

Bibliography

Communications and Quantum Information Laboratory (CQILAB)

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Journal Papers

- [1] Zonghan Wang, Zahra Mobini, Hien Quoc Ngo, Hyundong Shin, and Michail Matthaiou, "Anti-malicious ISAC: How to jointly monitor and disrupt your foes?" *IEEE Transactions on Wireless Communications*, Early Access, 10.1109/TWC.2025.3648048
- [2] Alain R. Ndjiongue, Octavia A. Dobre, Hyundong Shin, and Harald Haas, "Underwater multi-wavelength optical links with blue targets and constraints: Opportunities and challenges," *IEEE Communications Magazine*, Early Access, 10.1109/MCOM.001.2500098
- [3] Debbarni Sarkar, Satyendra Singh Yadav, Vipin Pal, Keshav Singh, Kapal Dev, and Hyundong Shin, "A multi-metric performance analysis of STAR-RIS aided MIMO-NOMA framework for CIoT-enabled 6G wireless networks," *IEEE Transactions on Consumer Electronics*, Early Access, 10.1109/TCE.2025.3646234
- [4] Junshan Luo, Zhengfei Qu, Hao Xu, Yonggang Zhu, Kai-Kit Wong, and Hyundong Shin, "Fluid antenna system for anti-jamming communication via fast port switching," *IEEE Transactions on Vehicular Technology*, Early Access, 10.1109/TVT.2025.3643346
- [5] Hsienchih Ting, Zhaolin Wang, Yuanwei Liu, Arumugam Nallanathan, and Hyundong Shin, "Personalized mobile edge generation: A stable personalized training approach via scaling connection," *IEEE Transactions on Mobile Computing*, Early Access, 10.1109/TMC.2025.3637111
- [6] Tinh T. Bui, Dang Van Huynh, Vishal Sharma, Keshav Singh, Octavia A. Dobre, Hyundong Shin, and Trung Q. Duong, "UAV-assisted physical layer security for space-air-ground integrated networks (SAGIN) with multiple eavesdroppers," *IEEE Journal on Selected Areas in Communications*, Early Access, 10.1109/JSAC.2025.3637022
- [7] Hongjia Huang, Shiyao Zhang, Weijie Yuan, Zhongbin Wang, Shuqiang Xia, Tony Q. S. Quek, and Hyundong Shin, "Res-UNet-GRU: A data-driven near-field sensing approach in ISAC-based low-altitude networks," *IEEE Transactions on Cognitive Communications and Networking*, Early Access, 10.1109/TCCN.2025.3633754

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- [8] Shuaixin Yang, Yue Xiao, Yong Liang Guan, Xianfu Lei, Hyundong Shin, and George K. Karagiannidis, “BER performance optimization for fluid antenna-aided wireless communications,” *IEEE Journal on Selected Areas in Communications*, Early Access, 10.1109/JSAC.2025.3619033
- [9] Hao Jiang, Zhaolin Wang, Yuanwei Liu, Arumugam Nallanathan, and Hyundong Shin, “Beam alignment for MIMO fluid antenna systems,” *IEEE Journal on Selected Areas in Communications*, Early Access, 10.1109/JSAC.2025.3618212
- [10] Dang Van Huynh, Saeed R. Khosravirad, Simon L. Cotton, Hyundong Shin, and Trung Q. Duong, “Multi-agent reinforcement learning for optimal resource allocation in space-air-ground integrated networks,” *IEEE Internet of Things Journal*, Early Access, 10.1109/JIOT.2025.3598597
- [11] Junxu Cheng, Kehao Wang, Hyundong Shin, Tony Q. S. Quek, and Moe Win, “Reinforcement learning for joint radar and communication enabled multi-UAV cooperative dynamic target detection and tracking,” *IEEE Transactions on Vehicular Technology*, Early Access, 10.1109/TVT.2025.3597638
- [12] Raviteja Allu, Mayur Katwe, Keshav Singh, and Hyundong Shin, “Energy efficiency optimization for integrated sensing and communications-aided full duplex MIMO system with imperfect CSI,” *IEEE Transactions on Vehicular Technology*, Early Access, 10.1109/TVT.2025.3592910
- [13] Abdulmohsen Alsaui, Sunish Kumar Orappanpara Soman, Bradley D. E. McNiven, Hyundong Shin, and Octavia A. Dobre, “Physics-informed neural networks for quantum internet modeling: Concepts, implementation, and future directions,” *IEEE Communications Magazine*, vol. 64, no. 1, pp. 237–242, January 2026
- [14] Bhaskara Narottama, Berk Canberk, Simon L. Cotton, Hyundong Shin, George K. Karagiannidis, and Trung Q. Duong, “Non-centralized quantum neural networks for cell-free MIMO systems,” *IEEE Transactions on Wireless Communications*, vol. 25, pp. 9971–9985, 2026
- [15] Qian Gao, Ruikang Zhong, Yixuan Zou, Hyundong Shin, and Yuanwei Liu, “Deep learning-based beamforming optimization for ISAC systems: A low-complexity and transferable framework,” *IEEE Transactions on Wireless Communications*, vol. 25, pp. 8754–8768, 2026
- [16] Jia Guo, Yuanwei Liu, Hyundong Shin, and Arumugam Nallanathan, “Deep learning for beamforming in multi-user continuous aperture array systems,” *IEEE Transactions on Wireless Communications*, vol. 25, pp. 7773–7791, 2026
- [17] Zahra Mobini, Ahmet Hasim Gokceoglu, Li Wang, Gunnar Peters, Hyundong Shin, and Hien Quoc Ngo, “Cluster-wise processing in fronthaul-aware cell-free massive MIMO systems,” *IEEE Transactions on Wireless Communications*, vol. 25, pp. 6240–6254, 2026
- [18] Xiaomin Cao, Mohammadali Mohammadi, Hien Quoc Ngo, Hyundong Shin, and Michail Matthaiou, “RIS-assisted XL-MIMO for near-field and far-field communications,” *IEEE Transactions on Wireless Communications*, vol. 25, pp. 5320–5338, 2026

- [19] Jiajun He, Hien Quoc Ngo, Chao Wang, Feng Yin, Hing Cheung So, Hyundong Shin, and Michail Matthaiou, “RSS localization in cell-free massive MIMO: Algorithms, analysis, and implementation,” *IEEE Transactions on Wireless Communications*, vol. 25, pp. 4021–4037, 2026
- [20] Boqun Zhao, Chongjun Ouyang, Xingqi Zhang, Hyundong Shin, and Yuanwei Liu, “Downlink and uplink ISAC in continuous-aperture array (CAPA) systems,” *IEEE Transactions on Wireless Communications*, vol. 25, pp. 3592–3609, 2026
- [21] Isabella W. G. Da Silva, Zahra Mobini, Hien Quoc Ngo, Hyundong Shin, and Michail Matthaiou, “How to proactively monitor untrusted communications with cell-free massive MIMO?” *IEEE Transactions on Wireless Communications*, vol. 25, pp. 2404–2419, 2026
- [22] Xingguang Zhou, Wenchao Xia, Kai-Kit Wong, Hyundong Shin, and Hongbo Zhu, “Superimposed pilot and RIS-aided URLLC: A joint design of phase shifts and power control,” *IEEE Transactions on Wireless Communications*, vol. 25, pp. 1078–1093, 2026
- [23] Saw Nang Paing, Fakhar Zaman, Uman Khalid, Trung Q. Duong, Moe Z. Win, and Hyundong Shin, “Counterfactual quantum communication: Information exchange in quantum shadows,” *IEEE Communications Surveys and Tutorials*, vol. 28, pp. 2846–2880, 2026
- [24] Bhaskara Narottama, Abrar Ul Haq, James Adu Ansere, Nidhi Simmons, Berk Canberk, Simon L. Cotton, Hyundong Shin, and Trung Q. Duong, “Quantum deep reinforcement learning for digital twin-enabled 6G networks and semantic communications: Considerations for adoption and security,” *IEEE Transactions on Network Science and Engineering*, vol. 13, pp. 2053–2076, 2026, (Invited Paper)
- [25] Syed Muhammad Abuzar Rizvi, Uman Khalid, Symeon Chatzinotas, Trung Q. Duong, and Hyundong Shin, “Controlled quantum semantic communication for industrial CPS networks,” *IEEE Transactions on Network Science and Engineering*, vol. 13, pp. 996–1009, 2026
- [26] James Adu Ansere, Sasinda C. Prabhashana, Nidhi Simmons, Octavia A. Dobre, Hyundong Shin, and Trung Q. Duong, “Quantum deep deterministic policy gradient for digital twin-enabled semantic IoV networks,” *IEEE Transactions on Network Science and Engineering*, vol. 13, pp. 54–66, 2026
- [27] Mengyu Qian, Xidong Mu, Li You, Hyundong Shin, and Michail Matthaiou, “Spectral efficiency analysis of near-field holographic MIMO over Ricean fading channels,” *IEEE Transactions on Communications*, vol. 73, no. 12, pp. 13280–13294, December 2025
- [28] Alice Faisal, Ibrahim Al-Nahhal, Octavia A. Dobre, and Hyundong Shin, “Extreme learning machine-based feature refinement for channel estimation in RIS-ISAC systems,” *IEEE Transactions on Vehicular Technology*, vol. 74, no. 12, pp. 19452–19466, December 2025
- [29] Farshad Rostami Ghadi, Kai-Kit Wong, Masoud Kaveh, H. Xu, W. K. New, F. Javier López-Martínez, and Hyundong Shin, “Fluid antenna multiple access with simultaneous non-unique decoding in strong interference channel,” *IEEE Transactions on Wireless Communications*, vol. 24, no. 12, pp. 10183–10195, December 2025

- [30] Hanjiang Hong, Kai-Kit Wong, Hao Xu, Yin Xu, Hyundong Shin, Ross Murch, Dazhi He, and Wenjun Zhang, "Downlink OFDM-FAMA in 5G-NR systems," *IEEE Transactions on Wireless Communications*, vol. 24, no. 12, pp. 10116–10132, December 2025
- [31] Farshad Rostami Ghadi, Kai-Kit Wong, F. Javier López-Martínez, Hyundong Shin, and Lajos Hanzo, "Performance analysis of FAS-aided NOMA-ISAC: A backscattering scenario," *IEEE Internet of Things Journal*, vol. 12, no. 23, pp. 51326–51340, December 2025
- [32] Qian Gao, Ruikang Zhong, Xidong Mu, Mugen Peng, Hyundong Shin, and Yuanwei Liu, "Distributed antenna selection and beamforming for ELAA based downlink ISAC systems," *IEEE Transactions on Vehicular Technology*, vol. 74, no. 11, pp. 17865–17878, November 2025
- [33] Hanjiang Hong, Kai-Kit Wong, Haoyang Li, Hao Xu, Han Xiao, Hyundong Shin, Kin-Fai Tong, and Yangyang Zhang, "FAS meets OFDM: Enabling wideband 5G NR," *IEEE Transactions on Communications*, vol. 73, no. 11, pp. 12884–12898, November 2025
- [34] Xinyu Gao, Tianwei Hou, Hyundong Shin, and Arumugam Nallanathan, "LoC-WiFi-SLAM: Low-complexity of WiFi-enhanced SLAM," *IEEE Transactions on Communications*, vol. 73, no. 11, pp. 12310–12325, November 2025
- [35] Mustafa S. Abbas, Zahra Mobini, Hien Quoc Ngo, Hyundong Shin, and Michail Matthaiou, "Joint AP selection and power allocation for unicast-multicast cell-free massive MIMO," *IEEE Internet of Things Journal*, vol. 12, no. 22, pp. 47135–47150, November 2025
- [36] Bao-Nhi Dang Tran, Muhammad Fahim, Bradley D. E. McNiven, Mohsen Guizani, Hyundong Shin, and Trung Q. Duong, "Quantum LSTM model for estimation of energy expenditure in human aging using wearable IoT healthcare technology," *IEEE Internet of Things Journal*, vol. 12, no. 22, pp. 46051–46064, November 2025
- [37] Sandeep Singh, Keshav Singh, Sandeep Kumar Singh, Hyundong Shin, and Trung Q. Duong, "Multiple access for holographic reconfigurable intelligent surface (HRIS)-aided near-field communications," *IEEE Internet of Things Journal*, vol. 12, no. 21, pp. 44678–44691, November 2025
- [38] Zhixiong Chen, Hyundong Shin, and Arumugam Nallanathan, "Generative diffusion model-based variational inference for MIMO channel estimation," *IEEE Transactions on Communications*, vol. 73, no. 10, pp. 9254–9269, October 2025
- [39] Wenchao Xia, Ben Zhao, Wankai Tang, Yongxu Zhu, Kai-Kit Wong, Sangarapillai Lambotharan, and Hyundong Shin, "RIS-empowered integrated location sensing and communication with superimposed pilots," *IEEE Transactions on Communications*, vol. 73, no. 10, pp. 9644–9657, October 2025
- [40] Sasinda C. Prabhathana, Dang Van Huynh, Keshav Singh, Hans-Jürgen Zepernick, Octavia A. Dobre, Hyundong Shin, and Trung Q. Duong, "Machine learning-based resource allocation in 6G integrated space and terrestrial networks-aided intelligent autonomous transportation," *IEEE Transactions on Intelligent Transportation Systems*, vol. 26, no. 10, pp. 17750–17762, October 2025

- [41] Nomi Lae, Shehbaz Tariq, Saw Nang Paing, Jason William Setiawan, Sunghwan Kim, Trung Q. Duong, and Hyundong Shin, “Counterfactual quantum secret sharing,” *IEEE Transactions on Communications*, vol. 73, no. 10, pp. 9196–9206, October 2025
- [42] Zijian Zheng, Yansha Deng, Wenqiang Yi, Hyundong Shin, and Arumugam Nallanathan, “Over-the-air computation enabled semi-asynchronous wireless federated learning,” *IEEE Transactions on Communications*, vol. 73, no. 10, pp. 8919–8936, October 2025
- [43] Boyi Tang, Hao Xu, Kai-Kit Wong, Li You, Jie Tang, Yangyang Zhang, and Hyundong Shin, “Power minimization of multiuser FAS-RIS downlink system,” *IEEE Transactions on Vehicular Technology*, vol. 74, no. 10, pp. 16471–16476, October 2025
- [44] Hao Jiang, Wangqi Shi, Zhen Chen, Zaichen Zhang, Kai-Kit Wong, and Hyundong Shin, “Dynamic channel modeling of fluid antenna systems in UAV communications,” *IEEE Wireless Communications Letters*, vol. 14, no. 10, pp. 3169–3173, October 2025
- [45] Brian E. Arfeto, Shehbaz Tariq, Uman Khalid, Trung Q. Duong, and Hyundong Shin, “GenSC-6G: A prototype testbed for integrated generative AI, quantum, and semantic communication,” *IEEE Communications Magazine*, vol. 63, no. 10, pp. 28–35, October 2025
- [46] Alice Faisal, Ibrahim Al-Nahhal, Kyesan Lee, Octavia A. Dobre, and Hyundong Shin, “Conditional generative adversarial networks for channel estimation in RIS-assisted ISAC systems,” *IEEE Transactions on Communications*, vol. 73, no. 9, pp. 7828–7841, September 2025
- [47] Tianyu Han, Yongxu Zhu, Kai-Kit Wong, Gan Zheng, and Hyundong Shin, “Cell-free fluid antenna multiple access networks,” *IEEE Transactions on Wireless Communications*, vol. 24, no. 9, pp. 7237–7251, September 2025
- [48] Thai-Hoc Vu, Khac-Tuan Nguyen, Daniel Benevides da Costa, Hyundong Shin, and Sunghwan Kim, “Aerial STAR-RIS-based symbiotic systems with semi-NOMA transmission: Performance analysis and optimization,” *IEEE Internet of Things Journal*, vol. 12, no. 18, pp. 38043–38058, September 2025
- [49] Awais Khan, Jason William Setiawan, Saw Nang Paing, Trung Q. Duong, Moe Z. Win, and Hyundong Shin, “Controlled quantum anonymous publication,” *IEEE Journal on Selected Areas in Communications*, vol. 43, no. 8, pp. 2875–2889, August 2025
- [50] Uman Khalid, Usama Inam Paracha, Syed Muhammad Abuzar Rizvi, and Hyundong Shin, “Quantum computing for intelligent transportation systems: VQE-based traffic routing and EV charging scheduling,” *Mathematics*, vol. 13, no. 17, article id: 2761, August 2025
- [51] Syed Muhammad Abuzar Rizvi, Usama Inam Paracha, Uman Khalid, Kyesan Lee, and Hyundong Shin, “Quantum machine learning: Towards hybrid quantum-classical vision models,” *Mathematics*, vol. 13, no. 16, article id: 2645, August 2025
- [52] Xun Zhang, Kehao Wang, Xiaobai Li, Pei Liu, and Hyundong Shin, “Joint task chain, power and UAV trajectory optimization based on an integrated multi-UAV system,” *IEEE Transactions on Vehicular Technology*, vol. 74, no. 8, pp. 12907–12920, August 2025

- [53] Shunxing Yang, Junteng Yao, Jie Tang, Tuo Wu, Maged Elkashlan, Chau Yuen, Mérouane Debbah, Hyundong Shin, and Matthew Valenti, “Towards intelligent antenna positioning: Leveraging DRL for FAS-aided ISAC systems,” *IEEE Internet of Things Journal*, vol. 12, no. 16, pp. 34615–34618, August 2025
- [54] Abd Ullah Khan, Muhammad Tanveer, Sami Ullah, Hyundong Shin, and Xingwang Li, “On spectral intelligence in 6G URLLC networks,” *IEEE Transactions on Vehicular Technology*, vol. 74, no. 7, pp. 11176–11193, July 2025
- [55] Shuaixin Yang, Yue Xiao, Ping Yang, Jiangong Chen, Saviour Zammit, Hyundong Shin, and Kai-Kit Wong, “Fluid antenna enabled space-time block coding with achievable rate optimization,” *IEEE Communications Letters*, vol. 29, no. 7, pp. 1689–1693, July 2025
- [56] Junaid ur Rehman, Syed Muhammad Abuzar Rizvi, Seid Koudia, Symeon Chatzino-tas, and Hyundong Shin, “MIMO quantum communication in correlated pure-loss channels,” *IEEE Communications Letters*, vol. 29, no. 7, pp. 1544–1548, July 2025
- [57] Muhammad Fahim, S. M. Ahsan Kazmi, Vishal Sharma, Hyundong Shin, and Trung Q. Duong, “Edge intelligence: A deep distilled model for wearables to enable proactive eldercare,” *IEEE Transactions on Artificial Intelligence*, vol. 6, no. 7, pp. 1736–1745, July 2025
- [58] Alain R. Ndjionguea, Octavia A. Dobre, and Hyundong Shin, “On-demand RIS-assisted free space optical access system for 6G networks,” *IEEE Transactions on Vehicular Technology*, vol. 74, no. 6, pp. 9059–9070, June 2025
- [59] Byungha You, In-Ho Lee, Haejoon Jung, Trung Q. Duong, and Hyundong Shin, “Secure 3D directional modulation using subarrays based on planar frequency diverse array with nonuniform frequency offsets,” *IEEE Transactions on Communications*, vol. 73, no. 6, pp. 4017–4032, June 2025
- [60] Xingwang Li, Jingwei Zhao, Gaojie Chen, Wanming Hao, Daniel Benevides Da Costa, Arumugam Nallanathan, Hyundong Shin, and Chau Yuen, “STAR-RIS-assisted covert wireless communications with randomly distributed blockages,” *IEEE Transactions on Wireless Communications*, vol. 24, no. 6, pp. 4690–4705, June 2025
- [61] Chunfeng Xie, Zhixiong Chen, Wenqiang Yi, Hyundong Shin, and Arumugam Nal-lanathan, “Tackling class imbalance and client heterogeneity for split federated learning in wireless networks,” *IEEE Transactions on Wireless Communications*, vol. 24, no. 6, pp. 4920–4936, June 2025
- [62] Sandeep Singh, Keshav Singh, Sandeep Kumar Singh, Hyundong Shin, and Trung Q. Duong, “Beamforming design towards sum-rate maximization for holographic active RIS-aided uplink near-field communications,” *IEEE Internet of Things Journal*, vol. 12, no. 12, pp. 18582–18595, June 2025
- [63] Babatunde Emmanuel Aka, Wee Kiat New, Chee Yen Leow, Kai-Kit Wong, and Hyundong Shin, “Power minimization for half-duplex relay in fluid antenna system,” *IEEE Wireless Communications Letters*, vol. 14, no. 6, pp. 1698–1702, June 2025
- [64] Jung-Chieh Chen, Tzu-Lu Cheng, Kai-Kit Wong, and Hyundong Shin, “Improved joint transmit and receive port selection for capacity maximization in fluid-MIMO

- systems,” *IEEE Wireless Communications Letters*, vol. 14, no. 6, pp. 1693–1697, June 2025
- [65] Alice Faisal, Ibrahim Al-Nahhal, Octavia A. Dobre, Telex M. N. Ngatched, and Hyundong Shin, “Deep reinforcement learning for RIS-aided full-duplex systems: Advances and challenges,” *IEEE Communications Magazine*, vol. 63, no. 6, pp. 82–89, June 2025
- [66] Uman Khalid, Usama Inam Paracha, Zeerak Naveed, Trung Q. Duong, Moe Z. Win, and Hyundong Shin, “Quantum fusion intelligence for integrated satellite-ground remote sensing,” *IEEE Wireless Communications*, vol. 32, no. 3, pp. 46–55, June 2025
- [67] Junteng Yao, Liangxiao Xin, Tuo Wu, Ming Jin, Kai-Kit Wong, Chau Yuen, and Hyundong Shin, “FAS for secure and covert communications,” *IEEE Internet of Things Journal*, vol. 12, no. 11, pp. 18414–18418, June 2025
- [68] Esraa A. Makled, Ibrahim Al-Nahhal, Octavia A. Dobre, Oktay Üreten, and Hyundong Shin, “Identification of cellular signal measurements using extreme learning machine,” *IEEE Internet of Things Journal*, vol. 12, no. 11, pp. 15491–15500, June 2025
- [69] Mubasher Haq, Ijaz Ali Shoukat, Alamgir Naushad, Mohsin Raza Jafri, Moid Sandhu, Abd Ullah Khan, and Hyundong Shin, “DynBlock: dynamic data encryption with toffoli gate for IoT,” *Scientific Reports*, vol. 15, no. 1, article id: 17864, May 2025
- [70] Awais Khan, Tinh Thanh Bui, Junaid ur Rehman, Symeon Chatzinotas, Simon L. Cotton, Octavia A. Dobre, Trung Q. Duong, and Hyundong Shin, “Integrated non-terrestrial and terrestrial quantum anonymous networks,” *IEEE Network*, vol. 39, no. 3, pp. 196–206, May 2025
- [71] Mohamed Elfiatoure, Mohammadali Mohammadi, Hien Quoc Ngo, Hyundong Shin, and Michail Matthaiou, “Multiple-target detection in cell-free massive MIMO-assisted ISAC,” *IEEE Transactions on Wireless Communications*, vol. 24, no. 5, pp. 4283–4298, May 2025
- [72] Alain R. Ndjiongue, Octavia A. Dobre, and Hyundong Shin, “On the concept of on-demand RIS-assisted 6G networks: Applications and the way forward,” *IEEE Communications Magazine*, vol. 63, no. 5, pp. 174–181, May 2025
- [73] Wen-Jun Lu, Chun-Xing He, Yongxu Zhu, Kin-Fai Tong, Kai-Kit Wong, Hyundong Shin, and Tie Jun Cui, “Fluid antennas: Reshaping intrinsic properties for flexible radiation characteristics in intelligent wireless networks,” *IEEE Communications Magazine*, vol. 63, no. 5, pp. 40–45, May 2025
- [74] Yongguang Lu, Kehao Wang, Pei Liu, Lin Chen, Hyundong Shin, and Tony Q. S. Quek, “Tradeoff analysis of unintentional interference and communication rate of UAV,” *IEEE Transactions on Vehicular Technology*, vol. 74, no. 4, pp. 5941–5953, April 2025
- [75] Uman Khalid, Junaid ur Rehman, Haejoon Jung, Trung Q. Duong, Octavia A. Dobre, and Hyundong Shin, “Quantum property learning for NISQ networks: Universal quantum witness machines,” *IEEE Transactions on Communications*, vol. 73, no. 4, pp. 2207–2221, April 2025

- [76] Hanjiang Hong, Kai-Kit Wong, Kin-Fai Tong, Hyundong Shin, and Yangyang Zhang, “Coded fluid antenna multiple access over fast fading channels,” *IEEE Wireless Communications Letters*, vol. 14, no. 4, pp. 1249–1253, April 2025
- [77] Nathanael Danso-Ntiamoah, Aseni Jayarathne, Ibrahim Al-Nahhal, Octavia A. Dobre, and Hyundong Shin, “Low complexity joint detection and estimation for MIMO RIS-ISAC systems,” *IEEE Wireless Communications Letters*, vol. 14, no. 4, pp. 944–948, April 2025
- [78] Bishmita Hazarika, Piyush Singh, Keshav Singh, Simon L. Cotton, Hyundong Shin, Octavia A. Dobre, and Trung Q. Duong, “Generative AI-augmented graph reinforcement learning for adaptive UAV swarm optimization,” *IEEE Internet of Things Journal*, vol. 12, no. 8, pp. 9508–9524, April 2025
- [79] Kubra Duran, Hyundong Shin, Trung Q. Duong, and Berk Canberk, “GenTwin: Generative AI-powered digital twinning for adaptive management in IoT networks,” *IEEE Transactions on Cognitive Communications and Networking*, vol. 11, no. 2, pp. 1053–1063, April 2025
- [80] Kehao Wang, Hao Zhang, Georges Kaddoum, Hyundong Shin, Tony Q. S. Quek, and Moe Z. Win, “SGAN-RA: Reconstruction attack for big model in asynchronous federated learning,” *IEEE Communications Magazine*, vol. 63, no. 4, pp. 66–72, April 2025
- [81] Khac-Tuan Nguyen, Thai-Hoc Vu, Hyundong Shin, and Sunghwan Kim, “Performance analysis of active RIS and passive RIS-aided MISO systems over Nakagami- m fading channel with imperfect CSI,” *IEEE Transactions on Vehicular Technology*, vol. 74, no. 3, pp. 4334–4348, March 2025
- [82] Junteng Yao, Ming Jin, Tuo Wu, Maged ElKashlan, Chau Yuen, Kai-Kit Wong, George K. Karagiannidis, and Hyundong Shin, “FAS-driven spectrum sensing for cognitive radio networks,” *IEEE Internet of Things Journal*, vol. 12, no. 5, pp. 6046–6049, March 2025
- [83] Saw Nang Paing, Fakhar Zaman, Junaid ur Rehman, Kyung Min Byun, Jinsung Cho, Trung Q. Duong, and Hyundong Shin, “Counterfactual quantum protocols for dialogue, teleportation, and comparison,” *IEEE Transactions on Communications*, vol. 73, no. 2, pp. 874–888, February 2025
- [84] Junaid ur Rehman, Muhammad Shohibul Ulum, Abdurrahman Wachid Shaffar, Amirul Adlil Hakim, Mujirin, Zaid Abdullah, Hayder Al-Hraishawi, Symeon Chatzinotas, and Hyundong Shin, “Evolutionary algorithms and quantum computing: Recent advances, opportunities, and challenges,” *IEEE Access*, vol. 13, pp. 16649–16670, January 2025
- [85] Yared Abera Ergu, Van-Linh Nguyen, Ren-Hung Hwang, Ying-Dar Lin, Chuan-Yu Cho, Hui-Kuo Yang, Hyundong Shin, and Trung Q. Duong, “Efficient adversarial attacks against DRL-based resource allocation in intelligent O-RAN for V2X,” *IEEE Transactions on Vehicular Technology*, vol. 74, no. 1, pp. 1674–1686, January 2025
- [86] Zhixiong Chen, Wenqiang Yi, Hyundong Shin, and Arumugam Nallanathan, “Adaptive semi-asynchronous federated learning over wireless networks,” *IEEE Transactions on Communications*, vol. 73, no. 1, pp. 394–409, January 2025

- [87] Jahangir Rasheed, Moiz Uddin Shaikh, Mohsin Jafri, Abd Ullah Khan, Moid Sandhu, and Hyundong Shin, “Leveraging CapsNet for enhanced classification of 3D MRI images for alzheimer’s diagnosis,” *Biomedical Signal Processing and Control*, vol. 103, article id: 107384, January 2025
- [88] Tinh T. Bui, Long D. Nguyen, Berk Canberk, Vishal Sharma, Octavia A. Dobre, Hyundong Shin, and Trung Q. Duong, “Digital twin-empowered integrated satellite-terrestrial networks toward 6G Internet of Things,” *IEEE Communications Magazine*, vol. 62, no. 12, pp. 74–81, December 2024
- [89] Van-Linh Nguyen, Hao-Ping Tsai, Hyundong Shin, and Trung Q. Duong, “Spatial data transformation and vision learning for elevating intrusion detection in IoT networks,” *IEEE Internet of Things Journal*, vol. 11, no. 24, pp. 41261–41272, December 2024
- [90] Qian Gao, Ruikang Zhong, Hyundong Shin, and Yuanwei Liu, “MARL based UAV trajectory and beamforming optimization for ISAC system,” *IEEE Internet of Things Journal*, vol. 11, no. 24, pp. 40492–40505, December 2024
- [91] Yagmur Yigit, Leandros Maglaras, William J. Buchanan, Berk Canberk, Hyundong Shin, and Trung Q. Duong, “AI-enhanced digital twin framework for cyber-resilient 6G Internet-of-Vehicles networks,” *IEEE Internet of Things Journal*, vol. 11, no. 22, pp. 36168–36181, November 2024
- [92] Neng Ye, Chaoqun Hou, Qiaolin Ouyang, Bichen Kang, Hyundong Shin, and Shahid Mumtaz, “Techno-economic assessment of LEO mega-constellation with multi-satellite collaboration,” *IEEE Communications Magazine*, vol. 62, no. 11, pp. 36–42, November 2024
- [93] Zhixiong Chen, Wenqiang Yi, Hyundong Shin, Arumugam Nallanathan, and Geoffrey Ye Li, “Efficient wireless federated learning with partial model aggregation,” *IEEE Transactions on Communications*, vol. 72, no. 10, pp. 6271–6286, October 2024
- [94] Uman Khalid, Muhammad Shohibul Ulum, Moe Z. Win, and Hyundong Shin, “Integrated satellite-ground variational quantum sensing networks,” *IEEE Communications Magazine*, vol. 62, no. 10, pp. 20–27, October 2024
- [95] Dang Van Huynh, Saeed R. Khosravirad, Simon Cotton, Thang X. Vu, Octavia A. Dobre, Hyundong Shin, and Trung Q. Duong, “Joint sensing, communications, and computing design for 6G URLLC service-oriented MEC networks,” *IEEE Internet of Things Journal*, vol. 11, no. 20, pp. 32429–32439, October 2024
- [96] Alain R. Ndjiongue, Octavia A. Dobre, and Hyundong Shin, “Maximal transmission rate in omni-DRIS-assisted indoor visible light communication systems,” *IEEE Transactions on Vehicular Technology*, vol. 73, no. 9, pp. 13956–13961, September 2024
- [97] Saw Nang Paing, Jason William Setiawan, Trung Q. Duong, Dusit Niyato, Moe Z. Win, and Hyundong Shin, “Quantum anonymous networking: A quantum leap in privacy,” *IEEE Network*, vol. 38, no. 5, pp. 131–145, September 2024
- [98] Shehbaz Tariq, Brian E. Arfeto, Uman Khalid, Sunghwan Kim, Trung Q. Duong, and Hyundong Shin, “Deep quantum-transformer networks for multimodal beam prediction in ISAC systems,” *IEEE Internet of Things Journal*, vol. 11, no. 18, pp. 29387–29401, September 2024

- [99] Muhammad Shohibul Ulum, Uman Khalid, Jason William Setiawan, Trung Q. Duong, Moe Z. Win, and Hyundong Shin, “Variational anonymous quantum sensing,” *IEEE Journal on Selected Areas in Communications*, vol. 42, no. 9, pp. 2275–2291, September 2024
- [100] Sylvester Aboagye, Telex M. N. Ngatched, Alain R. Ndjiongue, Octavia A. Dobre, and Hyundong Shin, “Liquid crystal-based RIS for VLC transmitters: Performance analysis, challenges, and opportunities,” *IEEE Wireless Communications*, vol. 31, no. 4, pp. 98–105, August 2024
- [101] Shehbaz Tariq, Ahmad Farooq, Junaid Ur Rehman, Trung Q. Duong, and Hyundong Shin, “Efficient quantum state estimation with low-rank matrix completion,” *EPJ Quantum Technology*, vol. 11, no. 1, article id: 50, August 2024
- [102] Zhixiong Chen, Wenqiang Yi, Hyundong Shin, and Arumugam Nallanathan, “Adaptive model pruning for communication and computation efficient wireless federated learning,” *IEEE Transactions on Wireless Communications*, vol. 23, no. 7, pp. 7582–7598, July 2024
- [103] Shehbaz Tariq, Uman Khalid, Brian E. Arfeto, Trung Q. Duong, and Hyundong Shin, “Integrating sustainable big AI: Quantum anonymous semantic broadcast,” *IEEE Wireless Communications*, vol. 31, no. 3, pp. 86–99, June 2024
- [104] James Adu Ansere, Eric Gyamfi, Vishal Sharma, Hyundong Shin, Octavia A. Dobre, and Trung Q. Duong, “Quantum deep reinforcement learning for dynamic resource allocation in mobile edge computing-based IoT systems,” *IEEE Transactions on Wireless Communications*, vol. 23, no. 6, pp. 6221–6233, June 2024
- [105] Jung-Gon Seo, In-Ho Lee, Haejoon Jung, Daniel Benevides da Costa, and Hyundong Shin, “Doppler characterization in LEO satellite-aided UAV swarm networks,” *IEEE Wireless Communications Letters*, vol. 13, no. 4, pp. 1178–1182, April 2024
- [106] Junaid ur Rehman, Hayder Al-Hraishawi, Trung Q. Duong, Symeon Chatzinotas, and Hyundong Shin, “On estimating time-varying Pauli noise,” *IEEE Transactions on Communications*, vol. 72, no. 4, pp. 2079–2089, April 2024
- [107] Saw Nang Paing, Jason William Setiawan, Muhammad Asad Ullah, Fakhar Zaman, Trung Q. Duong, Octavia A. Dobre, and Hyundong Shin, “Counterfactual quantum Byzantine consensus for human-centric Metaverse,” *IEEE Journal on Selected Areas in Communications*, vol. 42, no. 4, pp. 905–918, April 2024
- [108] Minh-Hien T. Nguyen, Tinh T. Bui, Long D. Nguyen, Emiliano Garcia-Palacios, Hans-Jürgen Zepernick, Hyundong Shin, and Trung Q. Duong, “Real-time optimized clustering and caching for 6G satellite-UAV-terrestrial networks,” *IEEE Transactions on Intelligent Transportation Systems*, vol. 25, no. 3, pp. 3009–3019, March 2024
- [109] James Adu Ansere, Dung T. Tran, Octavia A. Dobre, Hyundong Shin, George K. Karagiannidis, and Trung Q. Duong, “Energy-efficient optimization for mobile edge computing with quantum machine learning,” *IEEE Wireless Communications Letters*, vol. 13, no. 3, pp. 661–665, March 2024
- [110] Alain R. Ndjiongue, Telex M. N. Ngatched, Octavia A. Dobre, Harald Haas, and Hyundong Shin, “Double-sided beamforming in VLC systems using omni-digital reconfigurable intelligent surfaces,” *IEEE Communications Magazine*, vol. 62, no. 2, pp. 150–155, February 2024

- [111] Uman Khalid, Junaid ur Rehman, Saw Nang Paing, Haejoon Jung, Trung Q. Duong, and Hyundong Shin, “Quantum network engineering in the NISQ age: Principles, missions, and challenges,” *IEEE Network*, vol. 38, no. 1, pp. 112–123, January 2024
- [112] Esraa A. Makled, Ibrahim Al-Nahhal, Octavia A. Dobre, Oktay Üreten, and Hyundong Shin, “Identification of cellular measurements: A neural network approach,” *IEEE Transactions on Instrumentation and Measurement*, vol. 73, pp. 1–12, 2024
- [113] Abd Ullah Khan, Muhammad Tanveer, Hyundong Shin, Musheer Ahmad, Ammar Muthanna, Abdukodir A. Khakimov, Fahad Alblehai, and Ahmed A. Abd El-Latif, “Toward spectrum efficiency and reliability for heterogeneous users in CR-enabled social Internet of Things,” *IEEE Access*, vol. 11, pp. 145706–145722, December 2023
- [114] Yu Liu, Ibrahim Al-Nahhal, Octavia A. Dobre, Fanggang Wang, and Hyundong Shin, “Extreme learning machine-based channel estimation in IRS-assisted multi-user ISAC system,” *IEEE Transactions on Communications*, vol. 71, no. 12, pp. 6993–7007, December 2023
- [115] James Adu Ansere, Eric Gyamfi, Yijiu Li, Hyundong Shin, Octavia A. Dobre, Trang Hoang, and Trung Q. Duong, “Optimal computation resource allocation in energy-efficient edge IoT systems with deep reinforcement learning,” *IEEE Transactions on Green Communications and Networking*, vol. 7, no. 4, pp. 2130–2142, December 2023
- [116] Quang Nhat Le, Van-Dinh Nguyen, Octavia A. Dobre, and Hyundong Shin, “RIS-assisted full-duplex integrated sensing and communication,” *IEEE Wireless Communications Letters*, vol. 12, no. 10, pp. 1677–1681, October 2023
- [117] Tra Huong Thi Le, Luigi Cantos, Shashi Raj Pandey, Hyundong Shin, and Yun Hee Kim, “Federated learning with NOMA assisted by multiple intelligent reflecting surfaces: Latency minimizing optimization and auction,” *IEEE Transactions on Vehicular Technology*, vol. 72, no. 9, pp. 11558–11574, September 2023
- [118] Geunyeong Jang, Byungha You, In-Ho Lee, Haejoon Jung, and Hyundong Shin, “Secrecy rate degradation of ground-to-air collaborative beamforming due to UAV jitter,” *IEEE Transactions on Vehicular Technology*, vol. 72, no. 9, pp. 12361–12366, September 2023
- [119] Fakhar Zaman, Uman Khalid, Trung Q. Duong, Hyundong Shin, and Moe Z Win, “Quantum full-duplex communication,” *IEEE Journal on Selected Areas in Communications*, vol. 41, no. 9, pp. 2966–2980, September 2023
- [120] Uman Khalid, Muhammad Shohibul Ulum, Ahmad Farooq, Trung Q. Duong, Octavia A. Dobre, and Hyundong Shin, “Quantum semantic communications for Metaverse: Principles and challenges,” *IEEE Wireless Communications*, vol. 30, no. 4, pp. 26–36, August 2023
- [121] Muhammad Sohail, Abd Ullah Khan, Moid Sandhu, Ijaz Ali Shoukat, Mohsin Jafri, and Hyundong Shin, “Radar sensor based machine learning approach for precise vehicle position estimation,” *Scientific Reports*, vol. 13, no. 1, article id: 13837, August 2023
- [122] Rojeena Bajracharya, Rakesh Shrestha, Syed Ali Hassan, Haejoon Jung, and Hyundong Shin, “5G and beyond private military communication: Trend, requirements, challenges and enablers,” *IEEE Access*, vol. 11, pp. 83996–84012, August 2023

- [123] Muhammad Talha Rahim, Awais Khan, Uman Khalid, Junaid ur Rehman, Haejoon Jung, and Hyundong Shin, “Quantum secure metrology for network sensing-based applications,” *Scientific Reports*, vol. 13, no. 1, article id: 11630, July 2023
- [124] Fakhar Zaman, Saw Nang Paing, Ahmad Farooq, Hyundong Shin, and Moe Z Win, “Concealed quantum telecomputation for anonymous 6G URLLC networks,” *IEEE Journal on Selected Areas in Communications*, vol. 41, no. 7, pp. 2278–2296, July 2023
- [125] Trung Q. Duong, Dang Van Huynh, Saeed R. Khosravirad, Vishal Sharma, Octavia A. Dobre, and Hyundong Shin, “From digital twin to Metaverse: The role of 6G ultra-reliable and low-latency communications with multi-tier computing,” *IEEE Wireless Communications*, vol. 30, no. 3, pp. 140–146, June 2023
- [126] Kehao Wang, Pei Liu, Kezhong Liu, Lin Chen, Hyundong Shin, and Tony Q. S. Quek, “Joint beamforming and phase-shifting design for energy efficiency in RIS-assisted MISO communication with statistical CSI,” *Physical Communication*, vol. 59, article id: 102080, April 2023
- [127] Fakhar Zaman, Ahmad Farooq, Muhammad Asad Ullah, Haejoon Jung, Hyundong Shin, and Moe Z. Win, “Quantum machine intelligence for 6G URLLC,” *IEEE Wireless Communications*, vol. 30, no. 2, pp. 22–30, April 2023
- [128] Naema Asif, Uman Khalid, Awais Khan, Trung Q. Duong, and Hyundong Shin, “Entanglement detection with artificial neural networks,” *Scientific Reports*, vol. 13, no. 1, article id: 1562, January 2023
- [129] Dang Van Huynh, Van-Dinh Nguyen, Saeed R. Khosravirad, Vishal Sharma, Octavia A. Dobre, Hyundong Shin, and Trung Q. Duong, “URLLC edge networks with joint optimal user association, task offloading and resource allocation: A digital twin approach,” *IEEE Transactions on Communications*, vol. 70, no. 11, pp. 7669–7682, November 2022
- [130] Saw Nang Paing, Jason William Setiawan, Shehbaz Tariq, Muhammad Talha Rahim, Kyesan Lee, and Hyundong Shin, “Counterfactual anonymous quantum teleportation in the presence of adversarial attacks and channel noise,” *Sensors*, vol. 22, no. 19, article id: 7587, October 2022
- [131] Rojeena Bajracharya, Rakesh Shrestha, Haejoon Jung, and Hyundong Shin, “Neutral host technology: The future of mobile network operators,” *IEEE Access*, vol. 10, pp. 99221–99234, September 2022
- [132] Junaid ur Rehman, Seongjin Hong, Seung-Woo Lee, Yong-Su Kim, Young-Wook Cho, Hojoong Jung, Sung Moon, Hyundong Shin, Sang-Wook Han, and Hyang-Tag Lim, “Optimal strategy for multiple-phase estimation under practical measurement with multimode NOON states,” *Physical Review A*, vol. 106, no. 3, article id: 032612, September 2022
- [133] Trung Q. Duong, James Adu Ansere, Bhaskara Narottama, Vishal Sharma, Octavia A. Dobre, and Hyundong Shin, “Quantum-inspired machine learning for 6G: Fundamentals, security, resource allocations, challenges, and future research directions,” *IEEE Open Journal of Vehicular Technology*, vol. 3, pp. 375 – 387, August 2022

- [134] Syed Muhammad Abuzar Rizvi, Naema Asif, Muhammad Shohibul Ulum, Trung Q. Duong, and Hyundong Shin, “Multiclass classification of metrologically resourceful tripartite quantum states with deep neural networks,” *Sensors*, vol. 22, no. 18, article id: 6767, September 2022
- [135] Trung Q. Duong, Long D. Nguyen, Bhaskara Narottama, James Adu Ansere, Dang Van Huynh, and Hyundong Shin, “Quantum-inspired real-time optimization for 6G networks: Opportunities, challenges, and the road ahead,” *IEEE Open Journal of the Communications Society*, vol. 3, pp. 1347–1359, August 2022
- [136] Ahmad Farooq, Muhammad Asad Ullah, Junaid ur Rehman, Kyesan Lee, and Hyundong Shin, “Self-guided quantum state learning for mixed states,” *Quantum Information Processing*, vol. 21, no. 7, article id: 243, July 2022
- [137] Awais Khan, Uman Khalid, Junaid ur Rehman, and Hyundong Shin, “Quantum anonymous private information retrieval for distributed networks,” *IEEE Transactions on Communications*, vol. 70, no. 6, pp. 4026–4037, June 2022
- [138] Muhammad Asad Ullah, Jason William Setiawan, Junaid ur Rehman, and Hyundong Shin, “On the robustness of quantum algorithms for blockchain consensus,” *Sensors*, vol. 22, no. 7, article id: 2716, April 2022
- [139] Muhammad Asad Ullah, Saw Nang Paing, and Hyundong Shin, “Noise-robust quantum teleportation with counterfactual communication,” *IEEE Access*, vol. 10, pp. 61484–61493, June 2022
- [140] Ahmad Farooq, Uman Khalid, Junaid ur Rehman, and Hyundong Shin, “Robust quantum state tomography method for quantum sensing,” *Sensors*, vol. 22, no. 7, article id: 2669, March 2022
- [141] Junaid ur Rehman, Seongjin Hong, Yong-Su Kim, and Hyundong Shin, “Variational estimation of capacity bounds for quantum channels,” *Physical Review A*, vol. 105, no. 3, article id: 032616, March 2022
- [142] Syed Tihaam Ahmad, Ahmad Farooq, and Hyundong Shin, “Self-guided quantum state tomography for limited resources,” *Scientific Reports*, vol. 12, article id: 5092, March 2022
- [143] Donghwa Lee, Jinil Lee, Seongjin Hong, Hyang-Tag Lim, Young-Wook Cho, Sang-Wook Han, Hyundong Shin, Junaid ur Rehman, and Yong-Su Kim, “Error-mitigated photonic variational quantum eigensolver using a single-photon ququart,” *Optica*, vol. 9, no. 1, pp. 88–95, January 2022
- [144] Awais Khan, Uman Khalid, Junaid ur Rehman, Kyesan Lee, and Hyundong Shin, “Quantum anonymous collision detection for quantum networks,” *EPJ Quantum Technology*, vol. 8, no. 1, article id: 27, December 2021
- [145] Awais Khan, Junaid ur Rehman, and Hyundong Shin, “Quantum anonymous notification for network-based applications,” *Quantum Information Processing*, vol. 20, no. 12, article id: 397, November 2021
- [146] Han Seung Jang, Hoon Lee, Tony Q. S. Quek, and Hyundong Shin, “Deep learning-based cellular random access framework,” *IEEE Transactions on Wireless Communications*, vol. 20, no. 11, pp. 7503–7518, November 2021

- [147] Syed Muhammad Kazim, Ahmad Farooq, Junaid ur Rehman, and Hyundong Shin, “Adaptive quantum state tomography with iterative particle filtering,” *Quantum Information Processing*, vol. 20, no. 10, article id: 348, October 2021
- [148] Syahri Ramadhani, Junaid ur Rehman, and Hyundong Shin, “Quantum error mitigation for quantum state tomography,” *IEEE Access*, vol. 9, pp. 107955–107964, July 2021
- [149] Junaid ur Rehman and Hyundong Shin, “Entanglement-free parameter estimation of generalized Pauli channels,” *Quantum*, vol. 5, article id: 490, July 2021
- [150] Fakhar Zaman, Een-Kee Hong, and Hyundong Shin, “Local distinguishability of Bell-type states,” *Quantum Information Processing*, vol. 20, no. 5, article id: 174, May 2021
- [151] Fakhar Zaman, Kyesan Lee, and Hyundong Shin, “Information carrier and resource optimization of counterfactual quantum communication,” *Quantum Information Processing*, vol. 20, no. 5, article id: 168, May 2021
- [152] Uman Khalid, Junaid ur Rehman, and Hyundong Shin, “Metrologically resourceful multipartite entanglement under quantum many-body effects,” *Quantum Science and Technology*, vol. 6, no. 2, article id: 025007, January 2021
- [153] Dung Phuong Trinh, Youngmin Jeong, Hyundong Shin, and Moe Z. Win, “Molecular communication in H -diffusion,” *IEEE Transactions on Communications*, vol. 68, no. 7, pp. 4293–4310, July 2020
- [154] Kehao Wang, Zhenhua Xiong, Lin Chen, Pan Zhou, and Hyundong Shin, “Joint time delay and energy optimization with intelligent overclocking in edge computing,” *Science China Information Sciences*, vol. 63, no. 4, article id: 140313, March 2020
- [155] Junaid ur Rehman, Ahmad Farooq, and Hyundong Shin, “Discrete Weyl channels with Markovian memory,” *IEEE Journal on Selected Areas in Communications*, vol. 38, no. 3, pp. 413–426, March 2020
- [156] Think Quang Dinh, Ben Liang, Tony Q. S. Quek, and Hyundong Shin, “Online resource procurement and allocation in a hybrid edge-cloud computing system,” *IEEE Transactions on Wireless Communications*, vol. 19, no. 3, pp. 2137–2149, March 2020
- [157] Muhammad Asad Ullah, Junaid ur Rehman, and Hyundong Shin, “Quantum frequency synchronization of distant clock oscillators,” *Quantum Information Processing*, vol. 19, no. 5, article id: 144, March 2020
- [158] Kehao Wang, Zhixin Hu, Qingsong Ai, Yi Zhong, Jihong Yu, Pan Zhou, Lin Chen, and Hyundong Shin, “Joint offloading and charge cost minimization in mobile edge computing,” *IEEE Open Journal of the Communications Society*, vol. 1, pp. 205–216, February 2020
- [159] Uman Khalid, Junaid ur Rehman, and Hyundong Shin, “Measurement-based quantum correlations for quantum information processing,” *Scientific Reports*, vol. 10, article id: 2443, February 2020

- [160] Khai Nguyen Doan, Mojtaba Vaezi, Wonjae Shin, H. Vincent Poor, Hyundong Shin, and Tony Q. S. Quek, "Power allocation in cache-aided NOMA systems: Optimization and deep reinforcement learning approaches," *IEEE Transactions on Communications*, vol. 68, no. 1, pp. 630–644, January 2020
- [161] Dung Phuong Trinh, Youngmin Jeong, Hyundong Shin, and Moe Z. Win, "Molecular communication with anomalous diffusion in stochastic nanonetworks," *IEEE Transactions on Communications*, vol. 67, no. 12, pp. 8378–8393, December 2019
- [162] Awais Khan, Junaid ur Rehman, Kehao Wang, and Hyundong Shin, "Unified monogamy relations of multipartite entanglement," *Scientific Reports*, vol. 9, article id: 16419, November 2019
- [163] A. Chaminda J. Samarasekera and Hyundong Shin, "Cooperative nano communication in the THz gap frequency range using wireless power transfer," *KSII Transactions on Internet and Information Systems*, vol. 13, no. 10, pp. 5035–5057, October 2019
- [164] Jinghong Tan, Qi Zhang, Tony Q. S. Quek, and Hyundong Shin, "Robust energy efficiency maximization in multicast downlink C-RAN," *IEEE Transactions on Vehicular Technology*, vol. 68, no. 9, pp. 8951–8965, September 2019
- [165] Mao V. Ngo, Quang Duy La, Derek Leong, Tony Q. S. Quek, and Hyundong Shin, "User behavior driven MAC scheduling for body sensor networks: A cross-layer approach," *IEEE Sensors Journal*, vol. 19, no. 17, pp. 7755–7765, September 2019
- [166] Junaid ur Rehman and Hyundong Shin, "Purity-based continuity bounds for von Neumann entropy," *Scientific Reports*, vol. 9, article id: 13912, September 2019
- [167] Dung Phuong Trinh, Youngmin Jeong, and Hyundong Shin, "Connectivity in molecular communication with random time constraints," *IEEE Access*, vol. 7, pp. 113121–113130, August 2019
- [168] Fakhar Zaman, Youngmin Jeong, and Hyundong Shin, "Dual quantum Zeno superdense coding," *Scientific Reports*, vol. 9, article id: 11193, August 2019
- [169] Khai Nguyen Doan, Thang Van Nguyen, Hyundong Shin, and Tony Q. S. Quek, "Socially-aware caching in wireless networks with random D2D communications," *IEEE Access*, vol. 7, pp. 58394–58406, May 2019
- [170] Junaid ur Rehman, Youngmin Jeong, and Hyundong Shin, "Directly estimating the Holevo capacity of discrete Weyl channels," *Physical Review A*, vol. 99, no. 4, article id: 042312, April 2019
- [171] Youngmin Jeong and Hyundong Shin, "Quantum correlation in squeezed generalized amplitude damping channels with memory," *Scientific Reports*, vol. 9, article id: 4035, March 2019
- [172] Ahmad Farooq, Junaid ur Rehman, Youngmin Jeong, Jeong San Kim, and Hyundong Shin, "Tightening monogamy and polygamy inequalities of multiqubit entanglement," *Scientific Reports*, vol. 9, article id: 3314, March 2019
- [173] Quang Duy La, Mao V. Ngo, Thinh Quang Dinh, Tony Q. S. Quek, and Hyundong Shin, "Enabling intelligence in fog computing to achieve energy and latency reduction," *Digital Communications and Networks*, vol. 5, no. 1, pp. 3–9, February 2019, (2024 Best Paper Award)

- [174] Awais Khan, Ahmad Farooq, Youngmin Jeong, and Hyundong Shin, “Distribution of entanglement in multipartite systems,” *Quantum Information Processing*, vol. 18, no. 2, article id: 60, January 2019
- [175] Think Quang Dinh, Quang Duy La, Tony Q. S. Quek, and Hyundong Shin, “Learning for computation offloading in mobile edge computing,” *IEEE Transactions on Communications*, vol. 66, no. 12, pp. 6353–6367, December 2018
- [176] Vien Van Mai, Jin Sam Kwak, Youngmin Jeong, and Hyundong Shin, “Optimal transmission in MIMO channels with multiuser interference,” *IEEE Transactions on Wireless Communications*, vol. 17, no. 11, pp. 7236–7251, November 2018
- [177] Junaid ur Rehman, Youngmin Jeong, Jeong San Kim, and Hyundong Shin, “Holevo capacity of discrete Weyl channels,” *Scientific Reports*, vol. 8, article id: 17457, November 2018
- [178] Uman Khalid, Youngmin Jeong, and Hyundong Shin, “Measurement-based quantum correlation in mixed-state quantum metrology,” *Quantum Information Processing*, vol. 17, no. 12, article id: 343, November 2018
- [179] Quang Duy La, Tony Q. S. Quek, and Hyundong Shin, “Dynamic network formation game with social awareness in D2D communications,” *IEEE Transactions on Wireless Communications*, vol. 17, no. 10, pp. 6544–6558, October 2018
- [180] Fakhar Zaman, Youngmin Jeong, and Hyundong Shin, “Counterfactual Bell-state analysis,” *Scientific Reports*, vol. 8, article id: 14641, October 2018
- [181] Junaid ur Rehman, Ahmad Farooq, Youngmin Jeong, and Hyundong Shin, “Quantum channel discrimination without entanglement,” *Quantum Information Processing*, vol. 17, no. 10, article id: 271, September 2018
- [182] Thang Van Nguyen, Tony Q. S. Quek, and Hyundong Shin, “Joint channel identification and estimation in wireless network: Sparsity and optimization,” *IEEE Transactions on Wireless Communications*, vol. 17, no. 5, pp. 3141–3153, May 2018
- [183] Khai Nguyen Doan, Thang Van Nguyen, Tony Q. S. Quek, and Hyundong Shin, “Content-aware proactive caching for backhaul offloading in cellular network,” *IEEE Transactions on Wireless Communications*, vol. 17, no. 5, pp. 3128–3140, May 2018
- [184] Youngmin Jeong, Dung Phuong Trinh, and Hyundong Shin, “Cutset bounds on the capacity of MIMO relay channels,” *IEEE Access*, vol. 5, pp. 20339–20348, September 2017
- [185] Dung Phuong Trinh, Youngmin Jeong, and Hyundong Shin, “MIMO capacity in Binomial field networks,” *IEEE Access*, vol. 5, pp. 12545–12551, June 2017
- [186] Saad Qaisar, Junaid ur Rehman, Youngmin Jeong, and Hyundong Shin, “Practical deterministic secure quantum communication in a lossy channel,” *Progress of Theoretical and Experimental Physics*, vol. 2017, no. 4, pp. 1–12, April 2017
- [187] Junaid ur Rehman, Saad Qaisar, Youngmin Jeong, and Hyundong Shin, “Security of a control key in quantum key distribution,” *Modern Physics Letters B*, vol. 31, no. 11, article id: 1750119, April 2017

- [188] Constantin Siriteanu, Akimichi Takemura, Christoph Koutschan, Satoshi Kuriki, Donald St. P. Richards, and Hyundong Shin, “Exact ZF analysis and computer-algebra-aided evaluation in rank-1 LoS Rician fading,” *IEEE Transactions on Wireless Communications*, vol. 15, no. 8, pp. 5245–5259, August 2016
- [189] Vien V. Mai, Youngmin Jeong, and Hyundong Shin, “Error exponents for distributed detection,” *IEEE Communications Letters*, vol. 20, no. 1, pp. 121–124, January 2016
- [190] Trang Ngoc Cao, Dung Phuong Trinh, Youngmin Jeong, and Hyundong Shin, “Anomalous diffusion in molecular communication,” *IEEE Communications Letters*, vol. 19, no. 10, pp. 1674–1677, October 2015
- [191] Youngmin Jeong, Hyundong Shin, and Moe Z. Win, “ H -transforms for wireless communication,” *IEEE Transactions on Information Theory*, vol. 61, no. 7, pp. 3773–3809, July 2015
- [192] Thang Van Nguyen, Youngmin Jeong, Hyundong Shin, and Moe Z. Win, “Machine learning for wideband localization,” *IEEE Journal on Selected Areas in Communications*, vol. 33, no. 7, pp. 1357–1380, July 2015
- [193] —, “Least-square cooperative localization,” *IEEE Transactions on Vehicular Technology*, vol. 64, no. 4, pp. 1318–1330, April 2015
- [194] Constantin Siriteanu, Akimichi Takemura, Satoshi Kuriki, Hyundong Shin, and Christoph Koutschan, “MIMO zero-forcing performance evaluation using the holonomic gradient method,” *IEEE Transactions on Wireless Communications*, vol. 14, no. 4, pp. 2322–2335, April 2015
- [195] Constantin Siriteanu, Akimichi Takemura, Satoshi Kuriki, Donald St. P. Richards, and Hyundong Shin, “Schur complement based analysis of MIMO zero-forcing for Rician fading,” *IEEE Transactions on Wireless Communications*, vol. 14, no. 4, pp. 1757–1771, April 2015
- [196] Mei Leng, Wee Peng Tay, Tony Q. S. Quek, and Hyundong Shin, “Distributed local linear parameter estimation using Gaussian SPAWN,” *IEEE Transactions on Signal Processing*, vol. 63, no. 1, pp. 244–257, January 2015
- [197] Thang Van Nguyen, Youngmin Jeong, Dung Phuong Trinh, and Hyundong Shin, “Location-aware visual radios,” *IEEE Wireless Communications*, vol. 21, no. 4, pp. 28–36, August 2014
- [198] Jaeyoung Lee, Hyundong Shin, and Jun Heo, “Opportunistic decouple-and-forward relaying: Harnessing distributed antennas,” *IEICE Transactions on Communications*, vol. 97, no. 6, pp. 1148–1156, June 2014
- [199] Thang Van Nguyen, Youngmin Jeong, Jin Sam Kwak, and Hyundong Shin, “Secure multiple-input single-output communication—Part I: Secrecy rates and switched power allocation,” *IET Communications*, vol. 8, no. 8, pp. 1217–1226, May 2014, (Invited Paper)
- [200] —, “Secure multiple-input single-output communication—Part II: δ -secrecy SEP and secrecy diversity,” *IET Communications*, vol. 8, no. 8, pp. 1227–1238, May 2014, (Invited Paper)

- [201] Sunghwan Kim, Giang Kien Nguyen, Tiep Minh Hoang, and Hyundong Shin, "Concatenated coding and hybrid ARQ for wiretap channels," *IET Communications*, vol. 8, no. 8, pp. 1211–1216, May 2014
- [202] Youngmin Jeong, Tony Q. S. Quek, Jin Sam Kwak, and Hyundong Shin, "Multicasting in stochastic MIMO networks," *IEEE Transactions on Wireless Communications*, vol. 13, no. 4, pp. 1–13, April 2014
- [203] Constantin Siriteanu, Steven D. Blostein, Akimichi Takemura, Hyundong Shin, Shahram Yousefi, and Satoshi Kuriki, "Exact MIMO zero-forcing detection analysis for transmit-correlated Rician fading," *IEEE Transactions on Wireless Communications*, vol. 13, no. 3, pp. 1514–1527, March 2014
- [204] Tianheng Wang, Yuan Shen, Santiago Mazuelas, Hyundong Shin, and Moe Z. Win, "On OFDM ranging accuracy in multipath channels," *IEEE Systems Journal*, vol. 8, no. 1, pp. 104–114, March 2014
- [205] Jaeyoung Lee, Hyundong Shin, Inkyu Lee, and Jun Heo, "Optimal linear multihop system for DF relaying in a Poisson field of interferers," *IEEE Communications Letters*, vol. 17, no. 11, pp. 2029–2032, November 2013
- [206] Youngmin Jeong, Jo Woon Chong, Hyundong Shin, and Moe Z. Win, "Intervehicle communication: Cox–Fox modeling," *IEEE Journal on Selected Areas in Communications*, vol. 31, no. 9, pp. 418–433, September 2013
- [207] Tri Minh Nguyen, Youngmin Jeong, Tony Q. S. Quek, Wee Peng Tay, and Hyundong Shin, "Interference alignment in a Poisson field of MIMO femtocells," *IEEE Transactions on Wireless Communications*, vol. 12, no. 6, pp. 2633–2645, June 2013
- [208] Yong Sheng Soh, Tony Q. S. Quek, Marios Kountouris, and Hyundong Shin, "Energy efficient heterogeneous cellular networks," *IEEE Journal on Selected Areas in Communications*, vol. 31, no. 5, pp. 840–850, May 2013
- [209] Youngmin Jeong, Hyundong Shin, and Moe Z. Win, "Superanalysis of optimum combining with application to femtocell networks," *IEEE Journal on Selected Areas in Communications*, vol. 30, no. 3, pp. 509–524, April 2012
- [210] Thang Van Nguyen, Hyundong Shin, Tony Q. S. Quek, and Moe Z. Win, "Sensing and probing cardinalities for active cognitive radios," *IEEE Transactions on Signal Processing*, vol. 60, no. 4, pp. 1833–1848, April 2012
- [211] Jaeyoung Lee, Hyundong Shin, Joon Tae Kim, and Jun Heo, "Transmission capacity for dual-hop relaying in wireless ad hoc networks," *EURASIP Journal on Wireless Communications and Networking*, vol. 2012, no. 1, article id: 58, February 2012
- [212] Tony Q. S. Quek, Kampol Woradit, Hyundong Shin, and Zander Lei, "Uplink coordinated multi-point ARQ in MIMO cellular systems," *IEICE Transactions on Communications*, vol. E94.B, no. 12, pp. 3211–3224, December 2011, (Invited Paper)
- [213] Thang Van Nguyen and Hyundong Shin, "Power allocation and achievable secrecy rates in MISOME wiretap channels," *IEEE Communications Letters*, vol. 15, no. 11, pp. 1196–1198, November 2011

- [214] Youngmin Jeong, Tony Q. S. Quek, and Hyundong Shin, "Beamforming optimization for multiuser two-tier networks," *Journal of Communications and Networks*, vol. 13, no. 4, pp. 327–338, August 2011, (Invited Paper)
- [215] Thang Van Nguyen, Hyundong Shin, and Moe Z. Win, "Optimal sensing cardinality for cognitive radios," *IEEE Communications Letters*, vol. 15, no. 7, pp. 716–718, July 2011
- [216] Alberto Rabbachin, Tony Q. S. Quek, Hyundong Shin, and Moe Z. Win, "Cognitive network interference," *IEEE Journal on Selected Areas in Communications*, vol. 29, no. 2, pp. 480–493, February 2011, (IEEE William R. Bennett Prize in the Field of Communications Networking)
- [217] Hien Quoc Ngo, Tony Q. S. Quek, and Hyundong Shin, "Amplify-and-forward two-way relay networks: Error exponents and resource allocation," *IEEE Transactions on Communications*, vol. 58, no. 9, pp. 2653–2666, September 2010
- [218] Tony Q. S. Quek and Hyundong Shin, "Bursty relay networks in low-SNR regimes," *IEEE Transactions on Communications*, vol. 58, no. 2, pp. 694–705, February 2010
- [219] Marco Chiani, Moe Z. Win, and Hyundong Shin, "MIMO networks: The effects of interference," *IEEE Transactions on Information Theory*, vol. 56, no. 1, pp. 336–349, January 2010
- [220] Hien Quoc Ngo, Tony Q. S. Quek, and Hyundong Shin, "Random coding error exponent for dual-hop Nakagami- m fading channels with amplify-and-forward relaying," *IEEE Communications Letters*, vol. 13, no. 11, pp. 823–825, November 2009
- [221] Youngmin Jeong and Hyundong Shin, "Effect of joint spatial correlation on the diversity performance of space-time block codes," *IEEE Communications Letters*, vol. 13, no. 7, pp. 477–479, July 2009
- [222] Youngpil Song, Hyundong Shin, and Een-Kee Hong, "MIMO cooperative diversity with scalar-gain amplify-and-forward relaying," *IEEE Transactions on Communications*, vol. 57, no. 7, pp. 1932–1938, July 2009
- [223] Hyundong Shin and Moe Z. Win, "Gallager's exponent for MIMO channels: A reliability-rate tradeoff," *IEEE Transactions on Communications*, vol. 57, no. 4, pp. 972–985, April 2009
- [224] Youngpil Song and Hyundong Shin, "Symbol error probability for M -ary signals in Stacy fading channels," *IEICE Transactions on Communications*, vol. E92-B, no. 3, pp. 973–979, March 2009
- [225] Bappi Barua, Hien Quoc Ngo, and Hyundong Shin, "On the SEP of cooperative diversity with opportunistic relaying," *IEEE Communications Letters*, vol. 12, no. 10, pp. 727–729, October 2008
- [226] Youngpil Song, Hyundong Shin, and Wonha Kim, "Asymptotic SEP for M -PSK signals over α - μ fading channels," *IEEE Communications Letters*, vol. 12, no. 9, pp. 675–677, September 2008
- [227] Andrea Conti, Jiangzhou Wang, Hyundong Shin, Ramesh Annavajjala, and Moe Z. Win, "Editorial: Wireless cooperative networks," *EURASIP Journal on Wireless Communications and Networking*, vol. 2008, article id: 810149, August 2008

- [228] Hyundong Shin and Moe Z. Win, "MIMO diversity in the presence of double scattering," *IEEE Transactions on Information Theory*, vol. 54, no. 7, pp. 2976–2996, July 2008
- [229] Hyundong Shin and Ju Bin Song, "MRC analysis of cooperative diversity with fixed-gain relays in Nakagami- m fading channels," *IEEE Transactions on Wireless Communications*, vol. 7, no. 6, pp. 2069–2074, June 2008
- [230] Hyundong Shin, Moe Z. Win, and Marco Chiani, "Asymptotic statistics of mutual information for doubly correlated MIMO channels," *IEEE Transactions on Wireless Communications*, vol. 7, no. 2, pp. 562–573, February 2008
- [231] Trung Q. Duong, Hyundong Shin, and Ee-Kee Hong, "Error probability of binary and M -ary signals with spatial diversity in Nakagami- q (Hoyt) fading channels," *EURASIP Journal on Wireless Communications and Networking*, vol. 2007, no. 1, article id: 053742, December 2007
- [232] Tony Q. S. Quek, Hyundong Shin, and Moe Z. Win, "Robust wireless relay networks: Slow power allocation with guaranteed QoS," *IEEE Journal of Selected Topics in Signal Processing*, vol. 1, no. 4, pp. 700–713, December 2007
- [233] Aggelos Bletsas, Hyundong Shin, and Moe Z. Win, "Cooperative communications with outage-optimal opportunistic relaying," *IEEE Transactions on Wireless Communications*, vol. 6, no. 9, pp. 3450–3460, September 2007, (IEEE Guglielmo Marconi Prize Paper Award in Wireless Communications)
- [234] ———, "Outage analysis for co-operative communication with multiple amplify-and-forward relays," *Electronics Letters*, vol. 43, no. 6, pp. 353–355, March 2007
- [235] ———, "Outage optimality of opportunistic amplify-and-forward relaying," *IEEE Communications Letters*, vol. 11, no. 3, pp. 261–263, March 2007
- [236] Hyundong Shin, Moe Z. Win, and Jae Hong Lee, "Saddlepoint approximation to the outage capacity of MIMO channels," *IEEE Transactions on Wireless Communications*, vol. 5, no. 10, pp. 2679–2684, October 2006
- [237] Hyundong Shin, Moe Z. Win, Jae Hong Lee, and Marco Chiani, "On the capacity of doubly correlated MIMO channels," *IEEE Transactions on Wireless Communications*, vol. 5, no. 8, pp. 2253–2265, August 2006
- [238] Hyundong Shin and Jae Hong Lee, "On the error probability of binary and M -ary signals in Nakagami- m fading channels," *IEEE Transactions on Communications*, vol. 52, no. 4, pp. 536–539, April 2004
- [239] ———, "Performance analysis of space-time block codes over keyhole Nakagami- m fading channels," *IEEE Transactions on Vehicular Technology*, vol. 53, no. 2, pp. 351–362, March 2004
- [240] ———, "On the capacity of MIMO wireless channels," *IEICE Transactions on Communications*, vol. E87-B, no. 3, pp. 671–677, March 2004
- [241] ———, "Capacity of multiple-antenna fading channels: Spatial fading correlation, double scattering, and keyhole," *IEEE Transactions on Information Theory*, vol. 49, no. 10, pp. 2636–2647, October 2003

- [242] —, “Effect of keyholes on the symbol error rate of space–time block codes,” *IEEE Communications Letters*, vol. 7, no. 1, pp. 27–29, January 2003
- [243] —, “Channel reliability estimation for turbo decoding in Rayleigh fading channels with imperfect channel estimates,” *IEEE Communications Letters*, vol. 6, no. 11, pp. 503–505, November 2002

Conference Papers

- [1] Yuxiang Zheng, Simon L. Cotton, Hyundong Shin, and Trung Q. Duong, “Quantum neural networks for MADRL-assisted optimal resource allocation in vehicular networks,” in *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, Taipei, Taiwan, December 2025
- [2] Sasinda C. Prabhashana, Dang Van Huynh, Octavia A. Dobre, Hyundong Shin, and Trung Q. Duong, “Quantum DRL for green UAV positioning in 6G-enabled SAGIN with cooperative nano-satellite constellations,” in *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, Taipei, Taiwan, December 2025
- [3] Dang Van Huynh, Sasinda C. Prabhashana, Hyundong Shin, and Trung Q. Duong, “Quantum deep Q-networks for adaptive resource control in SAGIN-enabled augmented reality systems,” in *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, Taipei, Taiwan, December 2025
- [4] Tianyu Han, Yongxu Zhu, Gan Zheng, and Hyundong Shin, “Performance analysis of fluid antenna system in cell-free networks,” in *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, Taipei, Taiwan, December 2025
- [5] Aditya Sharma, Kamal Agrawal, Keshav Singh, Hyundong Shin, and Mayur V. Katwe, “Joint communication and sensing in full-duplex ISAC systems: Analytical sum-rate and sensing-rate performance,” in *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, Taipei, Taiwan, December 2025
- [6] Ruby Jane Pedronan Agullana, Keshav Singh, Arnav Mukhopadhyay, Hyundong Shin, and Trung Q. Duong, “Active reconfigurable intelligent surface assisted near-field covert-overt communications,” in *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, Taipei, Taiwan, December 2025
- [7] Uman Khalid, Muhammad Shohibul Ulum, Trung Q. Duong, Moe Z. Win, and Hyundong Shin, “Noise-robust distributed quantum sensing: A variational quantum approach,” in *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, Taipei, Taiwan, December 2025
- [8] Khin Thandar Kyaw, Usama Inam Paracha, Uman Khalid, and Hyundong Shin, “Quantum-enhanced transformer networks for mammography classification,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2025
- [9] Muhammad Hamza, Muhammad Mustafa Umar Gondel, and Hyundong Shin, “Adaptive quantum circuit pruning with reinforcement learning,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2025

- [10] Aden Mobusher, Muhammad Hamza, Abrar Ul Haque, and Hyundong Shin, “Adaptive quantum autoencoders for violence detection in surveillance videos,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2025
- [11] Nomi Lae, Jason William Setiawan, and Hyundong Shin, “Proactive entanglement routing in quantum networks,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2025
- [12] Abdurrahman Wachid Shaffar and Hyundong Shin, “Multipart continuous-variable microwave entanglement distribution for quantum teleportation,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2025
- [13] Amirul Adlil Hakim, Muhammad Shohibul Ulum, and Hyundong Shin, “Linear-optical realization of repeated helstrom measurements for quantum state discrimination,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2025
- [14] Hussan ul Maab, Abrar ul Haque, and Hyundong Shin, “Information reconciliation in quantum key distribution post-processing,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2025
- [15] Usama Inam Paracha, Abrar Ul Haque, Muhammad Mustafa Umar Gondel, Uman Khalid, and Hyundong Shin, “Gradient variance measurements in parameterized quantum circuits,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2025
- [16] Aung Hnin Parn, Jason William Setiawan, and Hyundong Shin, “Fidelity analysis for dephasing channels in two-qubit systems,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2025
- [17] Elaheh Gholamalishahiharouni, Abdurrahman Wachid Shaffar, Syed Muhammad Abuzar Rizvi, Uman Khalid, and Hyundong Shin, “Analytical design of an LC double-notch purcell filter for superconducting quantum circuits,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2025
- [18] Muhammad Shohibul Ulum, Saw Nang Paing, and Hyundong Shin, “Quantum covert communication with quantum GUS states,” in *Proceedings of International Conference on Information and Communication Technology Convergence (ICTC)*, Jeju, Korea, October 2025
- [19] Iqra Hameed, Uman Khalid, Md Habibur Rahman, Mohammad Abrar Shakil Sejan, Hyundong Shin, and Hyung-Kyu Song, “Quantum-based beamforming optimization for transmit power minimization in MISO networks,” in *Proceedings of IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)*, Istanbul, Türkiye, September 2025
- [20] Sandeep Singh, Keshav Singh, Sandeep Kumar Singh, Hyundong Shin, and Trung Q. Duong, “Maximizing sum-rate in holographic active RIS-aided uplink near-field communications,” in *Proceedings of IEEE International Conference on Communications (ICC)*, Montreal, Canada, June 2025

- [21] Chunfeng Xie, Zhixiong Chen, Wenqiang Yi, Hyundong Shin, and Arumugam Nallanathan, “DevSFL: Deviation-aware split federated learning in resource-constrained wireless networks,” in *Proceedings of IEEE International Conference on Communications (ICC)*, Montreal, Canada, June 2025
- [22] Bingjie Zhu, Zhixiong Chen, Liqiang Zhao, Hyundong Shin, and Arumugam Nallanathan, “Joint caching and inference for large language models in wireless networks,” in *Proceedings of IEEE International Conference on Communications (ICC)*, Montreal, Canada, June 2025
- [23] Sasinda C. Prabhashana, Dang Van Huynh, Keshav Singh, Hans-Jürgen Zepernick, Octavia A. Dobre, Hyundong Shin, and Trung Q. Duong, “Aerial reconfigurable intelligent surface-enabled SAGIN with LSTM-enhanced DRL model,” in *Proceedings of IEEE International Conference on Communications (ICC)*, Montreal, Canada, June 2025
- [24] Anas M. Nabih, Brian E. Arfeto, Uman Khalid, and Hyundong Shin, “Vision language model for interpreting wigner distributions in quantum optics,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2025
- [25] Muhammad Talha, Uman Khalid, and Hyundong Shin, “Quantum reservoir learning with Rydberg lattice,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2025
- [26] Phone Myat Min, Saw Nang Paing, and Hyundong Shin, “Portfolio optimization with QAOA,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2025
- [27] Muhammad Mustafa Umar Gondel, Syed Muhammad Abuzar Rizvi, Uman Khalid, and Hyundong Shin, “NISQ state preparation with reinforcement learning,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2025
- [28] Ameema Tahir, Jae Uk Roh, and Hyundong Shin, “Learning-based entanglement detection in two-qubit systems using partial pauli expectation values,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2025
- [29] Saw Nang Paing, Jinsung Cho, and Hyundong Shin, “Fairness-aware quantum anonymous entanglement distillation,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2025
- [30] Mujirin, Jae Uk Roh, Wook Park, and Hyundong Shin, “Empirical analysis of copy-number effects in helstrom quantum classification for titanic survival,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2025
- [31] Abrar Ul Haque, Kyung Min Byun, and Hyundong Shin, “Bayesian one-shot quantum state discrimination under measurement constraints,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2025

- [32] Awais Khan, Uman Khalid, Yun Hee Kim, Trung Q. Duong, and Hyundong Shin, “Anonymous quantum group communication in quantum linear networks,” in *Proceedings of International Conference on Industrial Networks and Intelligent Systems Programs (INISCOM)*, Da Nang, Vietnam, February 2025
- [33] Abdurrahman Wachid Shaffar, Kyung Min Byun, and Hyundong Shin, “Squeezing parameter impact on fidelity of wireless microwave quantum teleportation,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2024
- [34] Muhammad Talha, Shehbaz Tariq, and Hyundong Shin, “Recent advances in quantum reservoir computing,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2024
- [35] Nomi Lae, Saw Nang Paing, and Hyundong Shin, “Quantum repeater networks on NetSquid simulator,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2024
- [36] Zeerak Naveed, Jinsung Cho, and Hyundong Shin, “Quantum-enhanced neural networks for disaster detection and impact estimation,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2024
- [37] Phone Myat Min, Brian E. Arfeto, Shehbaz Tariq, and Hyundong Shin, “Quantum-augmented LSTM networks for stock price forecasting,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2024
- [38] Saw Nang Paing, Wook Park, and Hyundong Shin, “Implementation of quantum secure direct communication on NetSquid simulator,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2024, (Best Paper Award)
- [39] Muhammad Shohibul Ulum, Kyesan Lee, and Hyundong Shin, “EPR pairs with GHZ states distribution,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2024
- [40] Brian E. Arfeto, Shehbaz Tariq, and Hyundong Shin, “Edge diffusion model for enhanced resolution in semantic communication,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2024
- [41] Mujirin and Hyundong Shin, “Can a language model generate π digits?” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2024
- [42] Amirul Adlil Hakim, Abdurrahman Wachid Shaffar, and Hyundong Shin, “Bit-flip errors in quantum sensing for binary decision protocols,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2024
- [43] Aung Hnin Parn, Haejoon Jung, and Hyundong Shin, “Anonymous teleportation of 2-qubit entangled states,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2024

- [44] Abrar Ul Haque, Jinsung Cho, and Hyundong Shin, “Continuous-variable quantum K-means clustering with photonic gaussian states,” in *Proceedings of International Conference on Information and Communication Technology Convergence (ICTC)*, Jeju, Korea, October 2024
- [45] Shehbaz Tariq, Brian Estadimas Arfeto, Haejoon Jung, and Hyundong Shin, “Beam prediction in mmWave V2I communications with quantum transformer networks,” in *Proceedings of International Conference on Information and Communication Technology Convergence (ICTC)*, Jeju, Korea, October 2024
- [46] Muhammad Mustafa Umar Gondel, Kyung Min Byun, and Hyundong Shin, “Advancing textual semantic understanding with quantum LSTM networks,” in *Proceedings of International Conference on Information and Communication Technology Convergence (ICTC)*, Jeju, Korea, October 2024
- [47] Usama Inam Paracha, Syed Muhammad Abuzar Rizvi, Muhammad Mustafa Umar Gondel, Wook Park, and Hyundong Shin, “Adaptive quantum readout error mitigation with transfer learning,” in *Proceedings of International Conference on Information and Communication Technology Convergence (ICTC)*, Jeju, Korea, October 2024
- [48] Hassan Tariq, Mohsin Raza Jafri, Abd Ullah Khan, Kyesan Lee, and Hyundong Shin, “An efficient and low-profile MIMO antenna for 5G-WiFi interference rejection: Design and analysis,” in *Proceedings of International Conference on Information and Communication Technology Convergence (ICTC)*, Jeju, Korea, October 2024
- [49] Saw Nang Paing, Trung Q. Duong, and Hyundong Shin, “Counterfactual long-distance quantum communication,” in *Proceedings of International Conference on Quantum Communications, Networking, and Computing (QCNC)*, Kanazawa, Japan, July 2024
- [50] Uman Khalid, Trung Q. Duong, and Hyundong Shin, “Artificial neural networks for quantum sensing: Metrologically resourceful state detection,” in *Proceedings of International Conference on Quantum Communications, Networking, and Computing (QCNC)*, Kanazawa, Japan, July 2024
- [51] Soo Min Oh, Hyundong Shin, Stefano Marano, Andrea Conti, and Moe Win, “Entanglement percolation in noisy quantum networks,” in *Proceedings of International Conference on Quantum Communications, Networking, and Computing (QCNC)*, Kanazawa, Japan, July 2024, (Best Paper Award)
- [52] Zhixiong Chen, Wenqiang Yi, Hyundong Shin, and Arumugam Nallanathan, “Fast wireless federated learning with adaptive synchronous degree control,” in *Proceedings of IEEE Vehicular Technology Conference (VTC)*, Singapore, Singapore, June 2024
- [53] Shehbaz Tariq, Jae Uk Roh, and Hyundong Shin, “Quantum reinforcement learning for digital twin placement in 6G networks,” in *Proceedings of Joint Conference on Communications and Information (JCCI)*, Busan, Korea, April 2024
- [54] Jason William Setiawan, Kyesan Lee, and Hyundong Shin, “Quantum anonymity for enhanced data privacy in 6G networks,” in *Proceedings of Joint Conference on Communications and Information (JCCI)*, Busan, Korea, April 2024

- [55] Syed Muhammad Abuzar Rizvi, Muhammad Mustafa Umar Gondel, Usama Inam Paracha, and Hyundong Shin, “Variational quantum eigensolver for optimizing network scheduling using QUBO formulation,” in *Proceedings of International Conference on Industrial Networks and Intelligent Systems Programs (INISCOM)*, Da Nang, Vietnam, February 2024
- [56] Uman Khalid, Junaid ur Rehman, Ahmad Farooq, Fakhar Zaman, and Hyundong Shin, “Optimal task scheduling in 6G networks: A variational quantum computing approach,” in *Proceedings of International Conference on Industrial Networks and Intelligent Systems Programs (INISCOM)*, Da Nang, Vietnam, February 2024
- [57] Shehbaz Tariq, Muhammad Shohibul Ulum, Abdurrahman Wachid Shaffar, Wook Park, Sunghwan Kim, and Hyundong Shin, “Multi-agent quantum reinforcement learning for digital twin placement in 6G multi-tier systems,” in *Proceedings of International Conference on Industrial Networks and Intelligent Systems Programs (INISCOM)*, Da Nang, Vietnam, February 2024
- [58] Mujirin, Haejoon Jung, and Hyundong Shin, “Teleporting energy in photonic quantum networks: Insights from continuous-variable systems,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2023
- [59] Aung Hnin Parn, Saw Nang Paing, and Hyundong Shin, “Quantifying anonymous entanglement in relay-based networks,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2023
- [60] Amirul Adlil Hakim, Abdurrahman Wachid Shaffar, Haejoon Jung, and Hyundong Shin, “Implementation of quantum signal processing for chebyshev polynomials approximation,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2023
- [61] Nomi Lae, Saw Nang Paing, and Hyundong Shin, “Detection of dishonest users in anonymous entanglement generation,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2023
- [62] Muhammad Shohibul Ulum, Kyesan Lee, and Hyundong Shin, “Adaptive trotterized quantum adiabatic algorithm,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2023
- [63] Abdurrahman Wachid Shaffar, Amirul Adlil Hakim, Haejoon Jung, and Hyundong Shin, “Comparative analysis of variational ansatzes in the kagome heisenberg antiferromagnet,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2023
- [64] Saw Nang Paing, Nomi Lae, and Hyundong Shin, “Analysis of noisy qudit transmission,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2023
- [65] Syed Muhammad Abuzar Rizvi, Muhammad Shohibul Ulum, Naema Asif, and Hyundong Shin, “Neural networks with variational quantum circuits,” in *Proceedings of International Conference on Industrial Networks and Intelligent Systems Programs (INISCOM)*, Ho Chi Minh, Vietnam, August 2023, (Best Paper Award)

- [66] Jason William Setiawan, Minseok Choi, and Hyundong Shin, “Robustness of single-qutrit Byzantine agreement in noisy networks,” in *Proceedings of Joint Conference on Communications and Information (JCCI)*, Yeosu, Korea, April 2023
- [67] Shehbaz Tariq, Abrar Ul Haque, Haejoon Jung, and Hyundong Shin, “Quantum approximate optimization for optimal EV charging schedules,” in *Proceedings of Joint Conference on Communications and Information (JCCI)*, Yeosu, Korea, April 2023
- [68] Naema Asif, Minseok Choi, and Hyundong Shin, “Classification of tripartite entangled states with machine learning,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2023
- [69] Awais Khan, Haejoon Jung, and Hyundong Shin, “Quantum-secured intra-twin communication for vehicular digital twin networks,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2023
- [70] Abrar Ul Haque, Shehbaz Tariq, Haejoon Jung, and Hyundong Shin, “Prototyping a quantum clustering algorithm for NISQ computing,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2023
- [71] Muhammad Talha Rahim, Ahmad Farooq, Kyesan Lee, and Hyundong Shin, “Performance evaluation of hybrid quantum-classical neural networks,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2023
- [72] Usama Inam Paracha, Shehbaz Tariq, Minseok Choi, and Hyundong Shin, “Bit-flip error mitigation using deep learning,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2023
- [73] Muhammad Mustafa Umar Gondel, Ahmad Farooq, and Hyundong Shin, “Variational method for high-fidelity quantum state preparation,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2022
- [74] Fadhel Hariz Dzulfikar, Muhammad Shohibul Ulum, Ahmad Farooq, and Hyundong Shin, “Reliable implementation of quantum Fourier transform on NISQ devices,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2022
- [75] Syed Muhammad Abuzar Rizvi, Fakhar Zaman, Kyesan Lee, and Hyundong Shin, “Quantum optimal control with pulses,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2022
- [76] Abdurrahman Wachid Shaffar, Shehbaz Tariq, and Hyundong Shin, “Quantum convolutional neural networks for binary classification,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2022
- [77] Shehbaz Tariq, Kyesan Lee, and Hyundong Shin, “Deep learning assisted quantum state tomography,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Gyeongju, Korea, November 2022

- [78] Shehbaz Tariq, Ahmad Farooq, and Hyundong Shin, “Robust quantum state tomography with linear regression,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2022
- [79] Awais Khan, Uman Khalid, and Hyundong Shin, “Quantum-secured telemedicine systems,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2022
- [80] Fakhar Zaman, Syed Muhammad Abuzar Rizvi, and Hyundong Shin, “Quantum-assisted reinforcement learning,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2022
- [81] Muhammad Talha Rahim, Uman Khalid, Awais Khan, and Hyundong Shin, “Quantum secure parameter estimation for practical implementations,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2022
- [82] Fadhel Hariz Dzulfikar, Muhammad Asad Ullah, Muhammad Shohibul Ulum, and Hyundong Shin, “Optimal qubits for entangled state creation on IBM quantum Manila device,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2022
- [83] Naema Asif, Uman Khalid, Awais Khan, and Hyundong Shin, “Multi-class classification of non-classical correlations with machine learning,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2022
- [84] Uman Khalid, Awais Khan, and Hyundong Shin, “Metrological detection of bound entanglement,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2022
- [85] Syed Muhammad Abuzar Rizvi, Muhammad Asad Ullah, and Hyundong Shin, “Measurement error mitigation for NISQ devices,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2022
- [86] Muhammad Shohibul Ulum, Fakhar Zaman, Kyesan Lee, and Hyundong Shin, “High-fidelity probe state preparation,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2022
- [87] Jason William Setiawan, Muhammad Asad Ullah, Kyesan Lee, and Hyundong Shin, “Fault tolerance of qudit-based private list distribution,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2022
- [88] Abdurrahman Wachid Shaffar, Muhammad Asad Ullah, Shehbaz Tariq, and Hyundong Shin, “Experimental benchmarking between IBM quantum computing systems,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2022
- [89] Ahmad Farooq, Muhammad Mustafa Umar Gondel, and Hyundong Shin, “Error analysis of self-guided quantum state tomography,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2022

- [90] Saw Nang Paing and Hyundong Shin, “Controlled quantum dialogue networks,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2022
- [91] Muhammad Asad Ullah and Hyundong Shin, “Amplitude damping loss in quantum consensus algorithms,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2022
- [92] Donghwa Lee, Jinil Lee, Seongjin Hong, Hyang-Tag Lim, Young-Wook Cho, Sang-Wook Han, Hyundong Shin, Junaid ur Rehman, and Yong-Su Kim, “Experimental resource-efficient photonic variational quantum eigensolver,” in *Proceedings of Conference on Lasers and Electro-Optics (CLEO)*, San Jose, CA, USA, May 2022
- [93] Junaid ur Rehman and Hyundong Shin, “Simultaneous communication and parameter estimation of Pauli channels,” in *Proceedings of IEEE International Conference on Communications (ICC)*, Seoul, Korea, May 2022
- [94] ———, “Machine learning assisted quantum channel estimation,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2022
- [95] Muhammad Shohibul Ulum, Fakhar Zaman, Kyesan Lee, and Hyundong Shin, “Quantum metrology without learning system Hamiltonian,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2022
- [96] Shehbaz Tariq, Ahmad Farooq, Junaid ur Rehman, and Hyundong Shin, “Error analysis of gate and pulse model quantum circuits,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2022
- [97] Ahmad Farooq and Hyundong Shin, “Pure state extraction in standard quantum tomography,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2022
- [98] Saw Nang Paing, Fakhar Zaman, and Hyundong Shin, “Counterfactual quantum private comparison,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2022
- [99] Muhammad Asad Ullah, Jason William Setiawan, Junaid ur Rehman, and Hyundong Shin, “Robustness of entanglement-free quantum Byzantine agreement,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2022
- [100] Syed Muhammad Kazim, Junaid ur Rehman, and Hyundong Shin, “Robust ground state tomography with neural networks,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2022
- [101] Jason William Setiawan, Muhammad Asad Ullah, Kyesan Lee, and Hyundong Shin, “Throughput analysis of qudit based quantum Byzantine agreement,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2022

- [102] Uman Khalid, Junaid ur Rehman, and Hyundong Shin, “Quantum metrology with deterministic quantum computation,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2022
- [103] Naema Asif, Uman Khalid, Awais Khan, and Hyundong Shin, “Interpreting an artificial neural network as a quantum state classifier,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2022
- [104] Syed Muhammad Abuzar Rizvi, Muhammad Asad Ullah, and Hyundong Shin, “Machine learning for qubit state estimation on IBM quantum computer,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2022, (Best Paper Award)
- [105] Muhammad Talha Rahim, Uman Khalid, Awais Khan, and Hyundong Shin, “Precision-security tradeoffs in quantum secure estimation,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2022
- [106] Syed Tihaam Ahmad, Ahmad Farooq, and Hyundong Shin, “Genetic algorithm based quantum state tomography,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2022
- [107] Awais Khan, Junaid ur Rehman, and Hyundong Shin, “Quantum end-to-end encryption for e-health applications,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2022
- [108] Muhammad Asad Ullah, Ahmad Farooq, Youngmin Jeong, and Hyundong Shin, “Quantum pulse coding for Rabi and Ramsey evolution on IBM Armonk,” in *Proceedings of International Conference on Information and Communication Technology Convergence (ICTC)*, Jeju, Korea, October 2021
- [109] Junaid ur Rehman, Kyesan Lee, and Hyundong Shin, “Classical capacity regions for generalized Pauli channels,” in *Proceedings of International Conference on Information and Communication Technology Convergence (ICTC)*, Jeju, Korea, October 2021
- [110] Syed Tihaam Ahmad, Ahmad Farooq, and Hyundong Shin, “Effect of purity on maximum likelihood quantum state tomography,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2021
- [111] Syed Muhammad Kazim, Junaid ur Rehman, Youngmin Jeong, Kyesan Lee, and Hyundong Shin, “Neural network tomography for noisy quantum states,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2021
- [112] Ahmad Farooq, Junaid ur Rehman, Youngmin Jeong, and Hyundong Shin, “Polygamy relations for higher dimensional quantum systems,” in *Proceedings of Joint Conference on Communications and Information (JCCI)*, Busan, Korea, February 2021
- [113] Ahmad Farooq, Junaid ur Rehman, and Hyundong Shin, “Distribution of entanglement in multipartite qubit states,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2021

- [114] Muhammad Asad Ullah, Junaid ur Rehman, and Hyundong Shin, “Photon dynamics in counterfactual quantum communication,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2021
- [115] Syed Muhammad Kazim, Junaid ur Rehman, and Hyundong Shin, “Adaptive optimal basis tomography for qubits,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2021
- [116] Uman Khalid, Junaid ur Rehman, and Hyundong Shin, “Quantum correlations in single qubit metrology,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2021
- [117] Fakhar Zaman and Hyundong Shin, “Counterfactual swap gates,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2021
- [118] Awais Khan, Junaid ur Rehman, and Hyundong Shin, “Upper bound of Rényi- α entanglement for multipartite PCS,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2021
- [119] Nang Paing Saw, Fakhar Zaman, and Hyundong Shin, “Counterfactual controlled quantum teleportation,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2021
- [120] Syahri Ramadhani, Junaid ur Rehman, Kyesan Lee, and Hyundong Shin, “Quantum state tomography with the indefinite causal order,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Pyeongchang, Korea, February 2021
- [121] Nang Paing Saw, Fakhar Zaman, Junaid ur Rehman, and Hyundong Shin, “Counterfactual universal logic gates,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Pyeongchang, Korea, August 2020
- [122] Syed Muhammad Kazim, Ahmad Farooq, Junaid ur Rehman, and Hyundong Shin, “Applied Bayesian qubit state tomography,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Pyeongchang, Korea, August 2020
- [123] Ahmad Farooq and Hyundong Shin, “Hedge maximum-likelihood state tomography,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Pyeongchang, Korea, August 2020
- [124] Junaid ur Rehman and Hyundong Shin, “Optimal parameter estimation of noisy Pauli channels,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Pyeongchang, Korea, August 2020
- [125] Somi Yun, Fakhar Zaman, Junaid ur Rehman, and Hyundong Shin, “Bell’s inequality violation on MATLAB,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Pyeongchang, Korea, August 2020
- [126] Kihyo Kwon, Fakhar Zaman, Junaid ur Rehman, and Hyundong Shin, “Classical simulation of Shor’s algorithm,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Pyeongchang, Korea, August 2020

- [127] Syahri Ramadhani, Junaid ur Rehman, and Hyundong Shin, “Entanglement protection in quantum channels with memory,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Pyeongchang, Korea, August 2020
- [128] Fakhar Zaman and Hyundong Shin, “Interaction free measurement on IBMQ,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Pyeongchang, Korea, August 2020
- [129] Muhammad Asad Ullah, Junaid ur Rehman, and Hyundong Shin, “On the usefulness of ancilla-assisted entanglement for metrology,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Pyeongchang, Korea, August 2020
- [130] Ahmad Farooq, Junaid ur Rehman, Youngmin Jeong, and Hyundong Shin, “Polygamy relations for higher dimensional quantum systems,” in *Proceedings of Joint Conference on Communications and Information (JCCI)*, Busan, Korea, April 2020
- [131] Somi Yun, Kihyo Kwon, Junaid ur Rehman, Fakhar Zaman, and Hyundong Shin, “Quantum duplex coding for classical information on IBM quantum devices,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Seoul, Korea, November 2019, (Best Paper Award)
- [132] Fakhar Zaman and Hyundong Shin, “Chained quantum Zeno superdense coding,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Seoul, Korea, November 2019
- [133] Ahmad Farooq, Junaid ur Rehman, and Hyundong Shin, “Characterization of multiqubit-state entanglement,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Seoul, Korea, November 2019
- [134] Uman Khalid, Junaid ur Rehman, and Hyundong Shin, “Dimensional analysis of bipartite qudits for mixed-state metrology,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Seoul, Korea, November 2019
- [135] Awais Khan, Junaid ur Rehman, and Hyundong Shin, “General polygamy relation of Rényi- α entanglement for tripartite systems,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Seoul, Korea, November 2019
- [136] Junaid ur Rehman, Youngmin Jeong, and Hyundong Shin, “Conditional dequantization of quantum channels,” in *Proceedings of Joint Conference on Communications and Information (JCCI)*, Gangneung, Korea, May 2019
- [137] Uman Khalid, Youngmin Jeong, and Hyundong Shin, “Perturbation sensitivity in mixed-state metrology,” in *Proceedings of Joint Conference on Communications and Information (JCCI)*, Gangneung, Korea, May 2019
- [138] Awais Khan, Youngmin Jeong, and Hyundong Shin, “Generalized entanglement constraints in multiqubit systems,” in *Proceedings of Joint Conference on Communications and Information (JCCI)*, Gangneung, Korea, May 2019
- [139] Ahmad Farooq, Youngmin Jeong, and Hyundong Shin, “Polygamy relation of Tsallis- q entanglement of assistance for multiqubit W-class states,” in *Proceedings of Joint Conference on Communications and Information (JCCI)*, Gangneung, Korea, May 2019

- [140] Muhammad Asad Ullah, Youngmin Jeong, and Hyundong Shin, “Accuracy-precision trade-off in quantum phase estimation,” in *Proceedings of Joint Conference on Communications and Information (JCCI)*, Gangneung, Korea, May 2019
- [141] Fakhar Zaman, Youngmin Jeong, and Hyundong Shin, “Noise analysis of semi-counterfactual Bell measurements,” in *Proceedings of Joint Conference on Communications and Information (JCCI)*, Gangneung, Korea, May 2019
- [142] Dung Phuong Trinh, Youngmin Jeong, and Hyundong Shin, “Modeling for mobile molecular communication,” in *Proceedings of Joint Conference on Communications and Information (JCCI)*, Gangneung, Korea, May 2019, (Best Paper Award)
- [143] Fakhar Zaman, Youngmin Jeong, and Hyundong Shin, “Counterfactual quantum superdense coding,” in *Bulletin of the American Physical Society (BAPS)*, Boston, MA, March 2019, (Volume 64, Number 2, Session R28.00005)
- [144] Uman Khalid, Youngmin Jeong, and Hyundong Shin, “Quantum dimension witness and assisted quantum state discrimination,” in *Bulletin of the American Physical Society (BAPS)*, Boston, MA, March 2019, (Volume 64, Number 2, Session P27.00002)
- [145] Youngmin Jeong, Hyundong Shin, and Moe Z. Win, “Time-correlated Markovian quantum channels,” in *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, Abu Dhabi, UAE, December 2018
- [146] —, “Molecular communication in a Cox field of interfering molecules,” in *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, Abu Dhabi, UAE, December 2018
- [147] Fakhar Zaman, Youngmin Jeong, and Hyundong Shin, “Man in the middle attack in counterfactual quantum key distribution,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Seoul, Korea, November 2018
- [148] Awais Khan, Youngmin Jeong, and Hyundong Shin, “A lower bound of Rényi- α entanglement of assistance,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Seoul, Korea, November 2018
- [149] Ahmad Farooq, Youngmin Jeong, and Hyundong Shin, “Polygamy relation for mixed states multipartite qubit systems,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Seoul, Korea, November 2018
- [150] Uman Khalid, Youngmin Jeong, and Hyundong Shin, “Mixed-state metrology in noisy environments with interacting quantum probes,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Seoul, Korea, November 2018
- [151] Muhammad Asad Ullah, Youngmin Jeong, and Hyundong Shin, “Frequency estimation in quantum clock synchronization networks,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Seoul, Korea, November 2018
- [152] Junaid ur Rehman, Youngmin Jeong, and Hyundong Shin, “Continuity bounds of von Neumann entropy,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Seoul, Korea, November 2018
- [153] Youngmin Jeong and Hyundong Shin, “Protecting entanglement in quantum noisy channels with memory,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Seoul, Korea, November 2018

- [154] Dung Phuong Trinh, Youngmin Jeong, and Hyundong Shin, “Analysis of molecular communication in stochastic nanonetworks,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Seoul, Korea, November 2018, (Best Paper Award)
- [155] Youngmin Jeong, Hyundong Shin, and Moe Z. Win, “Entanglement dynamics of two qubits in squeezed thermal bath environments with channel memory,” in *Proceedings of Asian Quantum Information Science (AQIS) Conference*, Nagoya, Japan, September 2018
- [156] Ahmad Farooq, Youngmin Jeong, and Hyundong Shin, “Tightness of monogamy for multipartite entanglement in quantum networks,” in *Proceedings of Asian Quantum Information Science (AQIS) Conference*, Nagoya, Japan, September 2018
- [157] Muhammad Asad Ullah, Youngmin Jeong, and Hyundong Shin, “Clock synchronization in distributed quantum networks,” in *Proceedings of Asian Quantum Information Science (AQIS) Conference*, Nagoya, Japan, September 2018
- [158] Fakhar Zaman, Youngmin Jeong, and Hyundong Shin, “Superdense coding via semi-counterfactual Bell measurements,” in *Proceedings of Asian Quantum Information Science (AQIS) Conference*, Nagoya, Japan, September 2018
- [159] Dung Phuong Trinh, Youngmin Jeong, and Hyundong Shin, “Modeling of anomalous diffusion for heterogeneous nanomachines,” in *Proceedings of International Symposium on Precision Engineering and Sustainable Manufacturing (PRESM)*, Sapporo, Japan, July 2018
- [160] Fakhar Zaman, Youngmin Jeong, and Hyundong Shin, “Machine learning for quantum state tomography,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2018
- [161] Awais Khan, Youngmin Jeong, and Hyundong Shin, “Generalized monogamy of Tsallis- q entanglement with tight constraints,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2018
- [162] Ahmad Farooq, Youngmin Jeong, and Hyundong Shin, “A necessary condition for entanglement transformation,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2018
- [163] Uman Khalid, Youngmin Jeong, and Hyundong Shin, “Multipartite entanglement in mixed state metrology,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2018
- [164] Dung Phuong Trinh, Youngmin Jeong, Hyundong Shin, and Moe Z. Win, “Interference engineering for molecular communication,” in *Proceedings of Asia-Pacific Conference on Life Science and Biological Engineering (APCLSBE)*, Kyoto, Japan, March 2018
- [165] Junaid ur Rehman, Youngmin Jeong, and Hyundong Shin, “Asymmetric unambiguous discrimination of quantum channels,” in *Proceedings of International Conference on Green and Human Information Technology (ICGHIT)*, Chiang Mai, Thailand, February 2018, (Best Paper Award)
- [166] Fakhar Zaman, Youngmin Jeong, and Hyundong Shin, “Counterfactual Bell basis measurement,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Daegu, Korea, November 2017

- [167] Awais Khan, Youngmin Jeong, and Hyundong Shin, “Quantum key distribution with snare states,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Daegu, Korea, November 2017
- [168] Ahmad Farooq, Youngmin Jeong, and Hyundong Shin, “Classification of four-partite entangled states,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Daegu, Korea, November 2017
- [169] Uman Khalid, Youngmin Jeong, and Hyundong Shin, “Entanglement in mixed state quantum metrology,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Daegu, Korea, November 2017
- [170] Junaid ur Rehman, Youngmin Jeong, and Hyundong Shin, “Classical data locking in quantum states,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Daegu, Korea, November 2017, (Best Paper Award)
- [171] Muhammad Asad Ullah, Youngmin Jeong, and Hyundong Shin, “Noisy GHZ states for quantum metrology,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Daegu, Korea, November 2017
- [172] Junaid ur Rehman, Youngmin Jeong, and Hyundong Shin, “Quantum key distribution with a control key,” in *Proceedings of International Symposium on Wireless Communication Systems (ISWCS)*, Bologna, Italy, August 2017
- [173] —, “Classical capacity of composite quantum channels,” in *Proceedings of IEEE VTS Asia Pacific Wireless Communications Symposium (APWCS)*, Incheon, Korea, August 2017
- [174] Ahmad Farooq, Youngmin Jeong, and Hyundong Shin, “Monogamy inequalities and disentangling theorem,” in *Proceedings of IEEE VTS Asia Pacific Wireless Communications Symposium (APWCS)*, Incheon, Korea, August 2017
- [175] Muhammad Asad Ullah, Youngmin Jeong, and Hyundong Shin, “Quantum channel switching with optimal fidelity,” in *Proceedings of IEEE VTS Asia Pacific Wireless Communications Symposium (APWCS)*, Incheon, Korea, August 2017
- [176] Ahmad Farooq, Youngmin Jeong, and Hyundong Shin, “BB84 without basis announcement,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Seoul, Korea, November 2016
- [177] Junaid ur Rehman, Saad Qaisar, Youngmin Jeong, and Hyundong Shin, “One basis quantum key distribution,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Seoul, Korea, November 2016
- [178] Muhammad Asad Ullah, Youngmin Jeong, and Hyundong Shin, “Hyperentanglement assisted efficient quantum key distribution,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Seoul, Korea, November 2016
- [179] Saad Qaisar, Junaid ur Rehman, Youngmin Jeong, and Hyundong Shin, “Distributed multiparty quantum key distribution,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Seoul, Korea, November 2016
- [180] Dung Phuong Trinh, Youngmin Jeong, and Hyundong Shin, “Bit error rate in molecular communication with random distance,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2016

- [181] Youngmin Jeong and Hyundong Shin, “Asymptotic ergodic capacity in MIMO Binomial networks,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2016
- [182] Junaid ur Rehman, Saad Qaisar, Youngmin Jeong, and Hyundong Shin, “Distributed multi-party quantum key distribution,” in *Proceedings of Joint Conference on Communications and Information (JCCI)*, Sokcho, Korea, April 2016
- [183] Saad Qaisar, Junaid ur Rehman, Youngmin Jeong, and Hyundong Shin, “Low-power operating quantum key distribution,” in *Proceedings of Joint Conference on Communications and Information (JCCI)*, Sokcho, Korea, April 2016
- [184] Dung Phuong Trinh, Youngmin Jeong, and Hyundong Shin, “First passage time in molecular communication with random distance,” in *Proceedings of Joint Conference on Communications and Information (JCCI)*, Sokcho, Korea, April 2016
- [185] Junaid ur Rehman, Youngmin Jeong, and Hyundong Shin, “Finite-key analysis of BB84 and MDI quantum key distribution,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Jeongseon, Korea, January 2016
- [186] Dung Phuong Trinh, Youngmin Jeong, and Hyundong Shin, “Bit error rate for array-based molecular communication,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Jeongseon, Korea, January 2016
- [187] Youngmin Jeong and Hyundong Shin, “MIMO ergodic capacity in finite uniformly random networks,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Jeongseon, Korea, January 2016
- [188] —, “Quantum one-time pad for direct communication,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Seoul, Korea, November 2015
- [189] Junaid ur Rehman, Youngmin Jeong, and Hyundong Shin, “A BB84 variant for a high key exchange rate,” in *Proceedings of Conference on Next Generation Quantum Communication Technologies*, Chuncheon, Korea, November 2015
- [190] Saad Qaisar, Youngmin Jeong, and Hyundong Shin, “Quantum draw,” in *Proceedings of Conference on Next Generation Quantum Communication Technologies*, Chuncheon, Korea, November 2015
- [191] Junaid ur Rehman, Youngmin Jeong, and Hyundong Shin, “Asymptotic Rényi entropy,” in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Seoul, Korea, November 2015
- [192] Youngmin Jeong, Hyundong Shin, and Moe Z. Win, “ H -transforms for channel capacity,” in *Proceedings of European Conference on Networks and Communications (EuCNC)*, Paris, France, July 2015
- [193] —, “ H -transforms for symbol error probability,” in *Proceedings of European Conference on Networks and Communications (EuCNC)*, Paris, France, July 2015
- [194] —, “ H -fading: Towards H -transform theory for wireless communication,” in *Proceedings of European Conference on Networks and Communications (EuCNC)*, Paris, France, July 2015

- [195] Junaid ur Rehman, Ji Sun Ju, Jae Woo Park, Jung Woon Lee, Youngmin Jeong, and Hyundong Shin, “Measurements for multipath fading using USRP,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2015
- [196] Vien Van Mai, Youngmin Jeong, and Hyundong Shin, “Capacity bounds for MIMO interference channels,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2015, 445-446
- [197] Youngmin Jeong and Hyundong Shin, “ H -transforms for error exponents,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2015
- [198] Dung Phuong Trinh, Youngmin Jeong, and Hyundong Shin, “Space–time fractional diffusion for molecular communication,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2015
- [199] ———, “Diffusion models for vehicular ad-hoc networks,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Jeongseon, Korea, January 2015
- [200] Vien Van Mai, Youngmin Jeong, and Hyundong Shin, “SINR statistics of correlated MIMO MMSE receivers,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Jeongseon, Korea, January 2015
- [201] Youngmin Jeong and Hyundong Shin, “Secrecy coverage in stochastic wireless networks,” in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Jeongseon, Korea, January 2015
- [202] Youngmin Jeong, Dung Phuong Trinh, and Hyundong Shin, “V2V communication in a Cox field of vehicles,” in *Proceedings of IEEE International Conference on Connected Vehicles and Expo (ICCVE)*, Vienna, Austria, November 2014
- [203] Dung Phuong Trinh, Youngmin Jeong, and Hyundong Shin, “Markov-population vehicular networks,” in *Proceedings of IEEE International Conference on Connected Vehicles and Expo (ICCVE)*, Vienna, Austria, November 2014
- [204] Dat Thanh Le and Hyundong Shin, “Cooperative diversity with fixed-gain relays in Rayleigh fading channels,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2014
- [205] Van Vein Mai and Hyundong Shin, “Feedback reduction for large-scale MIMO,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2014
- [206] A. Chaminda J. Samarasekera and Hyundong Shin, “Cognitive multiple-hop relay networks in Weibull fading,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2014
- [207] Trang Ngoc Cao, Youngmin Jeong, and Hyundong Shin, “Dispersion effects on molecular communication,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2014

- [208] Dung Phuong Trinh, Youngmin Jeong, and Hyundong Shin, "Mobility models for vehicular ad-hoc networks," in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2014
- [209] Thang Van Nguyen and Hyundong Shin, "Impact of correlation on secrecy capacity over SIMOME fading channels," in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2014
- [210] Youngmin Jeong and Hyundong Shin, "Asymptotic ergodic capacity of MIMO relay channels," in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2014
- [211] Giang Kien Nguyen, Thang Van Nguyen, and Hyundong Shin, "Learning dictionary and compressive sensing for WLAN localization," in *Proceedings of IEEE Wireless Communications and Networking Conference (WCNC)*, Istanbul, Turkey, April 2014
- [212] Thang Van Nguyen, Youngmin Jeong, and Hyundong Shin, "Relevance vector machine for UWB localization," in *Proceedings of IEEE Wireless Communications and Networking Conference (WCNC)*, Istanbul, Turkey, April 2014
- [213] Tiep Minh Hoang and Hyundong Shin, "Reflecting boundary problems for molecular communication in fluid media," in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Yongpyong, Korea, January 2014, (Best Paper Award)
- [214] Youngmin Jeong, Een-Kee Hong, and Hyundong Shin, "Cooperative beamforming designs for MIMO multiuser networks," in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Yongpyong, Korea, January 2014
- [215] Giang Kien Nguyen, Thang Van Nguyen, and Hyundong Shin, "WLAN localization with unknown environments," in *Proceedings of Korea Information and Communication Society (KICS) Winter Conference*, Yongpyong, Korea, January 2014
- [216] —, "Blind compressed sensing for indoor localization," in *Proceedings of Institute of Electronics Engineers of Korea (IEEK) Fall Conference*, Seoul, Korea, November 2013
- [217] Tiep Minh Hoang, Thang Van Nguyen, and Hyundong Shin, "Secrecy capacity of primary system in cognitive radio networks," in *Proceedings of Institute of Electronics Engineers of Korea (IEEK) Fall Conference*, Seoul, Korea, November 2013
- [218] Dung Phuong Trinh, Youngmin Jeong, and Hyundong Shin, "Counting distributions for vehicle arrivals," in *Proceedings of Institute of Electronics Engineers of Korea (IEEK) Fall Conference*, Seoul, Korea, November 2013
- [219] Trang Ngoc Cao and Hyundong Shin, "Plasmodesmata channel modeling for molecular communication," in *Proceedings of Institute of Electronics Engineers of Korea (IEEK) Fall Conference*, Seoul, Korea, November 2013
- [220] Youngmin Jeong and Hyundong Shin, "Downlink beamforming optimization for femtocell networks," in *Proceedings of Institute of Electronics Engineers of Korea (IEEK) Fall Conference*, Seoul, Korea, November 2013

- [221] Thang Van Nguyen and Hyundong Shin, "Impact of correlation on outage probability over SIMOME fading channels," in *Proceedings of Institute of Electronics Engineers of Korea (IEEK) Fall Conference*, Seoul, Korea, November 2013
- [222] Thang Van Nguyen, Youngmin Jeong, and Hyundong Shin, "Power allocation for secrecy diversity in MISOME wiretap channels," in *Proceedings of International Conference on Information and Communication Technology Convergence (ICTC)*, Jeju, Korea, October 2013, (Invited Paper)
- [223] Youngmin Jeong and Hyundong Shin, "Capacity of MIMO relay channels: A cutset upper bound," in *Proceedings of IEEE VTS Asia Pacific Wireless Communications Symposium (APWCS)*, Seoul, Korea, August 2013
- [224] Youngmin Jeong, Hyundong Shin, and Moe Z. Win, "Analysis of intervehicle communication," in *Proceedings of IEEE International Conference on Communications (ICC)*, Budapest, Hungary, June 2013
- [225] Youngmin Jeong, Tony Q. S. Quek, and Hyundong Shin, "Stochastic wireless secure multicasting," in *Proceedings of IEEE International Conference on Communications (ICC)*, Budapest, Hungary, June 2013
- [226] Thang Van Nguyen, Tony Q. S. Quek, Yun Hee Kim, and Hyundong Shin, "Secrecy diversity in MISOME wiretap channels," in *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, Anaheim, CA, December 2012
- [227] Youngmin Jeong, Hyundong Shin, and Moe Z. Win, "Information dissemination in MIMO networks," in *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, Anaheim, CA, December 2012
- [228] Youngmin Jeong, Jo Woon Chong, Hyundong Shin, and Moe Z. Win, "Modeling of intervehicle communication," in *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, Anaheim, CA, December 2012
- [229] Tri Minh Nguyen, Tony Q. S. Quek, and Hyundong Shin, "Opportunistic interference alignment in MIMO femtocell networks," in *Proceedings of IEEE International Symposium on Information Theory (ISIT)*, Cambridge, MA, July 2012
- [230] Thang Van Nguyen, Tony Q. S. Quek, and Hyundong Shin, "Optimal active sensing in heterogeneous cognitive radio networks," in *Proceedings of IEEE International Symposium on Information Theory (ISIT)*, Cambridge, MA, July 2012
- [231] ———, "Switched power allocation for MISOME wiretap channels," in *Proceedings of IEEE International Symposium on Information Theory (ISIT)*, Cambridge, MA, July 2012
- [232] Jemin Lee, Hyundong Shin, and Moe Z. Win, "Secure node packing of large-scale wireless networks," in *Proceedings of IEEE International Conference on Communications (ICC)*, Ottawa, Canada, June 2012
- [233] Jaeyoung Lee, Hyundong Shin, and Jun Heo, "Random access transport capacity of dual-hop AF relaying in a wireless ad hoc network," in *Proceedings of IEEE Wireless Communications and Networking Conference (WCNC)*, Paris, France, April 2012

- [234] Tri Minh Nguyen, Hyundong Shin, and Tony Q. S. Quek, “Network throughput and energy efficiency in MIMO femtocells,” in *Proceedings of European Wireless Conference (EWC)*, Pozan, Poland, April 2012, (Invited Paper)
- [235] Youngmin Jeong, Tony Q. S. Quek, and Hyundong Shin, “Semi-decentralized beamforming coordination for multiuser two-tier networks,” in *Proceedings of International Conference on Signal Processing and Communication Systems (ICSPCS)*, Honolulu, HI, December 2011
- [236] Jaeyoung Lee, Hyundong Shin, and Jun Heo, “Multi-hop decode-and-forward relaying in a wireless ad hoc networks,” in *Proceedings of Asia-Pacific Conference on Communications (APCC)*, Sabah, Malaysia, October 2011
- [237] Youngmin Jeong, Hyundong Shin, and Moe Z. Win, “Interference rejection combining in two-tier femtocell networks,” in *Proceedings of IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)*, Toronto, Canada, September 2011
- [238] Thang Van Nguyen, Hyundong Shin, Tony Q. S. Quek, and Moe Z. Win, “Optimal energy tradeoff for active sensing in cognitive radio networks,” in *Proceedings of IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)*, Toronto, Canada, September 2011
- [239] Jo Woon Chong, Hyundong Shin, and Moe Z. Win, “WiMedia networks in the presence of hard DRP devices,” in *Proceedings of IEEE International Conference on Ultra Wideband (ICUWB)*, Bologna, Italy, September 2011, (Invited Paper)
- [240] Alberto Rabbachin, Tony Q. S. Quek, Hyundong Shin, and Moe Z. Win, “Cognitive network interference—Modeling and applications,” in *Proceedings of IEEE International Conference on Communications (ICC)*, Kyoto, Japan, June 2011
- [241] Tri Minh Nguyen and Hyundong Shin, “Interference alignment in Poisson-field wireless ad hoc networks,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2011
- [242] Youngmin Jeong and Hyundong Shin, “Asymptotic SEP for arbitrary two-dimensional signals over κ - μ and η - μ fading channels,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2011
- [243] Youngmin Jeong, Hyundong Shin, and Moe Z. Win, “Superanalysis of the interference effect on adaptive antenna systems,” in *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, Miami, FL, December 2010
- [244] Youngmin Jeong, Tony Q. S. Quek, and Hyundong Shin, “Downlink beamforming optimization for cognitive underlay networks,” in *Proceedings of International Symposium on Information Theory and Its Applications (ISITA)*, Taichung, Taiwan, October 2010
- [245] Thang Van Nguyen and Hyundong Shin, “Secure communication over MISO fading channels,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2010
- [246] Youngmin Jeong and Hyundong Shin, “Noncooperative beamforming game on MIMO networks: Nash equilibrium outage probability,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, June 2010

- [247] Youngmin Jeong, Jo Woon Chong, and Hyundong Shin, "Ergodic capacity of X - μ fading channels," in *Proceedings of IEEE VTS Asia Pacific Wireless Communications Symposium (APWCS)*, Kaohsiung, Taiwan, May 2010, (Best Paper Award)
- [248] Jo Woon Chong and Hyundong Shin, "A non-cooperative game on distributed dynamic channel selection for multichannel cognitive radio networks," in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Suwon, Korea, November 2009
- [249] Hien Quoc Ngo and Hyundong Shin, "Noncooperative beamforming game on MIMO interference channels: Nash equilibrium rates," in *Proceedings of Korea Information and Communication Society (KICS) Fall Conference*, Suwon, Korea, November 2009
- [250] Tony Q. S. Quek, Kiran Thimme Gowda, and Hyundong Shin, "Secure joint source-channel coding for quasi-static fading channels," in *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, Honolulu, HI, November 2009
- [251] Hien Quoc Ngo, Tony Q. S. Quek, and Hyundong Shin, "Reliable amplify-and-forward two-way relay networks," in *Proceedings of International Conference on Wireless Communications and Signal Processing (WCSP)*, Nanjing, China, November 2009, (Invited Paper)
- [252] Marco Chiani, Moe Z. Win, and Hyundong Shin, "Further results on MIMO networks based on the distribution of the eigenvalues of arbitrarily correlated Wishart matrices," in *Proceedings of International Conference on Ultra Modern Telecommunications and Workshops (ICUMT)*, St. Petersburg, Russia, October 2009
- [253] Thang Van Nguyen, Hien Quoc Ngo, and Hyundong Shin, "Secrecy capacity of Nakagami- m fading channels," in *Proceedings of International Technical Conference on Circuits/Systems, Computers and Communications (CSCC)*, Jeju, Korea, July 2009
- [254] Kiran T. Gowda, Tony Q. S. Quek, and Hyundong Shin, "Secure diversity-multiplexing tradeoffs in MIMO relay channels," in *Proceedings of IEEE International Symposium on Information Theory (ISIT)*, Seoul, Korea, June 2009
- [255] Hien Quoc Ngo, Tony Q. S. Quek, and Hyundong Shin, "Amplify-and-forward two-way relay channels: Error exponents," in *Proceedings of IEEE International Symposium on Information Theory (ISIT)*, Seoul, Korea, June 2009
- [256] Tony Q. S. Quek and Hyundong Shin, "Bursty wideband relay networks," in *Proceedings of IEEE Wireless Communications and Networking Conference (WCNC)*, Budapest, Hungary, April 2009
- [257] —, "Bursty narrowband relay networks in the low-SNR regime," in *Proceedings of International Symposium on Information Theory and Its Applications (ISITA)*, Auckland, New Zealand, December 2008
- [258] Youngpil Song and Hyundong Shin, "Symbol error probability for M -ary PSK signals over α - μ fading channels," in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, July 2008
- [259] Hien Quoc Ngo and Hyundong Shin, "Symbol error probability of cooperative diversity with opportunistic relaying," in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Jeju, Korea, July 2008

- [260] Bappi Barua, Hyundong Shin, and Moe Z. Win, "Diversity in double-scattering MIMO channels," in *Proceedings of IEEE Vehicular Technology Conference (VTC)*, Marina Bay, Singapore, May 2008
- [261] Md. Zahurul I. Sarkar, Hyundong Shin, and Moe Z. Win, "Random coding exponent for MIMO channels," in *Proceedings of IEEE Vehicular Technology Conference (VTC)*, Marina Bay, Singapore, May 2008, (Best Paper Award)
- [262] Youngpil Song, Md. Zahurul I. Sarkar, and Hyundong Shin, "Cooperative diversity with blind relays in Nakagami- m fading channels: MRC analysis," in *Proceedings of IEEE Vehicular Technology Conference (VTC)*, Marina Bay, Singapore, May 2008
- [263] Trung Q. Duong, Hyundong Shin, and Een-Kee Hong, "Effect on line-of-sight on dual-hop nonregenerative relay wireless communications," in *Proceedings of IEEE Vehicular Technology Conference (VTC)*, Baltimore, MD, September 2007
- [264] Tony Q. S. Quek, Hyundong Shin, Moe Z. Win, and Marco Chiani, "Robust power allocation for amplify-and-forward relay networks," in *Proceedings of IEEE International Conference on Communications (ICC)*, Glasgow, UK, June 2007
- [265] —, "Optimal power allocation for amplify-and-forward relay networks via conic programming," in *Proceedings of IEEE International Conference on Communications (ICC)*, Glasgow, UK, June 2007
- [266] Marco Chiani, Moe Z. Win, and Hyundong Shin, "Capacity of MIMO systems in the presence of interference," in *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, San Francisco, CA, November 2006
- [267] Heewon Kang, Jin Sam Kwak, Hyundong Shin, and Gordon L. Stuber, "Optimal combining with arbitrary power interferers and thermal noise on Rayleigh fading channels," in *Proceedings of IEEE International Conference on Communications (ICC)*, Istanbul, Turkey, June 2006
- [268] Aggelos Bletsas, Hyundong Shin, Moe Z. Win, and Andrew Lippman, "Cooperative diversity with opportunistic relaying," in *Proceedings of IEEE Wireless Communications and Networking Conference (WCNC)*, Las Vegas, NV, April 2006
- [269] Aggelos Bletsas, Hyundong Shin, and Moe Z. Win, "Outage-optimal cooperative communications with regenerative relays," in *Proceedings of Conference on Information Sciences and Systems (CISS)*, Princeton, NJ, March 2006, (Invited Paper)
- [270] Marco Chiani, Hyundong Shin, and Moe Z. Win, "A general result on hypergeometric function of matrix arguments and application to wireless MIMO communication," in *Proceedings of International Conference on Next-Generation Wireless Systems (ICNEWS)*, Dhaka, Bangladesh, January 2006, (Invited Paper)
- [271] Hyundong Shin, Moe Z. Win, and Jae Hong Lee, "Saddlepoint approximation to the outage capacity of MIMO channels," in *Proceedings of International Conference on Next-Generation Wireless Systems (ICNEWS)*, Dhaka, Bangladesh, January 2006, (Invited Paper)
- [272] Hyundong Shin, Moe Z. Win, and Marco Chiani, "Asymptotic statistics of the capacity for doubly correlated MIMO channels," in *Proceedings of International Conference on Next-Generation Wireless Systems (ICNEWS)*, Dhaka, Bangladesh, January 2006, (Invited Paper)

- [273] Sungwoo Park, Hyundong Shin, and Jae Hong Lee, “Capacity statistics and scheduling gain for MIMO systems in correlated Rayleigh fading,” in *Proceedings of IEEE Vehicular Technology Conference (VTC)*, Los Angeles, CA, September 2004
- [274] Hyundong Shin and Jae Hong Lee, “Performance analysis of space–time block codes over keyhole MIMO channels,” in *Proceedings of IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)*, Beijing, China, September 2003
- [275] —, “Closed-form formulas for ergodic capacity of MIMO Rayleigh fading channels,” in *Proceedings of IEEE International Conference on Communications (ICC)*, Anchorage, AK, May 2003
- [276] —, “Exact symbol error probability of orthogonal space–time block codes,” in *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, Taipei, Taiwan, November 2002
- [277] Tae Min Kim, Hyundong Shin, and Jae Hong Lee, “A novel error detection scheme for turbo coded hybrid ARQ,” in *Proceedings of IEEE Vehicular Technology Conference (VTC)*, Vancouver, Canada, September 2002
- [278] Hyundong Shin and Jae Hong Lee, “Upper bound on the error probability for space–time codes in fast fading channels,” in *Proceedings of IEEE Vehicular Technology Conference (VTC)*, Vancouver, Canada, September 2002
- [279] —, “Exact symbol error probability of orthogonal space–time block codes,” in *Proceedings of Korea Information and Communication Society (KICS) Summer Conference*, Muju, Korea, July 2002
- [280] —, “Error probability of M -ary PSK signals in Nakagami- m fading channels,” in *Proceedings of Institute of Electronics Engineers of Korea (IEEK) Fall Conference*, Seoul, Korea, November 2001
- [281] —, “Improved upper bound on the bit error probability of turbo codes for ML decoding with imperfect CSI in a Rayleigh fading channel,” in *Proceedings of IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)*, San Diego, CA, September 2001
- [282] —, “Parameter estimation for turbo decoding with imperfect channel state information in a Rayleigh fading channel,” in *Proceedings of Coding and Information Theory (CIT), Korea Information and Communication Society (KICS)*, Seoul, Korea, October 2000
- [283] Hyundong Shin, Sunghwan Kim, and Jae Hong Lee, “Turbo decoding in a Rayleigh fading channel with estimated channel state information,” in *Proceedings of IEEE Vehicular Technology Conference (VTC)*, Boston, MA, September 2000

Patents

- [1] Hyundong Shin, Syed Muhammad Abuzar Rizvi, Naema Asif, Uman Khalid, Muhammad Asad Ullah, and Awais Khan, “Apparatus and method for classifying quantum states in quantum information integrated processing system,” Korea Patent 10-2820473, June 10, 2025

- [2] Hyundong Shin, Muhammad Asad Ullah, Jason William Setiawan, and Junaid ur Rehman, "Apparatus and method of analyzing quantum consensus protocols in quantum network," Korea Patent 10-2811863, May 20, 2025
- [3] Hyundong Shin, Muhammad Asad Ullah, and Awais Khan, "Quantum anonymous method for quantum networks," Korea Patent 10-2656351, April 05, 2024
- [4] Hyundong Shin, Muhammad Asad Ullah, and Saw Nang Paing, "Counterfactually implemeting universal logic gate and calculate method using the same," Korea Patent 10-2652870, March 26, 2024
- [5] Hyundong Shin, Fakhhar Zaman, and Saw Nang Paing, "Method and apparatus for counterfactual controlled quantum teleportation in an integrated quantum information processing system," Korea Patent 10-2643265, February 28, 2024
- [6] Hyundong Shin, Uman Khalid, and Junaid ur Rehman, "Apparatus and method of measuring quantum correlation in single qubit metrology in quantum information integrated processing system," Korea Patent 10-2636303, February 07, 2024
- [7] Hyundong Shin, Syed Muhammad Kazim, and Muhammad Asad Ullah, "Bayesian inference based quantum state tomography apparatus and method thereof," Korea Patent 10-2624011, January 08, 2024
- [8] Hyundong Shin, Syahri Ramadhani, and Muhammad Asad Ullah, "Method of performing quantum state tomography in maximally noisy quantum depolarizing channel and apparatus thereof," Korea Patent 10-2591035, October 13, 2023
- [9] Hyundong Shin, Muhammad Asad Ullah, and Uman Khalid, "Metrologically multipartite entanglement measurement method under quantum many-body effects," Korea Patent 10-2574230, August 30, 2023
- [10] Hyundong Shin, Muhammad Asad Ullah, and Ahmad Farooq, "Quantum state tomography appratus, method and program," Korea Patent 10-2562767, July 28, 2023
- [11] Hyundong Shin and Muhammad Asad Ullah, "Method and apparatus of counterfactual clock synchronization," Korea Patent 10-2436948, August 23, 2022
- [12] Hyundong Shin, Youngmin Jeong, and Fakhhar Zaman, "Method of quantum superdense coding and quantum communication system using thereof," Korea Patent 10-2274792, July 02, 2021
- [13] Hyundong Shin, Junaid ur Rehman, and Fakhhar Zaman, "Method of quantum duplex coding and quantum communication system thereof," Korea Patent 10-2260603, May 31, 2021
- [14] Hyundong Shin, Youngmin Jeong, and Dung Phuong Trinh, "Method of modelling channel and transmitting molecules for molecular communication," U.S. Patent US 11005723 B2, May 11, 2021
- [15] Hyundong Shin, Awais Khan, Ahmad Farooq, Young Min Jeong, and Junaid ur Rehman, "Method of distributing quantum entanglement and quantum communication system thereof," Korea Patent 10-2237183, April 01, 2021

- [16] Hyundong Shin, Muhammad Asad Ullah, and Junaid ur Rehman, “Quantum synchronization method without shared phase reference and quantum communication system thereof,” Korea Patent 10-2231135, March 17, 2021
- [17] Hyundong Shin, Youngmin Jeong, and Junaid ur Rehman, “Quantum channel capacity estimation method and quantum communication system thereof,” Korea Patent 10-2231130, March 17, 2021
- [18] Hyundong Shin, Junaid ur Rehman, and Uman Khalid, “Quantum measurement method using perturbation sensitivity and quantum system using thereof,” Korea Patent 10-2211060, January 27, 2021
- [19] Hyundong Shin, Junaid ur Rehman, and Awais Khan, “Method of finding entanglement constraint in multiqubit system and quantum communication system thereof,” Korea Patent 10-2203527, January 11, 2021
- [20] Hyundong Shin, Youngmin Jeong, Muhammad Asad Ullah, and Fakhar Zaman, “Method of detecting inaccurate slave clocks,” Korea Patent 10-2201814, January 06, 2021
- [21] Hyundong Shin, Youngmin Jeong, and Dung Phuong Trinh, “Method of acquiring connectivity information in molecular communication,” Korea Patent 10-2201264, January 05, 2021
- [22] Hyundong Shin, Youngmin Jeong, and Ahmad Farooq, “Method of quantification of multipartite entanglement and quantum system using thereof,” Korea Patent 10-2172652, October 27, 2020
- [23] Hyundong Shin, Junaid ur Rehman, and Ahmad Farooq, “Method of distributing quantum entanglement and quantum communication system,” Korea Patent 10-2158777, September 16, 2020
- [24] Hyundong Shin, Youngmin Jeong, and Ahmad Farooq, “Method of classifying multipartite quantum entanglement state and quantum system performing thereof,” Korea Patent 10-2129391, June 26, 2020
- [25] Hyundong Shin, Youngmin Jeong, and Muhammad Asad Ullah, “Method of synchronizing quantum network and quantum system performing thereof,” Korea Patent 10-2128362, June 24, 2020
- [26] Hyundong Shin, Youngmin Jeong, Jeong San Kim, Ahmad Farooq, and Junaid ur Rehman, “Method of distributing optimally quantum entanglement and quantum communication system,” Korea Patent 10-2122799, June 09, 2020
- [27] Hyundong Shin, Youngmin Jeong, and Uman Khalid, “Method of measuring quantum correlation in mixed-state quantum metrology,” Korea Patent 10-2120663, June 03, 2020
- [28] Hyundong Shin and Youngmin Jeong, “Quantum system performing quantum channel estimation and method of modeling quantum channel,” U.S. Patent US 10666462 B2, May 26, 2020
- [29] Hyundong Shin, Youngmin Jeong, and Fakhar Zaman, “Method of identifying Bell type states,” Korea Patent 10-2108892, May 04, 2020

- [30] Hyundong Shin, Youngmin Jeong, and Ahmad Farooq, "Method for quantum entanglement transformation using machine learning and quantum system using thereof," Korea Patent 10-2068241, January 14, 2020
- [31] Hyundong Shin, Youngmin Jeong, and Dung Phuong Trinh, "Method of modelling channel and transmitting molecule in molecular communication," Korea Patent 10-2036068, October 18, 2019
- [32] Hyundong Shin and Youngmin Jeong, "Quantum system performing quantum channel estimation and method of modelling quantum channel," Korea Patent 10-2032144, October 08, 2019
- [33] Hyundong Shin, Youngmin Jeong, and Ahmad Farooq, "Method of classification and quantification of multipartite entangled states and quantum system using thereof," Korea Patent 10-2019387, September 02, 2019
- [34] Hyundong Shin, Youngmin Jeong, and Fakhar Zaman, "Method of apparatus and system for analyzing of counterfactual Bell states," Korea Patent 10-2017839, August 28, 2019
- [35] Hyundong Shin, Youngmin Jeong, and Junaid ur Rehman, "Method of securing quantum information and system thereof," Korea Patent 10-2017835, August 28, 2019
- [36] Hyundong Shin, Youngmin Jeong, and Muhammad Asad Ullah, "Method of switching quantum channel and system thereof," Korea Patent 10-1984963, May 27, 2019
- [37] Hyundong Shin, Saad Qaisar, Youngmin Jeong, and Junaid ur Rehman, "Method and device for deterministic secure quantum communication," Korea Patent 10-1965229, March 25, 2019
- [38] Hyundong Shin, Youngmin Jeong, and Muhammad Asad Ullah, "System of frequency synchronization, apparatus of frequency synchronization, method of frequency synchronization and method of the same for quantum clock," Korea Patent 10-1953632, February 25, 2019
- [39] Hyundong Shin and Youngmin Jeong, "Quantum system performing quantum channel estimation and method of modelling quantum channel," Korea Patent 10-1953720, February 25, 2019
- [40] Hyundong Shin, Youngmin Jeong, and Muhammad Asad Ullah, "Method of synchronization in quantum network," Korea Patent 10-1945761, January 30, 2019
- [41] Hyundong Shin, Junaid ur Rehman, Saad Qaisar, and Youngmin Jeong, "Method and device of performing quantum key distribution (QKD) among plurality of devices," Korea Patent 10-1924100, November 26, 2018
- [42] Hyundong Shin, Dung Phuong Trinh, and Youngmin Jeong, "Molecular communication system, method of communicating based on molecule and molecular reception nanomachine," Korea Patent 10-1855819, May 02, 2018
- [43] Hyundong Shin, Junaid ur Rehman, Youngmin Jeong, and Saad Qaisar, "Method of distributing key for multi-party in quantum communication, method of performing quantum communication using the same and quantum communication system performing the same," Korea Patent 10-1836947, March 05, 2018

- [44] Hyundong Shin, Saad Qaisar, Youngmin Jeong, and Junaid ur Rehman, “Method of distributing secret key with low-power in quantum communication, method of performing quantum communication using the same and quantum communication for performing the same,” Korea Patent 10-1826065, January 31, 2018
- [45] Hyundong Shin, Dung Phuong Trinh, Trang Ngoc Cao, and Youngmin Jeong, “Molecular communication system, method of communicating based on molecule, molecular transmitter and molecular receiver,” Korea Patent 10-1817122, January 04, 2018
- [46] Hyundong Shin, Junaid ur Rehman, and Youngmin Jeong, “Method of distributing key in quantum communication, method of performing quantum communication using the same and quantum communication system performing the same,” Korea Patent 10-1808544, December 07, 2017
- [47] Hyundong Shin, Vien Van Mai, and Youngmin Jeong, “Distributed wireless sensor network and method of detecting information in distributed wireless sensor network,” Korea Patent 10-1773330, August 25, 2017
- [48] Hyundong Shin and Youngmin Jeong, “Wireless communication system and method of performing wireless communication,” Korea Patent 10-1770601, August 17, 2017
- [49] Dongguk Lim, Hyundong Shin, Youngmin Jeong, and Hangyu Cho, “Apparatus and method for measuring location of user equipment located indoors in wireless network,” U.S. Patent US 9720069 B2, August 01, 2017
- [50] Hyundong Shin, Saad Qaisar, and Youngmin Jeong, “Method of quantum drawing, method of performing quantum communication using the same and quantum communication system for performing the same,” Korea Patent 10-1740384, May 22, 2017
- [51] Hyundong Shin, Trang Ngoc Cao, Dung Phuong Trinh, and Youngmin Jeong, “Molecular communication system and method of operating molecular communication system,” U.S. Patent US 9621283 B1, April 11, 2017
- [52] Hyundong Shin, Thang Van Nguyen, Dung Phuong Trinh, and Youngmin Jeong, “Wireless communication apparatus using vision feature, method of localization using the same and wireless communication system including the same,” Korea Patent 10-1635421, June 27, 2016
- [53] Hyundong Shin, Thang Van Nguyen, and Youngmin Jeong, “Wireless communication apparatus, method of localization using the same and wireless communication system including the same,” Korea Patent 10-1622536, May 13, 2016
- [54] Hyundong Shin and Youngmin Jeong, “Method and apparatus for secrecy transmitting in wireless environment,” Korea Patent 10-1535643, July 03, 2015
- [55] —, “Apparatus and method for semi-centralized downlink beamforming in two-tier networks,” Korea Patent 10-1208084, November 28, 2012
- [56] —, “Apparatus and method for downlink beamforming in two-tier networks,” Korea Patent 10-1208083, November 28, 2012
- [57] —, “Apparatus and method for transmitting secrecy data on a number of transmission channels in a multi-channel communication system,” Korea Patent 10-1207000, November 26, 2012

- [58] —, “Cognitive radio terminal and cognitive radio method of cognitive radio terminal,” Korea Patent 10-1151026, May 22, 2012
- [59] Jungah Park, Doug Young Suh, Hyundong Shin, and Een-Kee Hong, “Mobile telecommunication system including a plurality of relay stations and method of transmitting data packets for the mobile telecommunication system,” Korea Patent 10-1137014, April 09, 2012
- [60] —, “Relay station and method of relaying data packets for the relay station,” Korea Patent 10-1082544, November 04, 2011
- [61] Jae Hong Lee, Tae Min Kim, and Hyundong Shin, “Turbo encoded hybrid automatic repeat request system and error detection method,” U.S. Patent US 7234095 B2, June 19, 2007
- [62] —, “Turbo coded hybrid automatic repeat request system and error detection method,” Korea Patent 10-0584170, May 22, 2006