Mintaek Oh (Ph.D.)

Postdoctoral Fellow, Electrical & Computer Engineering,
University of Toronto

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RESEARCH EXPERIENCE

Post-Doc. in Electrical & Computer Engineering, University of Toronto September 2026 – present
Advisor: Prof. Wei Yu

Visiting Scholar at University of Toronto June 2026 – August 2026
Advisor: Prof. Wei Yu

EDUCATION

Ph.D. in Electrical Engineering, KAIST August 2023 – August 2026
Advisor: Prof. Jinseok Choi

M.S. in Electrical Engineering, UNIST February 2021 – August 2023
Advisor: Prof. Jinseok Choi

B.S. in Electronics Engineering, Jeonbuk National University March 2014 – February 2021
Advisor: Prof. Seok-Hwan Park

RESEARCH INTERESTS

Research Interests

Signal Processing for Wireless and Dynamical Systems: Develop model-based learning methods for real-time state estimation, prediction, and tracking under unknown dynamics. Design scalable, adaptive, and low-complexity beamforming algorithms for MIMO systems, including hybrid, RIS-aided, and cell-free networks. Explore perception-assisted communication frameworks for physical AI systems by leveraging vision and motion planning information from autonomous robots.

PUBLICATIONS — JOURNAL

[11] Gyoseung Lee, Seongmin Kim, **Mintaek Oh**, Beomsoo Ko, Jeunghun Oh, Junil Choi, and Hyeongtaek Lee "Bayesian Channel Estimation for mmWave Massive MIMO Systems: An MCMC-Based Approach," *IEEE Transactions on Vehicular Technology* (submitted)

[10] **Mintaek Oh**, Namyoon Lee, and Jinseok Choi "Latent Bussgang-based Discrete Optimization: RIS Channel Estimation and Beamforming," *IEEE Transactions on Wireless Communications* (submitted)

[9] **Mintaek Oh**, Jeonghun Park, Nir Shlezinger, Yonina C. Eldar, and Jinseok Choi, "Neural Kalman Filtering for Unknown Dynamics: Task-Aware Learning with a Koopman Backbone," *IEEE Transactions on Signal Processing* (submitted)

[8] Seunghyeong Yoo, **Mintaek Oh**, Jeonghun Park, Namyoon Lee, and Jinseok Choi, "Scalable and Convergent Generalized Power Iteration Precoding for Massive MIMO Systems," *IEEE Transactions on Wireless Communications* (under revision)

[7] **Mintaek Oh** and Jinseok Choi "Scalable Beamforming Design for Multi-RIS-Aided MU-MIMO Systems with Imperfect CSIT," *IEEE Transactions on Wireless Communications*, vol. 25, pp. 22718–22733, 2026

[6] Seunghyeong Yoo, Jaehyun Kim, Seokjun Park, **Mintaek Oh**, Namyoon Lee, and Jinseok Choi "Full-Duplex Multiuser MISO Under Coarse Quantization: Per-Antenna SQNR Analysis and Beamforming Design," *IEEE Transactions on Communications*, vol. 74, pp. 9742–9757, 2026

[5] **Mintaek Oh** and Jinseok Choi "Hybrid Precoding Revisited: Low-Dimensional Subspace Perspective for MU-MIMO Systems," *IEEE Transactions on Vehicular Technology*, Early Access, 2026

[4] **Mintaek Oh**, Seunghyeong Yoo, Namyoon Lee, and Jinseok Choi "Generalized Power Iteration-Based Precoding With Low-Complexity Matrix Inversion Approaches for Massive MIMO Systems," *IEEE Transactions on Vehicular Technology*, vol. 75, no. 6, pp. 11908-11913, 2026

[3] Sungyu Kim, Eunsung Choi, **Mintaek Oh**, and Jinseok Choi "Artificial Noise-Aided Max-Min Fairness Secrecy Precoding With Partial Wiretap Channel Knowledge," *IEEE Transactions on Vehicular Technology*, vol. 74, no. 5, pp. 8390-8395, 2025

[2] **Mintaek Oh**, Jeonghun Park, and Jinseok Choi "Joint Optimization for Secure and Reliable Communications in Finite Blocklength Regime," *IEEE Transactions on Wireless Communications*, vol. 22, no. 12, pp. 9457-9472, 2023

[1] Eunsung Choi, **Mintaek Oh**, Jinseok Choi, Jeonghun Park, Namyoon Lee, and Naofal Al-Dhahir "Joint Precoding and Artificial Noise Design for MU-MIMO Wiretap Channels," *IEEE Transactions on Communications*, vol. 71, no. 3, pp. 1564-1578, 2023

PUBLICATIONS — CONFERENCE

[7] **Mintaek Oh**, Jeonghun Park, Nir Shlezinger, Yonina C. Eldar, and Jinseok Choi, "Blind-KalmanNet: Task-Aware Neural Kalman Filtering for Unknown Dynamics," *2027 IEEE International Conference on Communications (ICC)* (submitted)

[6] **Mintaek Oh**, Jinseok Choi, Seyong Kim, and Jeonghun Park, "Wideband Channel Tracking with Quantization Distortion," *2024 15th International Conference on Information and Communication Technology Convergence (ICTC)*

[5] Eunsung Choi, **Mintaek Oh**, Jinseok Choi, Jeonghun Park, Namyoon Lee, and Naofal AI-Dhahir, "Joint and Simultaneous Optimization of Artificial Noise-aided Precoding for Secure Communications," *2023 IEEE Global Communications Conference (GLOBECOM)*

[4] Seyong Kim, Jeonghun Park, **Mintaek Oh**, and Jinseok Choi, "OFDM Simulator for Underwater Acoustic Communications," *2023 14th International Conference on Information and Communication Technology Convergence (ICTC)*

[3] **Mintaek Oh**, Jinseok Choi, Sungyu Kim, Seunghyeong Yoo, Seyong Kim, and Jeonghun Park, "A Survey on Statistical Channel Modeling for Underwater Acoustic Communications," *2023 14th International Conference on Information and Communication Technology Convergence (ICTC)*

[2] **Mintaek Oh**, Jeonghun Park, and Jinseok Choi, "Secure Internet-of-Things Communications: Joint Precoding and Power Control," *2022 IEEE International Conference on Communications (ICC)*

[1] **Mintaek Oh**, Jeonghun Park, Namyoon Lee, and Jinseok Choi, "Energy-Efficient Precoding for Massive MIMO Systems with Low-Resolution Quantizers," *2022 IEEE Wireless Communications and Networking Conference (WCNC)*

AWARDS

Silver Award, IEEE Student Paper Contest, Seoul Section	2024
Best Paper Award, The Korean Institute of Communications and Information Sciences	2024
Best Paper Award, The Korean Institute of Communications and Information Sciences	2022
IEEE WCNC Student Travel Grant, IEEE Communication Society	2022

OTHER ACTIVITIES

Journal Paper Review	IEEE Transactions on Wireless Communications IEEE Transactions on Communications IEEE Internet of Things Journal IEEE Wireless Communications Letters IEEE Open Journal of the Communications Society
Conference Paper Review	IEEE Global Communications Conference (GLOBECOM) IEEE International Conference on Communications (ICC)