Chenning Li

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Networks and Mobile Systems group at CSAIL
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Research Interests

ML for Networking, Networked Systems, Edge/Mobile Computing

Education

Aug 2022 - Present	**Ph.D.** in Computer Science at MIT
	Advisor: Dr. Hari Balakrishnan & Dr. Mohammad Alizadeh
Aug 2019 - Aug 2022	**M.S.** in Computer Science at Michigan State University
	Advisor: Dr. Yunhao Liu & Dr. Zhichao Cao
Aug 2014 - July 2018	**BEng.** from Tsinghua University

Conference Publications

1. **Chenning Li***, Arash Nasr-Esfahany*, Kevin Zhao, Kimia Noorbakhsh, Prateesh Goyal, Mohammad Alizadeh, and Thomas Anderson. "m3: Accurate Flow-Level Performance Estimation using Machine Learning". In proceedings of **ACM SIGCOMM**, 2024.

2. **Chenning Li***, Yidong Ren*, Shuai Tong, Shakhrul Iman Siam, Mi Zhang, Yunhao Liu, Jiliang Wang, and Zhichao Cao. "ChirpTransformer: Versatile LoRa Encoding for Low-power Wide-area IoT". In proceedings of **ACM MobiSys**, 2024.

3. **Chenning Li**, Xiuzhen Guo, Longfei Shangguan, Zhichao Cao, and Kyle Jamieson. "CurvingLoRa to Boost LoRa Network Capacity via Concurrent Transmission". In proceedings of **USENIX NSDI**, 2022.

4. **Chenning Li**, Xiao Zeng, Mi Zhang, and Zhichao Cao. "PyramidFL: A Fine-grained Client Selection Framework for Efficient Federated Learning". In proceedings of **ACM MobiCom**, 2022.

5. **Chenning Li**, Zhichao Cao, and Li Xiao. "CurveALOHA: Non-linear Chirps Enabled High Throughput Random Channel Access for LoRa". In proceedings of **IEEE INFOCOM**, 2022.

6. **Chenning Li**, Li Liu, Zhichao Cao, Mi Zhang. "WiVelo: Fine-grained Walking Velocity Estimation for Wi-Fi Passive Tracking". In proceedings of **IEEE SECON**, 2022.

7. **Chenning Li**, Hanqing Guo, Shuai Tong, Xiao Zeng, Zhichao Cao, Mi Zhang, Qiben Yan, Li Xiao, Jiliang Wang, and Yunhao Liu. "NELoRa: Towards Ultra-low SNR LoRa Communication with Neural-enhanced Demodulation". In proceedings of **ACM SenSys**, 2021.
   Best Paper Award, **ACM SIGMOBILE Research Highlight**.

8. **Chenning Li**, Zheng Liu, Yuguang Yao, Zhichao Cao, Mi Zhang, and Yunhao Liu. "Wi-Fi See It All: Generative Adversarial Network-augmented Versatile Wi-Fi Imaging". In proceedings of **ACM SenSys**, 2020.

9. **Chenning Li**, Manni Liu, Zhichao Cao. "WiHF: Enable User Identified Gesture Recognition with WiFi". In proceedings of **IEEE INFOCOM**, 2020.

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[1] * denotes the co-author information.

10. Hanqing Guo*, **Chenning Li***, Lingkun Li, Zhichao Cao, Qiben Yan, Li Xiao. "NEC: Speaker Selective Cancellation via Neural Enhanced Ultrasound Shadowing". In proceedings of **IEEE/IFIP DSN**, 2022.

11. Yidong Ren*, Li Liu*, **Chenning Li***, Zhichao Cao, and Shigang Chen. "Is LoRaWAN Really Wide? Fine-grained LoRa Link-level Measurement in An Urban Environment". In proceedings of **IEEE ICNP**, 2022.

12. Arjun Balasingam, Joseph Chandler, **Chenning Li**, Zhoutong Zhang, and Hari Balakrishnan. "Drivetrack: A benchmark for long-range point tracking in real-world videos." In proceedings of **IEEE/CVF CVPR**, 2024.

13. Jialuo Du, Yidong Ren, Zhui Zhu, **Chenning Li**, Zhichao Cao, Qiang Ma, and Yunhao Liu. "SRLoRa: Neural-enhanced LoRa Weak Signal Decoding with Multi-gateway Super Resolution". In proceedings of **ACM MobiHoc**, 2023.

14. Jialuo Du, **Chenning Li**, Zhichao Cao, and Yunhao Liu. "SRPeek: Super Resolution Enabled Screen Peeking via COTS Smartphone". In proceedings of **IEEE ICPADS**, 2021.

Journal Publications

1. **Chenning Li**, and Zhichao Cao. "LoRa Networking Techniques for Large-scale and Long-term IoT: A Down-to-top Survey", ACM Computing Surveys (**ACM CSUR**), 2022.

2. **Chenning Li**, Zhichao Cao, and Yunhao Liu. "Deep AI Enabled Ubiquitous Wireless Sensing: A Survey", ACM Computing Surveys (**ACM CSUR**), 2021.

3. **Chenning Li**, Manni Liu, and Zhichao Cao. "WiHF: Gesture and User Recognition with Wi-Fi", IEEE Transactions on Mobile Computing (**IEEE TMC**), 2020.

4. Zhichao Cao, **Chenning Li**, Li Liu, Mi Zhang. "WiVelo: Fine-grained Wi-Fi Walking Velocity Estimation", ACM Transactions on Sensor Networks (TOSN) (**ACM TOSN**), 2024.

5. Nikolay Ivanov, **Chenning Li**, Qiben Yan, Zhiyuan Sun, Zhichao Cao, and Xiapu Luo. "Security Threat Mitigation For Smart Contracts: A Comprehensive Survey", ACM Computing Surveys (**ACM CSUR**), 2022.

Industrial Experience

1. **Microsoft**: Research Intern - Networking Research Group. May-Aug. 2022

2. **Bytedance**: Research PhD Intern. Feb.-Apr. 2022

3. **CodePath**: iOS Development Course. Awarded the Excellent Presentation during the CodePath Mobile Development Virtual Demo Day. Aug.-Dec. 2020.

Awards

1. **Finalists for Research PhD Fellowship Award**, Meta, 2023

2. **Student Grant**, USENIX NSDI & IEEE INFOCOM, 2022

3. **Best Paper Award**, ACM SenSys, 2021

4. **Named an Engineering Distinguished Scholar**, MSU, 2019

5. **Outstanding Undergraduates**, Beijing & Tsinghua University, 2018

6. **Awarded the Outstanding Fellowship**, Tsinghua University, 2017

Teaching Experience

1. EECS Communication Lab Fellow (Spring 2024 to Present, MIT)

2. Teaching Assistant: CSE220 - Programming in C (Spring 2021, MSU)

3. Guest Lecturer: CSE891 - AIoT: Artificial Intelligence in the Edge (Spring 2020, Fall 2021, MSU)

Professional Service

1. **Program Committee Member**:

   (a) **ACM S3 Workshop in MobiCom '24**, Technical Program Committee

   (b) **ACM SIGCOMM '23**, Artifact Evaluation Committee

   (c) **ACM SIGCOMM '22**, Artifact Evaluation Committee

   (d) **ACM SenSys '22**, Shadow Program Committee

2. **Reviewer**:

   (a) **Journal:** ACM Transactions on Sensor Networks, ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, ACM Computing Surveys, IEEE Transactions on Mobile Computing, IEEE Transactions on Wireless Communications, IEEE Internet of Things Journal, IEEE Internet of Things Magazine, IEEE Intelligent Transportation System Magazine, IEEE/ACM Transactions on Networking