Bo Liang

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🌐 https://galaxywalk.github.io/

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Biography

I am a third-year year Ph.D. student at Center for Energy-efficient and Applications, Peking University, advised by Professor Chenren Xu. My research focuses on hardware-software co-design systems to enhance sensing capabilities for humans and embodied agents.

Education

2022-Present   **Ph.D. in Computer Science**
Center for Energy-efficient Computing and Applications, Peking University

2017-2022   **BSc. Physics and Dual BSc. Computer Science**
School of Physics, Peking University

Internship

November 2024 - Now   **Embodied AI research intern of Microsoft Research Asia (MSRA)**
Design humanoid robot hardware and its vision language navigation model. (Mentor: Xiaohan Yi)

July 2023 - October 2023   **Human computer interaction (HCI) research intern of Institute of Computing Technology, Chinese Academy (ICT)**
Design hardware and software for mmwave radio systems for backscatter localization. (Mentor: Tengxiang Zhang)

July 2021 - May 2023   **Software-hardware engineer of XG lab, Alibaba DAMO Acadamy**
Support the logistic chain (Cai Niao and fresh Hema) and access management of Alibaba by designing and implementing RFID-based inventory and localization system. Click the project page. (Mentor: Pengyu Zhang)

June 2020 - March 2021   **Human computer interaction (HCI) research intern of Cornell University SciFi Lab**
Design and implement acoustic sensing devices, including Tx, Rx, modulation, demodulation, passive array process and machine learning based classifier. (Mentor: Prof.Cheng Zhang)

Research Publications

Conference Proceedings

1. K. Xu, B. Liang, J. Li, and C. Xu, "Retrolidar: A liquid-crystal fiducial marker system for high-fidelity spatial computing," in *Proceedings of the 20th ACM Conference on Embedded Networked Sensor Systems*, 2025.

2. C. Gong, B. Liang, W. Gao, and C. Xu, "Data can speak for itself: Quality-guided utilization of wireless synthetic data," in *Mobisys*, 2025.

3. B. Liang, P. Wang, R. Zhao, *et al.*, "Rf-chord: Towards deployable rfid localization system for logistic networks," in *20th USENIX Symposium on Networked Systems Design and Implementation (NSDI 23)*, 2023, pp. 1783–1799.

4 P. Wang, B. Liang, R. Zhao, P. Zhang, X. Zhang, and C. Xu, "Poster: An rfid localization system for smart logistics," in *Proceedings of the 20th ACM Conference on Embedded Networked Sensor Systems*, 2022, pp. 849–850. 🔗 DOI: 10.1145/3560905.3568078.

5 K. Li, R. Zhang, B. Liang, F. Guimbretière, and C. Zhang, "Eario: A low-power acoustic sensing earable for continuously tracking detailed facial movements," 2, vol. 6, ACM New York, NY, USA, 2022, pp. 1–24. 🔗 DOI: 10.1145/3534621.

6 K. Xu, C. Gong, B. Liang, *et al.*, "Low-latency visible light backscatter networking with retromumimo," in *Proceedings of the 20th ACM Conference on Embedded Networked Sensor Systems*, 2022, pp. 448–461. 🔗 DOI: 10.1145/3560905.3568507.

7 B. Liang, X. Liu, Y. Wan, S. Cheng, J. Liu, and C. Xu, "Poster: Empower smart agriculture with rfid reference infrastructure," in *2023 20th Annual IEEE International Conference on Sensing, Communication, and Networking (SECON)*, IEEE, 2023, pp. 72–73.

Skills

Coding	C, MATLAB, Python, LaTeX
Prototyping	PCB design / Antenna design (elementary level), 3D printing/metal design, FPGA development, MCU development
Physics	Advanced optics, Electrodynamics, Quantum mechanics, Theoretical mechanics

Services

Reviewer

MobiCom'24	Artifact evaluation reviewer
CHI'24	External reviewer
MobiCom'23	Artifact evaluation reviewer
MobiSys'23	Artifact evaluation reviewer
IMWUT'23	External reviewer
IMWUT'22	External reviewer

Teaching Assistant

Computer Network	22 fall (honor track)

Honors

2024, 5/63	First Prize in the 1st Ubiquitous Intelligent Sensing Technology Innovation and Application Competition (Held by CCF)
2023-2024, Top 3%	PKU President Scholarship for Ph.D Student
2022, Top 10%	PKU Outstanding Graduates
2020, Top 10%	Weiming Physics Student Scholarship
2018 & 2020, Top 2%	PKU Outstanding Student Leader
2017, Top 5%	PKU Admission Scholarship