Ding Zhao

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Education

University of California, Los Angeles — Los Angeles, CA, US
M.S. in Electrical and Computer Engineering ***GPA:3.94/4.0*** — *Sep 2022 – April 2024 (Expected)*

Zhejiang University — Hangzhou, China
B.E. in Electronic Science and Technology ***GPA:3.86/4.0*** — *Sep 2018 – Jun 2022*

Publication

Conference

- Xianxin Song, Ding Zhao, Haocheng Hua, Tony Xiao Han, Xun Yang, and Jie Xu. Joint transmit and reflective beamforming for irs-assisted integrated sensing and communication. In *2022 IEEE Wireless Communications and Networking Conference (WCNC)*, pages 189–194. IEEE, 2022

In Press

- Ding Zhao, Ibrahim Pehlivan, Aditya Wadaskar, and Danijela Cabric. Fast Frequency-Direction mapping design for data communication with True-Time-Delay array architecture. In *2024 International Conference on Computing, Networking and Communications (ICNC): Signal Processing for Communications (ICNC'24 SPC)*, page 6, Big Island, USA, February 2024
- Aditya Wadaskar, Ding Zhao, Ibrahim Pehlivan, and Danijela Cabric. Structured Two-Stage True-Time-Delay array codebook design for Multi-User data communication. In *2023 IEEE Global Communications Conference: Wireless Communications (Globecom 2023 WC)*, page 6, Kuala Lumpur, Malaysia, December 2023

Research Experience

Physical-Layer Informed TCP Adaptation for Highly Dynamic Starlink Networks — San Diego, CA, US
Advisor: Xinyu Zhang — *July 2023 – Present*

- Built a physical-layer starlink signal receiving system for handoff and beamforming behavior.
- Proposed a system design method to synchronize starlink handoff time for precise TCP adaptation.
- Presented a cross-layer solution to enable TCP overly conservative congestion control for throughput improvement.

True Time Delay Based Beam Pattern Design for Data Communication — Los Angeles, CA, US
Advisor: Danijela Cabric — *Sept 2022 – Present*

- Developed a true-time-delay based architecture for generating frequency-dependent array responses.
- Proposed a novel heuristic algorithm for phase-delay design in frequency-direction mapping.
- Simulated the existing algorithms(JPTA, mmFlexible) and compared the spectral efficiency and computation time with the proposed algorithm.

Sensing-Aided Millimeter-Wave Beam Tracking Algorithm Design — Hangzhou, China
Advisor: Min Li — *Dec 2021 – May 2022*

- Consider Integrated Sensing and Communication technology of millimeter wave communication system in view of the traditional beam alignment and tracking methods of training overheads.
- Developed an efficient data-driven sensing-assisted algorithm based on LSTM with high robustness compared to traditional model-driven algorithm based on Extended Kalman filter.

Intelligent Reflecting Surface Aided Integrated Sensing and Communications — Shenzhen, China
Advisor: Jie Xu — *July 2021 – Oct 2021*

- Formulated an optimization problem by combining intelligent reflecting surfaces and integrated sensing and communication aiming at enhance sensing performance without LOS channel.
- Proposed an efficient algorithm to solve the formulated problem that is non-convex and difficult in general based on SDR.

Skills

Programming: Verilog, C, C++, Python, MATLAB

Tools: Vivado, Software-defined radio, GNU-radio

Honors and Awards

- Outstanding Graduates of Zhejiang University — 2022
- Academic Records Scholarship of Zhejiang University(first class,3%) — 2020-2021
- Academic Records Scholarship of Zhejiang University(first class,3%) — 2019-2020
- Scholarship of National Talent Training Base(first class,6%) — 2019-2020
- Academic Records Scholarship of Zhejiang University(third class) — 2018-2019