Joongheon Kim

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Positions at Korea University, Seoul, Korea

- ***Assistant Professor (09/2019–):*** **School of Electrical Engineering (Communications, Networks, and RF Track)**
  – *Director (09/2019–):* Artificial Intelligence and Mobility Laboratory
- *Affiliated Faculty Member (09/2019–):* Networks and Security Research Laboratory
- *Affiliated Faculty Member (09/2019–):* Research Institute of Information and Communications Technology
- *Affiliated Faculty Member (09/2019–):* Future Network Center

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 Excellence

- **Best Paper Award – IEEE VTS APWCS 2019** 12/2019
  IEEE Seoul Chapter; Paper Title: "Joint Offloading and Streaming in Mobile Edges: A Deep Reinforcement Learning Approach"
- **Haedong Young Scholar Award** 12/2018
  Korean Institute of Communications and Information Sciences (KICS) and *Haedong Foundation*; For recognizing a young researcher under the age of 40 who has made outstanding scholarly contributions to communications and information sciences R&D
- **Intel – Next Generation and Standards (NGS) Division Recognition Award** Q1/2015
  Intel Corporation – Platform Engineering Group; 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)
- **USC – Annenberg Graduate Fellowship Award** 02/2009
  University of Southern California; Ph.D. Admission with Honor – 4 Year Full Scholarship
- **LG Electronics – Outstanding Research Paper Award** 01/2008
  LG Electronics CTO – Multimedia Research Laboratory; Awarded Paper: [TCE'07.11]

Student Awards

- **ACM International Collegiate Programming Contest (ICPC) – Certificate of Achievement (13th Place)** 11/2016
  ACM-ICPC Asia Daejeon KAIST; as an assistant professor at Chung-Ang University

R&D Positions

Academia

- **Korea University – School of Electrical Engineering**, Seoul, Republic of Korea
  – *Assistant Professor (09/2019–)*, Artificial Intelligence and Mobility Laboratory
- **Chung-Ang University – School of Computer Science and Engineering**, Seoul, Republic of Korea
  – *Assistant Professor (03/2016–08/2019)*, Distributed Platforms and Security Laboratory
- **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)
  – *Teaching Assistant (01/2012–05/2013)*, Computer Science and Electrical Engineering Departments (CSCI455x and EE579)
- **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)

Industry

- **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)
- **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

R&D Projects (Total Fund: $2,495,268)

Center-Level Projects

- **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), Collaboration with Seoul National University Hospital (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]
  Collaboration with SQI-Soft (Korea)
- **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]
  Collaboration with Korea University (Korea)
- **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]
  Collaboration with Seoul National University Hospital (Korea)
- **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]
  Collaboration with Seoul National University Hospital (Korea)
- **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]
  Collaboration with Yonsei University (Korea), KAIST (Korea), EUCAST (Korea), KT (Korea), Aalto University (Finland), KTH Royal Institute of Technology (Sweden), and Ericsson (Sweden)
- **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]
  Collaboration with Prof. S. Cho (CAU, Korea) and Prof. J. Jung (Primary-PI: CAU, Korea)
- **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]
  Collaboration with Prof. S. Cho (CAU, Korea) and Prof. M. Yoo (Soongsil University, Korea)

Industry-Funded Projects

- **Visual Recognition Software Implementation using Deep Learning Tools** 05/2019–11/2019
  Funded by *Hyundai NGV* and *Hyundai/Kia Motors Company* [Grant: $59,500]
- **A Priori Techniques Research for Efficient Multi-Edge Computing** 06/2017–12/2017
  Funded by *Samsung Electronics Software Center* [Grant: $80,000; Co-PI]
  Collaboration with Prof. S. Cho (Primary-PI: CAU, Korea)

Government-Funded Research Institute Projects

- **Verification Testbed Implementation for Privacy-Preserving Trust Data Generation** 10/2019–11/2019
  Funded by *Electronics and Telecommunications Research Institute*, Grant: $44,000; Primary-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]
- **Optimizing Vehicular Sensor Network exploiting Temperature Effect Inversion Phenomenon** 02/2017–02/2017
  Invited by *Electronics and Telecommunications Research Institute* [Visiting Professor with SoC Design Group]

- **Sensor Networking Protocols for Emergency Data Collection** 06/2016–12/2016
  Funded by *Electronics and Telecommunications Research Institute* [Co-PI]
  Collaboration with Prof. S. Cho (Primary-PI: CAU, Korea) and Prof. E.-S. Ryu (Gachon University, Korea)

Korea University Internal Projects

- Autonomous Driving Control using Deep Learning (09/2019–08/2020) [Grant: $50,000]

Chung-Ang University (CAU) Internal Projects

- Optimal Video Caching using Deep Reinforcement Learning in Vehicular Networks (01/2019–02/2019) [Grant: $10,000]
- Synchronous Distributed Deep Learning Computation using DM Data (01/2019–02/2019) [Grant: $10,000]
- CNN-based Algorithm Design for Autonomous Self-Driving Car Platforms (01/2019–02/2019) [Grant: $12,000]
- Auction-based Trust Mobile Cloud Computing Techniques (03/2018–02/2019) [Grant: $650]
- Auction-based Resource Allocation for Self-Driving Cars (07/2018–12/2018) [Grant: $9,000]
- Programming Language Techniques for Deep Convolutional Neural Networks (09/2018–11/2018) [Grant: $10,000]
- Domain Name System Leakage and Privacy Implications (11/2016–10/2018) [Grant: $20,000]
- Mobile Charging using Deep Learning and HPC for Distributed Drone-Vehicular Networks (01/2018–06/2018) [Grant: $8,000]
- Dynamic Algorithm Research for Millimeter-Wave Backhaul/Fronthaul/Access Platforms (03/2016–02/2018) [Grant: $20,000]
- Stabilized BlockChain Design with Lyapunov Optimization Framework (07/2017–12/2017) [Grant: USD 15,300]
- Dynamic Decision Making Algorithm Design for Embedded Computer Vision Platforms (09/2017–11/2017) [Grant: $7,500]
- Strategic Control Methods for Emerging Virtual Reality (VR) Video Platforms (01/2017–06/2017) [Grant: $5,000]
- Machine Learning and Signal Processing Algorithms for Millimeter-Wave Mobile Platforms (07/2016–12/2016) [Grant: $8,300]

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)
  – Research Results: [TON'16.08], [JCN'14.10], [ITA'14], [MobiCom'13]
- **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)
  – Research Results: [TBC'13.09], [ICC'13], [PIMRC'11]

Selected Publications

- Citation: 1742+, H-Index: 18, i10-Index: 41; obtained from Google Scholar Profile (as of October 23, 2019)
- 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

- 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

[TII.accept] Cooperative Management for PV/ESS-Enabled Electric-Vehicle Charging Stations: A Multi-Agent Deep Reinforcement Learning Approach, *IEEE Transactions on Industrial Informatics*, v(n):ppp–ppp, Month Year. (w/ M. Shin, D.-H. Choi)

[TWC.accept] Markov Decision Policies for Dynamic Video Delivery in Wireless Caching Networks, *IEEE Transactions on Wireless Communications*, v(n):ppp–ppp, Month Year. (w/ M. Choi, A. No, M. Ji)

[SJ.accept] Towards Characterizing Blockchain-based Cryptocurrencies for Highly-Accurate Predictions, *IEEE Systems Journal*, v(n):ppp–ppp, Month Year. (w/ M. Saad, J. Choi, D. Nyang, A. Mohaisen)

[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 Research 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 Commu-*

nications Letters, 11(1):22–24, January 2007. (w/ W. Lee, E. Kim, D. Kim, K. Suh)

■ **non-IEEE/ACM Magazines and Journals**

[ETRI.accept] Simulation and Measurement: Feasibility Study of Tactile Internet Applications for mmWave Virtual Reality (VR), *ETRI Journal*, v(n):ppp-ppp, Month Year. (w/ W. Na, N.-N. Dao, E.-S. Ryu, S. Cho)

[JAIHC.accept] A Novel Network Virtualization based on Data Analytics in Connected Environment, *Journal of Ambient Intelligence and Humanized Computing*, v(n):ppp-ppp, Month Year. (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, August 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 (Computing and Artificial Intelligence)*, 9(11):2297, June 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, April 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, April 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, December 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, October 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, September 2017. (w/ E.-S. Ryu)

[Energies'17.09] A High-Efficient Low-Cost Converter for Capacitive Wireless Power Transfer Systems, *Energies*, 10(9):1437, September 2017. (w/ I.-O. Lee, W. Lee)

[IJDSN'17.08] Distributed and Reliable Decision-Making for Cloud-Enabled Mobile Service Platforms, *International Journal of Distributed Sensor Networks*, 13(8):1–9, August 2017. (w/ A. Mohaisen)

[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, August 2017. (w/ N.-N. Dao, M. Park, S. Cho)

[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, June 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, March 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, December 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, December 2016. (w/ J.-K. Kim)

[PLOS'16.08] Adaptive Suspicious Prevention for Defending DoS Attacks in SDN-based Convergent Networks, *PLoS ONE*, 11(8):e0160375, August 2016. (w/ N.-N. Dao, M. Park, S. Cho)

[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, August 2016. (w/ E.-S. Ryu)

[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, October 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, July 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, May 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, April 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, October 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, March 2014. (w/ E.-S. Ryu)

[SCR'13.12] The Sybil Attacks and Defenses: A Survey, *Smart Computing Review*, 3(6):480–489, December 2013. (w/ A. Mohaisen)

[EL'13.02] Distributed Stochastic Buffering for Enterprise WLAN Architectures, *IET Electronics Letters*, 49(4):302–304, February 2013. (w/ E.-S. Ryu)

Conference and R&D Event Contributions (Selected)

■ **Top-Tier and Society-Flagship Conference Contributions (Full Papers)**

[GLOBECOM'19] Multi-Agent Deep Reinforcement Learning for Cooperative Connected Vehicles, *IEEE Global Communications Conf.* (w/ D. Kwon)

[IJCAI'19] Randomized Adversarial Imiation Learning for Autonomous Driving, *Int'l Joint Conf. on Artificial Intelligence* (w/ M. Shin), **(Acceptance Rate: 850/4752=17.89%)**

[IJCNN'19] Depth-Controllable Very Deep Super-Resolution Network, *IEEE Int'l Joint Conf. on Neural Networks* (w/ D. Kim, J. Kwon, T.-H. Kim)

[IJCNN'19] Adversarial Imitation Learning via Random Search, *IEEE Int'l Joint Conf. on Neural Networks* (w/ M. Shin)

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

[SMC'18] Low-Complexity Online Model Selection with Lyapunov Control for Reward Maximization in Stabilized Real-Time Deep Learning Platforms, *IEEE Int'l Conf. on Systems, Man, and Cybernetics* (w/ D. Kim, J. Kwon)

[ICDCS'18] ShmCaffe: A Distributed Deep Learning Platform with Shared Memory Buffer for HPC Architecture, *IEEE Int'l Conf. on Distributed Computing Systems* (w/ S. Ahn, E. Lim, W. Choi, A. Mohaisen, S. Kang), **(Acceptance Rate: 78/378=20.63%)**

[ICASSP'18] Self-Adaptive Machine Learning Operating Systems for Security Applications, *IEEE Int'l Conf. on Acoustics, Speech and Signal Processing* (w/ K.S. Kim, D. Kwon, Y. Kim, J. Kim)

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

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

[IMS'15] Study of Coexistence between 5G Small-Cell Systems and Systems of the Fixed Service at 39 GHz Band, *IEEE Int'l Microwave Symposium* (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, *IEEE Int'l Conf. on Communications* (w/ A.F. Molisch)

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

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

[MobiSys'10] Energy-Efficient Rate-Adaptive GPS-based Positioning for Smartphones, *ACM Int'l Conf. on Mobile Systems, Applications, and Services* (w/ J. Paek, R. Govindan), **(Acceptance Rate: 25/126=19.84%)**, **(Citations: 500+)**

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

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

■ **IEEE/ACM Conference Contributions**

[ICOIN'20] Learning-Based Dot-Grid Alignment for Projection Distortion Correction, *IEEE Int'l Conf. on Information Networking – Artificial Intelligence and Mobility Workshop* (w/ D. Kim, D. Kwon, S. Park)

[ICOIN'20] The Useful Quantum Computing Techniques for Artificial Intelligence Engineers, *IEEE Int'l Conf. on Information Networking – Artificial Intelligence and Mobility Workshop* (w/ J. Choi, S. Oh)

[ICOIN'20] Privacy-Sensitive Parallel Split Learning, *IEEE Int'l Conf. on Information Networking – Artificial Intelligence and Mobility Workshop* (w/ J. Jeon)

[ICOIN'20] *IEEE Int'l Conf. on Information Networking – Artificial Intelligence and Mobility Workshop* (w/ J. Choi, S. Oh)

[ICTC'19] A Tutorial on Quantum Approximate Optimization Algorithm (QAOA): Fundamentals and Applications, *IEEE Int'l Conf. on ICT Convergence* (w/ J. Choi)

[ICTC'19] Overview of Distributed Federated Learning: Research Issues, Challenges, and Biomedical Applications, *IEEE Int'l Conf. on ICT Convergence* (w/ J. Jeon, J. Huh, H. Kim, S. Cho)

[5GWF'19] PriMO-5G: Making Firefighting Smarter with Immersive Videos through 5G, *IEEE 5G World Forum* (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, *IEEE Asia Pacific Wireless Communications Symposium* (w/ S. Park, J. Kim, D. Kwon, M. Shin), **(Best Paper Award)**

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

[ICAIIC'19] Cyclic Parameter Sharing for Privacy-Preserving Distributed Deep Learning Platforms, *IEEE Int'l Conf. on Artificial Intelligence in Information and Communication* (w/ J. Jeon, D. Kim)

[ICAIIC'19] Hardness on Style Transfer Deep Learning for Rococo Painting Masterpieces, *IEEE Int'l Conf. on Artificial Intelligence in Information and Communication* (w/ K.S. Kim, D. Kim)

[ICOIN'19] Optimal Trajectory Learning for UAV-BS Video Provisioning System: A Deep Reinforcement Learning Approach, *IEEE Int'l Conf. on Information Networking* (w/ D. Kwon)

[ICTC'18] Opportunistic Medium Access for Hyper-Dense Beamformed IEEE 802.11ax Wireless Networks, *IEEE Int'l Conf. on ICT Convergence* (w/ D. Kwon)

[ICUFN'18] Detecting Selfish Backoff Attack in IEEE 802.15.4 CSMA/CA using Logistic Classification, *IEEE Int'l Conf. on Ubiquitous and Future Networks* (w/ K.S. Kim)

[MobiSys'18] Neural Network Syntax Analyzer for Embedded Standardized Deep Learning, *ACM Int'l Conf. on Mobile Systems, Applications, and Services – Workshop on Embedded and Mobile Deep Learning* (w/ M. Shin, A. Mohaisen, J. Park, K.H. Lee)

[ICOIN'18] Top-Down Parsing for Neural Network Exchange Format (NNEF) in TensorFlow-based Deep Learning Computation, *IEEE Int'l Conf. on Information Networking* (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, *IEEE Int'l Conf. on Information Networking* (w/ D. Kwon)

[ICOIN'18] Proactive Detection of Algorithmically Generated Malicious Domains, *IEEE Int'l Conf. on Information Networking* (w/ J. Spaulding, J. Park, A. Mohaisen)

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

[ICUFN'17] Performance of Deep Learning Computation with TensorFlow Software Library in GPU-Capable Multi-Core Computing Platforms, *IEEE Int'l Conf. on Ubiquitous and Future Networks* (w/ Y.J. Mo, J.-K. Kim, A. Mohaisen, W. Lee)

[ICIC'17] Queue-Aware Learning for Scheduling in Healthcare Clouds, *IEEE Int'l Conf. on Information and Communication with Samsung LTE & 5G Special Workshop* (w/ S. Cho)

[ICIC'17] Dynamic Decision-Making for Fine-Grained Energy-Efficient Control in Millimeter-Wave Access Platforms, *IEEE Int'l Conf. on Information and Communication with Samsung LTE & 5G Special Workshop* (w/ B. Seo, Y. Lee, S. Cho)

[ICTC'15] Feasibility Study of Stochastic Streaming with 4K UHD Video Traces, *IEEE Int'l Conf. on ICT Convergence* (w/ E.-S. Ryu)

[ICTC'15] Towards Robust UHD Video Streaming Systems using Scalable High Efficiency Video Coding, *IEEE Int'l Conf. on ICT Convergence* (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, *ACM Symposium on Operating Systems Principles – Workshop on Power-Aware Computing and Systems* (w/ S. Yoo, Y. Shim, S. Lee, S.-A. Lee)

[PIMRC'11] Joint Optimization of HD Video Coding Rates and Unicast Flow Control for IEEE 802.11ad Relaying, *IEEE Int'l Symposium on Personal, Indoor and Mobile Radio Communications* (w/ Y. Tian, A.F. Molisch, S. Mangold)

[CCNC'10] mmWave SVD-based Beamformed MIMO Communication Systems, *IEEE Consumer Communications and Networking Conf.* (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, *IEEE Consumer Communications and Networking Conf.* (w/ B. Jeon)

[CCNC'09] Optimal Beaconing for 60 GHz Millimeter Wave, *IEEE Consumer Communications and Networking Conf.* (w/ B. Jeon)

[Comsware'08] Cooperative Relaying Strategies for Multi-Hop Wireless Sensor Networks, *IEEE Int'l Conf. on Communication Systems Software and Middleware* (w/ W. Lee)

[CIT'06] A Power Balanced Multipath Routing Protocol in Wireless Ad-Hoc Sensor Networks, *IEEE Int'l Conf. on Computer and Information Technology* (w/ D. Kim, W. Lee, B.-N. Park, C. Shin, C. Shin)

[ICCCN'05] Effect of Localized Optimal Clustering for Reader Anti-Collision in RFID Networks, *IEEE Inter'l Conf. on Computer Communications and Networks* (w/ W. Lee, J. Yu, J. Myung, E. Kim, C. Lee)

■ **Extended Abstracts, Demos, and Posters**

[ICCV'19] Deep Multi-modal Unsupervised Pen Pressure Stylization, *IEEE/CVF Int'l Conf. on Computer Vision – Demo* (w/ D. Kim)

[QTML'19] A Quantum Approach to Max-Weight Independent Set Problem, *Quantum Techniques for Machine Learning – Poster Abstract* (w/ J. Choi)

[DSN'19] Privacy-Preserving Deep Learning Computation for Geo-Distributed Medical Big-Data Platforms, *IEEE Int'l Conf. on Dependable Systems and Networks – Fast Abstract* (w/ J. Jeon, J. Kim, K. Kim, A. Mohaisen, J.-K. Kim)

[MobiSys'19] Demo: Light-Weight Programming Language for Blockchain, *ACM Int'l Conf. on Mobile Systems, Applications, and Services – Extended Abstract* (w/ J. Kim)

[MobiSys'19] Poster: Multi-Agent Deep Reinforcement Learning for Connected Vehicles, *ACM Int'l Conf. on Mobile Systems, Applications, and Services – Extended Abstract* (w/ D. Kwon, S. Park)

[ICML'19] Adversarial Imitation Learning via Random Search in Lane Change Decision-Making, *Int'l Conf. on Machine Learning – Workshop on AI for Autonomous Driving* (w/ M. Shin)

[CCS'18] Secure Compute-VM: Secure Big Data Processing with SGX and Compute Accelerators, *ACM Conf. on Computer and Communications Security – Workshop on System Software for Trusted Execution* (w/ S. Yoo, H. Kim)

[SECON'18] Recipient-Oriented Transaction for Preventing Double Spending Attacks in Private Blockchain, *IEEE Int'l Conf. on Sensing, Communication and Networking – Extended Abstract* (w/ H. Lee, M. Shin, K.S. Kim, Y. Kang)

[AsiaCCS'18] POSTER: Mining with Proof-of-Probability in Blockchain, *ACM Asia Conf. on Computer and Communications Security – Extended Abstract* (w/ S. Kim)

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

[SOSP'17] A Reliable, Self-Adaptive Face Identification Framework via Lyapunov Optimization, *ACM Symposium on Operating Systems Principles – Workshop on AI Systems* (w/ D. Kim, J.Y. Bang)

[PAC'17] Dynamic Security-Level Maximization for Stabilized Parallel Deep Learning Architectures in Surveillance Applications, *IEEE Symposium on Privacy-Aware Computing – Extended Abstract* (w/ Y.J. Mo, W. Lee, D. Nyang)

[SIGCOMM'16] A Longitudinal Analysis of .i2p Leakage in the Public DNS Infrastructure, *ACM Conf. of the Special Interest Group on Data Communication – Extended Abstract* (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, *IEEE Int'l Conf. on Computer Communications – Extended Abstract*

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

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

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

[MobiCom'13] Demo: Adaptive Video Streaming for Device-to-Device Mobile Platforms, *ACM Int'l Conf. on Mobile Computing and Networking – Extended Abstract* (w/ F. Meng, P. Chen, H.E. Egilmez, D. Bethanabhotla, A.F. Molisch, M.J. Neely, G. Caire, A. Ortega)

International Patents (Granted)

- **20 US Patents:** (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)
- **6 Korean Patents:** (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

As a Professor with Korea University – School of Electrical Engineering

- **Graduate Courses:** *Smart Mobile Platform* (ECE654 – Fall 2019)
- **Undergraduate Courses:** *Computer Language and Laboratory* (EGRN151 – Fall 2019)

As a Professor with Chung-Ang University – 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)
- **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)

As a Teaching Assistant with University of Southern California – Viterbi School of Engineering

- *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), now with **USC**, Los Angeles, CA, USA, as a *Postdoctorial Scholar*

Ph.D. Courses

- **Jaeho Choi** (03/2019–)
- **Seung-Yo Ryu** (09/2019–), Co-Advised by Prof. Dong-Seung Kim
- **Soohyun Park** (03/2019–02/2024 (expected))
- **Yeongeun Kang** (03/2020–02/2025 (expected))

M.S. Courses

- **Kyeongseon Kim** (09/2017–08/2019), now with **Hansol Inticube**, Seoul, Korea, as a *Researcher*
  Thesis: *On-Road Vehicle Detection using Style Transfer Deep Learning in Autonomous Driving*
- **Dohyun Kwon** (03/2018–02/2020)
  Thesis: *Multi-Agent Deep Reinforcement Learning for Cooperative Resource Allocation in 5G Networks*
- **Dohyun Kim** (03/2018–02/2020), now with **Naver Corporation**, Seongnam, Korea, as a *Researcher*
  Thesis: *Depth-Controllable Very Deep Super-Resolution Network*
- **MyungJae Shin** (03/2018–02/2020), now with **Seoul National University Hospital**, Seoul, Korea, as a *Researcher*
  Thesis: *Randomized Adversarial Imitation Learning*
- **Joohyung Jeon** (09/2018–08/2020)
- **Seunghoon Park** (03/2020–02/2022 (expected))
- **SeungYun Song** (03/2020–02/2022 (expected)), On-Leave from Samsung Electronics

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

- **Minseok Choi**, Ph.D. in EE from Korea Advanced Institute of Science and Technology (02/2016–07/2016)
  now with **University of Southern California**, Los Angeles, CA, USA (was with **CAU** (Seoul, 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 (was with **Microsoft** (Redmond, WA, USA))
- **Vivek Sankaravadivel**, M.S. in EE from USC (Spring 2011, Fall 2011)
  now with **Uber**, Silicon Valley, CA, USA (was with **Qualcomm** (Silicon Valley, CA, USA))

Professional Activities

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

- *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 at Korean Research Societies

- *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)
- *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)

- *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** (UIsan, 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)
- *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*; **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)

Academic Activities and Services

Magazines and Journal Activities

- **Serving as a Reviewer (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

Conference Activities

- **OC Patronage Chair**, 2022 IEEE International Conference on Communications (ICC)
- **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. Giuseppe Caire**, *Ph.D. Research Co-Advisor for Intel 5G Project (Topic: Device-to-Device Video Streaming and Scheduling)*
  – Alexander von Humboldt Professor at Technische Universitët Bërlin (Berlin, Germany)
  – Adjunct Research Professor of Electrical and Computer Engineering at the University of Southern California (Los Angeles, California, USA)
  – URL: `https://viterbi.usc.edu/directory/faculty/Caire/Giuseppe`
- **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/`
- **Prof. Marco Levorato**, *Research Collaborator (Topic: Deep Learning for Unmanned Aerial Vehicles)*
  – Tenured Associate Professor of Computer Science at the University of California at Irvine (Irvine, California, USA)
  – URL: `https://www.ics.uci.edu/~mlevorat/`