Lingkun Li

Associate Professor and Doctoral Supervisor
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BJTU Faculty Profile Google Scholar

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Research Interests

Mobile computing, ubiquitous sensing, visible-light communication and positioning, acoustic sensing, indoor localization, spatial intelligence, intelligent transportation, edge AI, and networked systems.

Education

Michigan State University, East Lansing, Michigan, USA 2019–2022
Ph.D. in Computer Science and Engineering
Advisors: Prof. Yunhao Liu and Prof. Zhichao Cao

Tsinghua University, Beijing, China 2016–2019
M.Eng., School of Software
Advisor: Prof. Jiliang Wang

Beijing Jiaotong University, Beijing, China 2012–2016
B.Eng., School of Software

Academic Appointments

Beijing Jiaotong University, Beijing, China 2026–Present
Associate Professor and Doctoral Supervisor, School of Software Engineering

Beijing Jiaotong University, Beijing, China 2022–2025
Lecturer, School of Software Engineering

Journal Publications

[J1] Shuli Zhu, **Lingkun Li**, Xuyu Wang, Qiang Ni, Yuqin Jiang, Hui Gao, Zhaobing Han, and Ruipeng Gao. "Large-Scale Indoor Localization via Outdoor Crowdsourcing Trajectories on Ride-Hailing Platform." *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT/UbiComp)*, 2025. DOI: 10.1145/3729498.

[J2] Ruipeng Gao, Shuli Zhu, **Lingkun Li**, Xuyu Wang, Yuqin Jiang, Naiqiang Tan, Hua Chai, Peng Qi, Jiqiang Liu, and Dan Tao. "Real-World Large-Scale Cellular Localization for Pickup Position Recommendation at Black-Hole." *IEEE Transactions on Mobile Computing*, 23(12):15114–15131, 2024. DOI: 10.1109/TMC.2024.3453596.

[J3] Fan Dang, Xinqi Jin, Qi-An Fu, **Lingkun Li**, Guangyan Peng, Xinlei Chen, Kebin Liu, and Yunhao Liu. "StreamingTag: A Scalable Piracy Tracking Solution for Mobile Streaming Services." *IEEE Transactions on Mobile Computing*, 2024. DOI: 10.1109/TMC.2024.3445411.

[J4] Pengjin Xie, **Lingkun Li**, Jiliang Wang, and Yunhao Liu. "Passive Visible Light Tag System for Localization and Posture Estimation." *IEEE Transactions on Mobile Computing*, 23(8), 2024. DOI: 10.1109/TMC.2023.3348802.

[J5] Xinqi Jin, **Lingkun Li**, Fan Dang, Xinlei Chen, and Yunhao Liu. "A Survey on Edge Computing for Wearable Technology." *Digital Signal Processing*, 125:103146, 2022. DOI: 10.1016/j.dsp.2021.103146.

[J6] **Lingkun Li**, Pengjin Xie, and Jiliang Wang. "Enabling 3D Ambient Light Positioning with Mobile Phones and Battery-Free Chips." *IEEE Transactions on Mobile Computing*, 20(3):952–964, 2021. DOI:

10.1109/TMC.2019.2956128.

Conference Publications

[C1] Guanyu Cai, Ruiming Tian, Lang Yang, Zhouhong Ren, Jinliang Yuan, **Lingkun Li**, and Jiliang Wang. "Is Your NPU Ready for LLMs? Dissecting the Hidden Efficiency Bottlenecks in Mobile LLM Inference." *ACM SIGMETRICS*, 2027. arXiv:2607.05475.

[C2] Tongyang Dai, Ruipeng Gao, Feng Liu, Wenqiu Bai, **Lingkun Li**, and Qiang Ni. "LayoutBridge: Anisotropic Brownian Bridges for Public Indoor Floorplan Generation." *Advances in Neural Information Processing Systems (NeurIPS)*, 2026. OpenReview.

[C3] Yanming Lyu, Yue Cheng, **Lingkun Li**, Ruipeng Gao, Xinyue Liu, Hui Gao, and Qiang Ni. "DSETA: A Dual-Stage Continual Learning Framework for Travel Time Prediction in Dynamic Traffic Environments." *ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, pp. 7750–7760, 2026. DOI: 10.1145/3770855.3818375.

[C4] Ruxin Lin, Bingyan Liu, Yelin Cui, Duo Liu, Ruipeng Gao, Xiaoqiang Zhu, Jiqiang Liu, and **Lingkun Li**. "LuminaLink: Enabling Low Cost Secure Visible Light Communication with Birefringence." *IEEE Conference on Computer Communications (INFOCOM)*, 2025. DOI: 10.1109/INFOCOM55648.2025.11044750.

[C5] **Lingkun Li**, Fan Dang, Duo Liu, and Zhichao Cao. "BreathPass: Ultrasonic Authentication by Chest and Abdomen Movement while Breathing." *IEEE International Conference on Parallel and Distributed Systems (ICPADS)*, 2024. DOI: 10.1109/ICPADS63350.2024.00013.

[C6] Siyu Hu, Jiqiang Liu, Chenxin Zhang, Xiaoqiang Zhu, and **Lingkun Li**. "Proto-CSNet: A Prototype Network Model Integrating CNN and Self-Attention for Enhanced Human Activity Recognition." *IEEE International Conference on Mobility, Sensing and Networking (MSN)*, 2024. DOI: 10.1109/MSN63567.2024.00018.

[C7] Mingbo Zhang, Lingyun Lu, Xiaoqiang Zhu, **Lingkun Li**, and Ruipeng Gao. "DBLG: An Innovative Deep-Broad Learning and GAN Framework for CSI Fingerprint Database Refinement." *IEEE International Conference on Mobility, Sensing and Networking (MSN)*, 2024. DOI: 10.1109/MSN63567.2024.00026.

[C8] Shuli Zhu, **Lingkun Li**, Xuyu Wang, Changcheng Liu, Yuqin Jiang, Zengwei Huo, Hua Chai, Jiqiang Liu, Dan Tao, and Ruipeng Gao. "Experience: Large-Scale Cellular Localization for Pickup Position Recommendation at Black-Hole." *ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2023. DOI: 10.1145/3570361.3613298.

[C9] Jiawen Chen, Ziyue Dang, **Lingkun Li**, and Fan Dang. "Optimization of Ultrasonic Respiratory Signals Based on Supervised Learning." *IEEE International Conference on Parallel and Distributed Systems (ICPADS)*, 2022. DOI: 10.1109/ICPADS56603.2022.00053.

[C10] Xinqi Jin, Fan Dang, Qi-An Fu, **Lingkun Li**, Guangyan Peng, Xinlei Chen, Kebin Liu, and Yunhao Liu. "StreamingTag: A Scalable Piracy Tracking Solution for Mobile Streaming Services." *ACM International Conference on Mobile Computing and Networking (MobiCom)*, pp. 596–608, 2022. DOI: 10.1145/3495243.3560521.

[C11] Hanqing Guo, Chenning Li, **Lingkun Li**, Zhichao Cao, Qiben Yan, and Li Xiao. "NEC: Speaker Selective Cancellation via Neural Enhanced Ultrasound Shadowing." *IEEE/IFIP International Conference on Dependable Systems and Networks (DSN)*, 2022. DOI: 10.1109/DSN53405.2022.00044.

[C12] Fan Dang, **Lingkun Li**, and Jiajie Chen. "xRSA: Construct Larger Bits RSA on Low-Cost Devices." *IEEE International Conference on Parallel and Distributed Systems (ICPADS)*, 2021. DOI: 10.1109/ICPADS53394.2021.00085.

[C13] **Lingkun Li**, Manni Liu, Yuguang Yao, Fan Dang, Zhichao Cao, and Yunhao Liu. "Patronus: Preventing Unauthorized Speech Recordings with Support for Selective Unscrambling." *ACM Conference on Embedded Networked Sensor Systems (SenSys)*, pp. 245–257, 2020. DOI: 10.1145/3384419.3430713.

[C14] Pengjin Xie, **Lingkun Li**, Jiliang Wang, and Yunhao Liu. "LiTag: Localization and Posture Estimation with Passive Visible Light Tags." *ACM Conference on Embedded Networked Sensor Systems (SenSys)*, pp. 123–135, 2020. DOI: 10.1145/3384419.3430777.

[C15] **Lingkun Li**, Pengjin Xie, and Jiliang Wang. "RainbowLight: Towards Low Cost Ambient Light Positioning with Mobile Phones." *ACM International Conference on Mobile Computing and Networking (MobiCom)*, pp. 445–457, 2018. DOI: 10.1145/3241539.3241545.

Selected Research Projects

- **Semantic Mapping and High-Precision Localization for Urban Rail Trains in Satellite-Denied Environments.** NSFC General Program, 2025–2028.
- **Key Technologies for Integrated Visible-Light Communication and Sensing Based on Location Awareness.** NSFC Young Scientists Fund, 2025–2027.
- **Heterogeneous Collaborative Computing for On-Device Large Models under Resource Constraints.** Beijing Natural Science Foundation–Xiaomi Joint Key Program, 2026–2029.
- **Key Technologies for Intelligent Operation and Maintenance and Digital Twins of High-Speed Railways.** Major Research Program, 2026–2029.
- **Heterogeneous Backend Collaborative Inference for On-Device Large Models.** Basic Research Program, 2026–2028.
- **High-Precision Train Localization and Spatiotemporal Synchronization Service Equipment.** Research Equipment Program, 2023–2025.

Teaching

Beijing Jiaotong University

- Algorithm Design and Analysis, Undergraduate, Spring 2023–2026.
- Discrete Mathematics, Undergraduate, Fall 2023–2025.
- Comprehensive Software Practice IV, Undergraduate, Spring 2025–2026.
- Traffic Detection and the Internet of Things, Undergraduate, Spring 2023.
- Software Engineering Modeling and Formal Methods, Graduate, Spring 2024.

Book Translation
Sandeep Sen and Amit Kumar, *Modern Algorithm Design and Analysis*. Translated into Chinese by Duo Liu and Lingkun Li. China Machine Press, 2021.

Awards and Honors

- Excellent Class Advisor, Beijing Jiaotong University, 2026.
- Excellent Lecturer, Beijing Jiaotong University, 2026.
- Excellent Undergraduate Thesis Advisor, Beijing Jiaotong University, 2025 and 2026.
- Excellent Advisor, National College Student Software Innovation Competition, Third Prize; advised team received First Prize in the North China regional competition, 2024.
- Beijing Municipal Undergraduate Innovation Project Advisor, College Student Innovation and Entrepreneurship Training Program, 2024.
- Young Talent Cultivation Program, Beijing Jiaotong University, 2022.
- Outstanding Postgraduate of Beijing, 2019.
- Outstanding Master's Graduate, Tsinghua University and School of Software, 2019.
- National Scholarship, Ministry of Education, China, 2018.
- MSRA Stars of Tomorrow, Microsoft Research Asia, 2018.
- First-Class Scholarship, Glodon Inc., 2017.
- Outstanding Graduate of Beijing and Outstanding Graduate of Beijing Jiaotong University, 2016.

Academic Service

Technical Program Committees

- IEEE Global Communications Conference (GLOBECOM), 2025–2026.
- ACM SIGOPS Asia-Pacific Workshop on Systems (APSys), 2025.

- PICASSO Workshop, 2025.
- IEEE International Conference on Mobility, Sensing and Networking (MSN), 2023–2024.
- IEEE International Conference on Parallel and Distributed Systems (ICPADS), 2024.

Reviewer

- IEEE Transactions on Mobile Computing, 2022, 2025–2026.
- IEEE Transactions on Information Forensics & Security, 2025.
- ACM Transactions on Sensor Networks, 2020–2026.
- ACM Transactions on Internet of Things, 2025.
- IEEE Internet of Things Journal, 2025–2026.
- IEEE Access, 2024.
- IEEE Transactions on Sustainable Computing, 2023.
- ACM IMWUT/UbiComp, 2022.

Invention Patents

[P1] *Positioning Method Based on Visible Polarized-Light Interference.* CN201810847378.3. Lingkun Li, Jiliang Wang, and Pengjin Xie.

[P2] *Position-Hue Sampling Method and Apparatus in Visible Polarized-Light Interference Positioning.* CN201810847426.9. Pengjin Xie, Lingkun Li, Jiliang Wang, and Yunhao Liu.

[P3] *Positioning Device Based on Visible Polarized-Light Interference.* CN201810847418.4. Jiliang Wang, Pengjin Xie, Lingkun Li, and Yunhao Liu.

[P4] *Position-Dependent Secure Information Transmission Device Based on Visible Polarized-Light Interference.* CN117478236B. Bingyan Liu, Ruxin Lin, Yelin Cui, Lingkun Li, Duo Liu, Xiaoqiang Zhu, and Dalin Zhang.

[P5] *Position-Dependent Secure Information Transmission Method Based on Visible Polarized-Light Interference.* CN117375729B. Yelin Cui, Ruxin Lin, Bingyan Liu, Lingkun Li, Duo Liu, Xiaoqiang Zhu, and Dalin Zhang.

Industry Research Experience

Microsoft Research Asia, Beijing, China — August–November 2018
Research Intern, Innovative Engineering Group

Tencent Technology, Beijing, China — July 2015–January 2016
Intern, Mobile Internet Group