

Yidong Ren

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EDUCATION

Michigan State University – East Lansing, USA (GPA: 4.0/4.0)

Sept 2021 – Present

PhD Candidate in Computer Science

Advisor: Dr. Zhichao Cao

Research Interests: Internet of Things | Wireless Networks

University of Electronic Science and Technology of China – Chengdu, China

Sept 2017 – June 2021

Bachelor of Engineering

Major: Electronic & Information Engineering

BENCHMARK | DATASETS

NELoRa-Bench: A Benchmark for Neural-enhanced LoRa Demodulation ([Paper Code](#))

Jialuo Du, **Yidong Ren**, Mi Zhang, Yunhao Liu, Zhichao Cao

International Conference on Learning Representations (**ICLR 2023**) Workshop on ML for IoT ([Oral](#))

May. 5, 2023

CONFERENCE PUBLICATION

[C1] ChirpTransformer: Versatile LoRa Encoding for Low-power Wide-area IoT (To appear)

Chenning Li*, **Yidong Ren*** (Co-primary author *), Shuai Tong, Shakhrol Iman Siam, Mi Zhang, Jiliang Wang, Yunhao Liu, Zhichao Cao

ACM International Conference on Mobile Systems, Applications, and Services (**MobiSys 2024**)

Jun. 3 – 7, 2024

[C2] Demeter: Reliable Cross-soil LPWAN with Low-cost Signal Polarization Alignment (*To appear*)

Yidong Ren, Wei Sun, Jialuo Du, Huaili Zeng, Yonsuk Dong, Mi Zhang, Shigang Chen, Yunhao Liu, Tianxing Li, Zhichao Cao

ACM Annual International Conference On Mobile Computing And Networking (**MobiCom 2024**)

Sep. 30 – Oct 4, 2024

[C3] SRLoRa: Neural-enhanced LoRa Weak Signal Decoding with Multi-gateway Super Resolution

Jialuo Du, **Yidong Ren**, Zhui Zhu, Chenning Li, Zhichao Cao, Qiang Ma, Yunhao Liu

ACM International Symposium on Mobile Ad Hoc Networking and Computing (**MobiHoc 2023**)

Oct. 23 – 26, 2023

[Acceptance ratio: 30/136 = 22.1%]

[C4] Prism: High-throughput LoRa Backscatter with Non-linear Chirp ([Paper](#))

Yidong Ren, Puyu Cai, Jingyan Jiang, Jialuo Du, Zhichao Cao

IEEE International Conference on Computer Communications (**INFOCOM 2023**)

May. 17 – 20, 2023

[Acceptance ratio: 252/1312 = 19.2%]

[C5] Is LoRaWAN Really Wide? Fine-grained LoRa Link-level Measurement in An Urban Environment ([Paper Code](#))

Yidong Ren* (Co-primary author *), Li Liu*, Chenning Li*, Zhichao Cao, Shigang Chen

IEEE International Conference on Network Protocols (**ICNP 2022**)

Oct. 30 – Nov. 2, 2022

[Acceptance ratio: 33/154 = 21.4%] (* Co-primary author)

JOURNAL PUBLICATION

[J1] Channel Adapted Antenna Augmentation for Improved Wi-Fi Throughput ([Paper](#))

Yanbo Zhang, Weiping Sun, **Yidong Ren**, Sung-ju Lee, Mo Li

IEEE Transactions on Mobile Computing (**TMC**) vol. 22, no. 11, pp. 6297-6310

Aug. 1, 2022

* denotes authors contributed equally

AWARDS

MobiHoc 2023 Student Travel Grant (US National Science Foundation funded)

ICNP 2022 2022 Student Travel Grant (IEEE Computer Society funded)

PROJECT EXPERIENCE

[1] A Large-scale Agriculture Data Collection and Analysis System with LoRa

Develop advanced IoT systems based on LoRa (long range communication) for agricultural data collection and analysis.

Michigan State University, USA

Aug. 2021 – Present

SKILLS

- **Programming:** Python, C, MATLAB, Java.
- **Hardware:** MCU (STM32 Arduino), FPGA (Xilinx), PCB design.
- **Platform and Tools:** PyTorch, Android Studio, Linux Kernel, Software-defined Radio, Latex, HFSS

TEACHING EXPERIENCE

CSE891: AIoT-Artificial Intelligence in the Edge,

Guest Lecturer

Michigan State University, USA

Fall 2023

CSE891: AIoT-Artificial Intelligence in the Edge,

Teaching Assistant

Michigan State University, USA

Fall 2022

CSE220: Programming in C,

Teaching Assistant

Michigan State University, USA

Spring 2022, Spring 2023

PROFESSIONAL SERVICE

- **Program Committee:**
 - ACM MobiCom 2024 Artifact Evaluation Program Committee
 - ACM MobiSys 2024 Artifact Evaluation Program Committee
- **Reviewer:**
 - 2024: ACM Transactions on Sensor Networks
 - 2023: IEEE/ACM Transactions on Networking | ACM Transactions on Sensor Networks
 - 2022: ACM Transactions on Sensor Networks | MobiQuitous