Lei Li

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Education

Ph.D., Computer and Information Engineering *Jan. 2020–Jan. 2024*
The Chinese University of Hong Kong, Shenzhen (CUHK-Shenzhen) *GPA: 3.85/4.0*

Ph.D. Student, Electrical Engineering *Aug. 2018–Aug. 2019*
Virginia Tech (VT), Blackburg, VA, USA *GPA: 3.88/4.0*

M.S., Information and Communication Engineering *Sept. 2014 - Mar. 2017*
Beijing Institute of Technology (BIT), Beijing *GPA: 86.4/100*

B.E., Communication Engineering (Siyuan Honor Program) *Sept. 2010–June 2014*
Beijing Jiaotong University (BJTU), Beijing *GPA: 88.5/100*

Research Experiences

Channel state information (CSI) sensing and recovery in massive MIMO systems

Develop efficient CSI sensing algorithms for 5G and next-G systems to achieve low-overhead CSI recovery.

- L. Li, X. Zeng, Y.-F. Liu, Y. Xu, and T.-H. Chang, "CSI sensing from heterogeneous user feedbacks: a constrained phase retrieval approach," *IEEE Trans. Wireless Commun., 2023*
- L. Li, M. Zhu, S. Xia and T. -H. Chang, "Downlink CSI recovery in massive MIMO systems by proactive sensing," *IEEE Wireless Commun. Lett., 2023*
- L. Li, Q. Chen, X. Zeng and T. -H. Chang, "Downlink CSI sensing from heterogeneous user feedbacks: a constrained phase retrieval approach," in *IEEE SPAWC 2022*

Integrated sensing and communication (ISAC)

Modeling and low-complexity algorithm design for ISAC systems, with a focus on sensing-assisted communication applications.

- L. Li, T. Cai, and T.-H. Chang, "ISAC beamforming optimization for robust transmission in dynamic mmWave MIMO networks," accepted by *IEEE ICASSP, 2024*
- T. Cai, L. Li, and T.-H. Chang, "Sensing-assisted distributed user scheduling and beamforming in multi-cell mmWave networks," accepted by *IEEE ICASSP, 2024*
- M. Zhu, L. Li, S. Xia and T.-H. Chang, "Information and sensing beamforming optimization for multi-user multi-target MIMO ISAC systems," *EURASIP J. Adv. Signal Process., 2023*
- M. Zhu, L. Li, S. Xia and T.-H. Chang, "Information and sensing beamforming optimization for multi-user multi-target MIMO ISAC systems," in *IEEE ICASSP, 2023* (Top 3% Paper Recognition)

Manuscripts in Progress:

- L. Li, and T.-H. Chang, "Low-complexity ISAC beamforming optimization for robust transmission in dynamic mmWave MIMO networks," submitted to *IEEE JSAC*.
- K. Zhang, L. Li, and T.-H. Chang, "Fronthaul compression and power allocation optimization for networked integrated sensing and communication," to be submitted to *IEEE TVT*.

Unmanned aerial vehicle (UAV) communication

Develop positioning and power control algorithms for UAV-enabled networking.

- L. Li, T.-H. Chang and S. Cai, "UAV positioning and power control for wireless two-way relaying," *IEEE Trans.*

Wireless Commun., 2020

- L. Li, T.-H. Chang and S. Cai, "UAV positioning and power control for wireless two-way relaying," in *IEEE SPAWC, 2019*

Others: DoA estimation, multi-user beamforming, secure communication, SCMA, and visual light communication (VLC)

- S. Li, L. Li, B. Liu, Y. Song, M. Li, J. Ren, and W. Jiang, "High precision fast direction-of-arrival estimation method for planar array," in *Space: Science & Technology (2022)*
- L. Li, J. Chen, C. Li, B. Li, N. Wang and Z. Fei, "Balancing energy efficiency and user rate fairness in multicell networks," in *IEEE WPMC 2016*
- Ni. Wang, L. Li, J. Chen, Z. Fei and J. Kuang, "The ADMM-based beamforming design with per-antenna power constraints," in *IEEE WPMC 2016*
- B. Li, L. Li, D. He, J. Chen and W. Kong, "Energy efficient secure transmission in massive MIMO systems with pilot attack," in *IEEE WCSP 2016*
- C. Sun, L. Li, J. Chen *et al.*, "System-level performance estimation of SCMA," in *IEEE ICCS 2016*
- M. Feng, Y. Zeng, K. Zhou *et al.*, "Adaptive screen modulation schemes for mobile device employing optical camera communication," in *IEEE ICUFN 2014*.

Skills

- Experienced knowledge in wireless communication, signal processing, 4G-LTE, and 5G-NR.
- Familiar with air interface performance analysis, modeling and optimization.
- Academic Language: C/C++, Python, Matlab, and LaTeX.

Honors and Awards

- Graduate Research Conference Poster Award, Second Place, CUHK-Shenzhen *2022*
- National Endeavor Scholarship *2012 & 2013*
- University Scholarship of BIT *2014 & 2015*
- University Scholarship of BJTU *2012 & 2013*
- Merit Student of BJTU *2013*
- Second Prize in Electronic Design Contest at BJTU *2013*
- Outstanding Award in the 4th Innovational Work Election on Electronics and Information Design for College Students, Chinese Institute of Electronics *2013*

Extracurricular Activities

Graduate Teaching Assistant at CUHK-Shenzhen *May. 2020–Dec. 2023*
Graduate Teaching Assistant at VT *Aug. 2017–May 2018*
Graduate Teaching Assistant at BIT *May 2015*
President of Class Committee, Class Siyuan 1001 (Siyuan Honor Program), BJTU *Sept. 2013–June 2014*
Class Committee Member in Charge of Studies, Class Siyuan 1001, BJTU *Sept. 2012–June 2013*

Language

TOEFL IBT: 104 (reading 30, listening 27, speaking 20, writing 27)
GRE: 332.5 (verbal 163, quantitative 166, analytical writing 3.5)

References

Dr. Tsung-Hui Chang, Associate Professor of SSE, CUHK-Shenzhen, changtsunghui@cuhk.edu.cn
Dr. Zesong Fei, Professor of SIE, BIT, feizesong@bit.edu.cn