

CHENGHONG BIAN

Email: eechbian@ust.hk

EDUCATION

Imperial College London

Oct. 2022 – Jan. 2026

Department of EEE, Ph.D in Electrical and Electronic Engineering.

Supervisor: Prof. Deniz Gündüz.

University of Michigan, Ann Arbor

Aug. 2020 – Jun. 2022

Department of EECS, M.S in Electrical and Computer Engineering.

Admitted as a Ph.D student, transferred to M.S due to U.S visa issue.

Supervisor: Prof. Hun-seok Kim.

Tsinghua University

Sept. 2016 – Jul. 2020

Department of Physics, B.S, the Class of Mathematics and Physics.

Supervisor: Prof. Feifei Gao.

APPOINTMENTS

The Hong Kong University of Science and Technology

Jan. 2026 – present

Postdoc, Department of Electrical and Computer Engineering.

Supervisor: Prof. Jun Zhang.

University of California, San Diego

Jul. 2019 – Sep. 2019

Research Assistant, Department of Electrical and Computer Engineering.

Supervisor: Prof. Xinyu Zhang.

RESEARCH INTERESTS

- **Fundamentals of wireless communications.**

Tools: MIMO-OFDM, channel coding and modulation, semantic communications, integrated sensing and communications.

- **Machine learning for communications.**

Tools: Data compression, image/video/point cloud processing, 3D Gaussian Splatting, 3D Radio Maps.

RESEARCH PROJECTS

- AIR, Horizon Europe

2023-2028

Participated, 2023-2025, United Kingdom.

£1,722,712

Artificial Intelligence in the Air.

- 6G Goal-Oriented AI-enabled Learning and Semantic Communication Networks, Horizon Europe
2024-2026

Participated, 2024-2025, United Kingdom.

€329,661,950

- U.S National Science Foundation (NSF) CAREER

Participated, 2020-2023, United States.

Heterogeneous Non-orthogonal Wireless Communications Enhanced by Unified SDR – Deep Learning Architectures.

- Defense Advanced Research Projects Agency (DARPA) Young Faculty Award (YFA)

2018-2023

Participated, 2020-2023, United States.

Hyper-Dimensional Modulation for Robust Low-Latency Low-Power IoT Networks.

- National Natural Science Foundation of China, Grant 61831013
Participated, 2019-2020, Beijing, China.

2018-2023

AWARDS

- Imperial College London Eryl Cadwallader Davies Prize (Outstanding Doctoral Thesis), 2026, 3/50.
- Imperial College London Stylianos Kalaitzis PhD Award (Most promising doctoral work), 2025, 1/50.
- Best Paper Award in IEEE International Conference on Communications, 2023, 16/2778.
- Tsinghua University Scholarship for Academic Excellence, 2019.
- Tsinghua University Scholarship for Academic Excellence, 2018.

PROFESSIONAL SERVICES

- Reviewer for conferences: ISIT, SPAWC, ICC, MLSP, ICASSP.
- Reviewer for journals: JSAC, TCCN, TMC, TCOM, WCL.
- TPC member for ICC, SPAWC and WCNC, 2025.

BOOKS

- Book chapter: Deep Joint Source and Channel Coding
Foundations of Semantic Communication Networks
Authors: H. Wu, **C. Bian**, Y. Shao, D. Gündüz
Wiley
2024

PUBLICATIONS

(* indicates corresponding author)

Under Review / Revision:

- [1] **C. Bian**, M. Hua, D. Gündüz, “Eff-WRFGS: Efficient Wireless Radiance Field Using 3D Gaussian Splatting,” **Revision**, *IEEE Wireless Communications Letters (WCL)*, 2026.
- [2] M. Hua, **C. Bian***, D. Gündüz, “Resolving Multi-Target Association in OFDM-based ISAC via Vision-aided Multi-Modal Learning,” **Under Review**, 2026.
- [3] **C. Bian**, Y. Zhang, M. Hua, K. Meng, D. Gündüz, “LISAC: Learned Coded Waveform Design for ISAC with OFDM,” **Under Review**, *IEEE Transactions on Wireless Communications (TWC)*, 2026.
- [4] **C. Bian**, Y. Shao, D. Gündüz, “Towards AI-Native Fronthaul: Neural Compression for NextG Cloud RAN,” **Under Review**, *IEEE Transactions on Cognitive Communications and Networking (TCCN)*, 2026.

Journals:

- [1] **C. Bian**, K. Meng, H. Wu, Y. Zhang, D. Gündüz, “CI²SAC: CRC-Assisted Channel Codes for Iterative Integrated Sensing and Communications,” *IEEE Transactions on Cognitive Communications and Networking (TCCN)*, vol. 12, pp. 9021–9037, 2026.
- [2] **C. Bian**, Y. Shao, D. Gündüz, “A Deep Joint Source-Channel Coding Scheme for Hybrid Mobile Multi-hop Networks,” *IEEE Journal of Selected Areas in Communications (JSAC)*, 2025.
- [3] **C. Bian**, Y. Shao, H. Wu, E. Ozfatura, D. Gündüz, “Process-and-Forward: Deep Joint Source-Channel Coding Over Cooperative Relay Networks,” *IEEE Journal of Selected Areas in Communications (JSAC)*, 2025.
- [4] **C. Bian**, Y. Shao, D. Gündüz, “Over-the-Air Learning-based Geometry Point Cloud Transmission,” *IEEE Journal of Selected Areas in Communications (JSAC)*, 2025.
- [5] **C. Bian**, M. Hua, D. Gündüz, “Over-the-Air Inference over Multi-hop MIMO Networks,” *IEEE Wireless Communications Letters (WCL)*, 2025.

- [6] **C. Bian**, C.-W. Hsu, C. Lee, H.-S. Kim, “Learning-Based Near-Orthogonal Superposition Code for MIMO Short Message Transmission,” *IEEE Transactions on Communications (TCOM)*, 2023.
- [7] M. Hua, **C. Bian***, H. Wu, D. Gündüz, “Implementing Neural Networks Over-the-Air via Reconfigurable Intelligent Surfaces,” *IEEE Transactions on Wireless Communications (TWC)*, vol. 25, pp. 11562–11576, 2026.
- [8] M. Hua, W. Zhang, **C. Bian**, D. Gündüz, “In-Context Learning for Deep Joint Source-Channel Coding Over MIMO Channels,” *IEEE Transactions on Wireless Communications (TWC)*, vol. 25, pp. 18088–18102, 2026.
- [9] C. Wen, J. Tong, Z. Lin, **C. Bian**, J. Zhang, “Bridging Visual and Wireless Sensing: A Unified Radiation Field for 3D Radio Map Construction,” **Accepted**, *npj Wireless Technology*, 2026.
- [10] Y. Shao, **C. Bian**, L. Yang, Q. Yang, Z. Zhang, D. Gündüz, “Point Cloud in the Air,” *IEEE Communications Magazine*, 2025.
- [11] H. Wu, Y. Shao, **C. Bian**, K. Mikolajczyk, D. Gündüz, “Deep Joint Source-Channel Coding for Adaptive Image Transmission over MIMO Channels,” *IEEE Transactions on Wireless Communications (TWC)*, 2024.
- [12] M. Yang, **C. Bian**, H.-S. Kim, “OFDM-guided Deep Joint Source Channel Coding for Wireless Multipath Fading Channels,” *IEEE Transactions on Cognitive Communications and Networking (TCCN)*, 2022.
- [13] F. Gao, B. Lin, **C. Bian**, T. Zhou, J. Qian, H. Wang, “FusionNet: Enhanced Beam Prediction for mmWave Communications Using Sub-6GHz Channel and A Few Pilots,” *IEEE Transactions on Communications (TCOM)*, 2021.

Conferences:

- [1] **C. Bian**, Y. Shao, D. Gündüz, “Towards AI-Native Fronthaul: Neural Compression for NextG Cloud RAN,” **Under Review**, *IEEE International Symposium on Information Theory (ISIT) Workshop*, 2026.
- [2] **C. Bian**, K. Meng, H. Wu, Y. Zhang, D. Gündüz, “Sparse Regression Codes for Integrated Passive Sensing and Communications,” *IEEE International Conference on Communications (ICC) Workshop*, 2026.
- [3] M. Hua, **C. Bian**, H. Wu, D. Gündüz, “Realizing Fully-Connected Layers Over the Air via Reconfigurable Intelligent Surfaces,” *IEEE Global Communications Conference*, 2025.
- [4] **C. Bian**, Y. Zhang, D. Gündüz, “LISAC: Learned Coded Waveform Design for ISAC with OFDM,” *IEEE Wireless Communications and Networking Conference (WCNC)*, 2025.
- [5] **C. Bian**, Y. Shao, D. Gündüz, “Wireless Point Cloud Transmission,” *IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, 2024.
- [6] **C. Bian**, Y. Shao, D. Gündüz, “A Hybrid Joint Source-Channel Coding Scheme for Mobile Multi-hop Networks,” *IEEE International Conference on Communications (ICC)*, 2024.
- [7] **C. Bian**, Y. Shao, H. Wu, D. Gündüz, “Deep Joint Source-Channel Coding over Cooperative Relay Networks,” *IEEE International Conference on Machine Learning for Communication and Networking (ICMLCN)*, 2024.
- [8] Emre Ozfatura, **C. Bian**, D. Gündüz, “Do not Interfere but Cooperate: A Fully Learnable Code Design for Multi-Access Channels with Feedback,” *International Symposium on Topics in Coding (ISTC)*, 2023.
- [9] **C. Bian**, Y. Shao, D. Gündüz, “DeepJSCC-l++: Robust and Bandwidth-Adaptive Wireless Image Transmission,” *IEEE Global Communications Conference (GlobeCom)*, 2023.
- [10] H. Wu, Y. Shao, **C. Bian**, K. Mikolajczyk, D. Gündüz, “Vision Transformer for Adaptive Image Transmission over MIMO Channels,” **Best Paper Award**, *IEEE International Conference on Communications (ICC)*, 2023.
- [11] **C. Bian**, Y. Shao, H. Wu, D. Gündüz, “Space-time Design for Deep Joint Source Channel Coding of Images over MIMO Channels,” *IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, 2023.
- [12] **C. Bian**, M. Yang, C.-W. Hsu, H.-S. Kim, “Deep Learning Based Near-Orthogonal Superposition Codes for Short Packets,” *IEEE International Conference on Communications (ICC)*, 2022.
- [13] M. Yang, **C. Bian**, H.-S. Kim, “Deep Joint Source Channel Coding for Wireless Image Transmission with OFDM,” *IEEE International Conference on Communications (ICC)*, 2021.