- **TPC**, 2020 IEEE International Conference on ICT Convergence (ICTC)
- **Special Session Organizing Chair**, 2020 IEEE ICTC Special Session on KU-AIER (Korea University, A.I. Engineering Research)
- **TPC**, 2020 IEEE Global Communications Conference (GLOBECOM), Ad-hoc and Sensor Networks Symposium
- **TPC**, 2020 IEEE Green Energy and Smart Systems Conference (IGESSC)
- **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 (ICAIIIC)
- **TPC Vice Co-Chair**, 2020 IEEE International Conference on Information Networking (ICOIN)
- **Workshop Organizing Chair**, 2020 IEEE ICOIN Workshop on Artificial Intelligence and Mobility (AIM)
- **TPC**, 2020 IEEE International Conference on Ubiquitous and Future Networks (ICUFN)
- **OC Secretary**, 2019 IEEE International Conference on ICT Convergence (ICTC)
- **TPC**, 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 Green Energy and Smart Systems Conference (IGESSC)
- **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 (ICAIIIC)
- **OC Publication Chair**, 2019 IEEE International Conference on Artificial Intelligence in Information and Communication (ICAIIIC)
- **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 ICT Convergence (ICTC)
- **TPC**, 2018 IEEE Green Energy and Smart Systems Conference (IGESSC)
- **TPC**, 2018 IEEE International Conference on Wireless Communications and Signal Processing (WCSP)
- **TPC**, 2018 ACM AsiaCCS Workshop on Security in Cloud Computing (SCC)
- **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)
- **TPC**, 2018 IEEE VTS Asia Pacific Wireless Communications Symposium (APWCS)
- **OC Publication Vice Chair**, 2017 IEEE VTS Asia Pacific Wireless Communications Symposium (APWCS)
- **TPC**, 2018 IEEE International Conference on Ubiquitous and Future Networks (ICUFN)



- TPC, 2017 IEEE International Conference on ICT Convergence (ICTC)
  - **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)
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## References

- **Prof. Andreas F. Molisch** (*Fellow of the IEEE*), *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** (*Fellow of the IEEE*), *M.S. Research and Thesis Advisor*
  - Professor of Cybersecurity at Korea University (Seoul, Republic of Korea)
  - URL: <http://netlab.korea.ac.kr/wlee/>