李鑫

地址：上海市浦东新区中科路 1 号
电话：86-189-1610-6107
电邮：china.lixin1@gmail.com
主页：www.lixin.wiki

教育经历

工学博士（联合培养　指导老师：Yaowen Yang 教授）　2021.09 - 现在
- 南洋理工大学　通信与信息系统

工学博士（指导老师：梁俊睿教授）　2018.09 - 现在
- 中国科学院大学/中科院上海微系统所/上海科技大学　通信与信息系统

工学硕士（指导老师：魏建明教授）　2017.09 - 2018.07
- 中国科学院大学/中科院上海高等研究院　通信与信息系统

工学学士（指导老师：李强教授）　2012.09 - 2016.07
- 中北大学　武器系统与发射工程

获奖经历

- VEH 2021 振动能量收集与应用国际会议　「最佳论文奖」
- ASME 2020 智能材料、自适应结构与智能系统国际会议　「最佳学生硬件奖」
- IEEE IES 2019 工业电子学会年度论文竞赛　「亚军」
- ACM/IEEE EWSN 2019 嵌入式无线网络与系统国际会议物联网可靠通信竞赛　「冠军」
- ACM/IEEE EWSN 2018 嵌入式无线网络与系统国际会议物联网可靠通信竞赛　「季军」

研究兴趣

- 动能收集技术
- 瞬态计算
- 泛在感知
- 无源物联网

项目经历

面向可持续 ICT 的信息能量深度融合机理和关键技术研究　2021.11 - 现在
- 清华大学、上海科技大学和中国移动联合基金项目（国家重点研发计划）
- 作为骨干成员负责基于能量流与信息流融合的 5G 网络资源协同优化的研究工作

KPID 基于动能量收集技术的高鲁棒无源物联网系统设计　2021.01 - 现在
- 项目负责人
- 负责基于动能量收集技术的大规模无线通信网络协议设计

ViPSN/ViPSN++ 基于动能量收集技术的无源物联网开源系统设计　2019.03 - 现在
- 项目负责人，负责开源系统的构建、学术推广和商业落地
- 负责机-电-网三域协同设计、优化和理论分析
- 负责基于功率/能量中和的无源物联网系统的实现和应用
- 负责无源人机交互系统的开发

IEEE 802.15.4 面向极端环境的可靠通信协议设计　2017.01 - 2019.01
- 负责 MAC 层网络编码的实现
- 负责无线传感网络测试平台的研发
- 负责探索后向反散射通信技术（Backscatter Communication）在极强电磁干扰条件下的应用

工作经历

科研助理 2017.01 - 2018.09

- 中科院上海高等研究院　智能信息通信技术研究与发展中心

教学经验

助导（本科生毕设） 2019.07 - 现在

- ViPSN-Eink: a motion-powered E-ink HCI system (Yue Zhu, 2021)
- Design and implementation of modular intelligent IoT floor network (Ruifang Liu, 2020)
- Energy harvesting insole design based on hydraulic generator (Shijie Shen, 2019)
- Mechanical backscatter tag using 2.4GHz RF signal (Yang Zhang, 2019)

助教（本研一体化课程） 2018.09 - 2020.07

- 嵌入式系统（EE114）
- 计算机网络（CS120）

学术交流与服务

- 国际电气电子工程师学会（IEEE）及国际计算机协会（ACM）会员
- 以下国际学术期刊/会议审稿人:

  学术期刊：Ad Hoc Networks / IET Circuits, Devices and Systems / International Journal of Power Electronics and Drive Systems / International Journal of Sustainable Energy

  学术会议：ECCE Asia 2020
- 以下国际会议 TPC 成员:

  ECCE Asia 2022

发表论文

+ 共同一作　* 通信作者

1. **Xin Li**, Guobiao Hu, Chaoyang Zhao, Yaowen Yang*, and Junrui Liang*, “A Paradigm Shift Battery-free Flexible Motion Sensing Solution Enabled by Triboelectric Nanogenerator and Backscatter Communication,” Advanced Science, under review.（中科院 1 区，影响因子：15.44）
2. **Xin Li**, Guobiao Hu, Yaowen Yang*, and Junrui Liang* “Design and Analysis of a Transient Plucking Energy Harvester,” IEEE/ASME Transactions on Mechatronics, under review.（中科院 1 区，影响因子：5.67）（**相关工作获得 VEH 2021 最佳论文　第一名**）
3. Hong Tang, **Xin Li+**, and Junrui Liang*, “Power-Neutral Operation with Maximum Power Point Tracking for Vibration-Powered IoT Node,” IEEE Internet of Things Journal, under review.（中科院 1 区，影响因子：9.93）
4. **Xin Li**, Guobiao Hu, Zhenkun Guo, Junlei Wang, Yaowen Yang*, and Junrui Liang*, “Frequency Up-Conversion based Vibration Energy Harvesting Technology: A Review,” Symmetry, under review.（邀稿）
5. Jianjun Wang, Yalei Cao, Hongjun Xiang, Zhiwei Zhang, Junrui Liang, **Xin Li**, Deyun Ding, Teng Li, Lihua Tang, “A piezoelectric smart backing ring for high-performance power generation subject to train induced steel-spring fulcrum forces,” Energy Conversion and Management, under review.（中科院 1 区，影响因子：9.70）
6. Guobiao Hu, Chaoyang Zhao, Yaowen Yang*, **Xin Li**, and Junrui Liang*, “Triboelectric energy harvesting using an origami-inspired structure,” Applied Energy, 2021. (中科院 1 区，影响因子：9.74)
7. **Xin Li**, Hong Tang, Guobiao Hu, and Junrui Liang*, “ViPSN-pluck: A Transient-Motion-Powered Human Motion Detector,” IEEE Internet of Things Journal, 2021. (中科院 1 区，影响因子：9.93)
8. Junrui Liang*, **Xin Li**, and Hailiang Yang,“Kinetic Energy Harvesting toward Battery-free IoT: Opportunities and Challenges,” ZTE Communications, 2021.（邀稿）
9. Zhenkun Guo, Guobiao Hu, Jingchao Jiang, Liuding Yu, **Xin Li**, and Junrui Liang*, “Theoretical and experimental study of the vibration dynamics of a 3D-printed sandwich beam with hourglass lattice truss core,” Frontiers in Mechanical Engineering, 2021.（邀稿）

10. **Xin Li**, Li Teng, Hong Tang, Haoyu Wang, Yu Liu, Minfan Fu, and Junrui Liang*, "ViPSN: a vibration-powered IoT platform," IEEE Internet of Things Journal, 2021.（中科院 1 区，影响因子：9.93）（**相关工作获得 IEEE IES 2019 年度论文竞赛　亚军**）
11. Jinxi Zhang, Shaobo Gong, **Xin Li**, Junrui Liang, **Zhonglin Wang***, and Kailiang Ren*, "A Wind Driven Poly (tetrafluoroethylene) Electret and Polylactide Polymer Based Hybrid Nanogenerator for Self Powered Temperature Detection System," Advanced Sustainable Systems, Dec. 2020.
12. Xiaoyuan Ma*, Peilin Zhang, **Xin Li**, Weisheng Tang, Jianming Wei*, and Oliver Theel, "DeCoT: A Dependable Concurrent Transmission-Based Protocol for Wireless Sensor Network," IEEE Access, Oct. 2018.
13. **Xin Li**, Hong Tang, Guobiao Hu, and Junrui Liang*, "Live Demo of A Transient-Motion-Powered Human Motion Detector," Proceedings of the 2021 IEEE International Symposium on Circuits and Systems, Daegu, Korea, May 23-26, 2021. (ISCAS 2021)
14. **Xin Li**, "Opportunities of Motion-Powered IoT Systems," Proceedings of the 2021 International Conference on Embedded Wireless Systems and Networks, Delft, Netherlands, Feb 17-19, 2021. (EWSN 2021)
15. **Xin Li**, Hong Tang, Bao Zhao, and Junrui Liang*, "System Design and Implementation of A Transient-Motion-Powered IoT Sensor Node," Proceedings of the ASME 2020 Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Irvine, CA, USA, September 14–16, 2020. (SMASIS 2020)（**最佳学生硬件奖　第三名**）
16. **Xin Li**, Hong Tang, Yiyao Zhu, and Junrui Liang*, "Power Solution of A Vibration-Powered Sensing Node," Proceedings of the 9th International Power Electronics and Motion Control Conference, Nanjing, China, May 31-June 3, 2020. (ECCE Asia 2020)
17. **Xin Li**, Hong Tang, Junrui Liang*, and Lihua Tang, "Exploring The Magnetic Plucking Motion Towards A Transient-Motion-Powered IoT Sensor Node," Proceedings of SPIE Conference 11376, Active and Passive Smart Structures and Integrated Systems IX, 113761U, April 22, 2020. (SPIE SS/NDE 2020)
18. Xiaoyuan Ma, Peilin Zhang, Ye Liu, **Xin Li**, Weisheng Tang, Pei Tian, Jianming Wei, Lei Shu, and Oliver Theel, "Using DeCot+ to Collect Data under Interference," Proceedings of the 2019 International Conference on Embedded Wireless Systems and Networks, Beijing, China, 2019. (EWSN 2019)（**EWSN 2019 物联网可靠通信竞赛　冠军**）
19. **Xin Li**, Xiaoyuan Ma*, Peilin Zhang, Pei Tian, and Jianming Wei*, "Escape or Exploit? A Noise-Modulation-Based Communication Under Harsh Interference," Proceedings of the 7th International Workshop on Real-World Embedded Wireless Systems and Networks (RealWSN 2018), in conjunction with the 16th ACM Conference on Embedded Networked Sensor Systems (SenSys 2018), Shenzhen, China, 2018.
20. Xiaoyuan Ma*, Peilin Zhang, Weisheng Tang, **Xin Li**, Wangji He, Fuping Zhang, Jianming Wei*, and Oliver Theel, "Using Enhanced OF∋COIN to Monitor Multiple Concurrent Events under Adverse Conditions," Proceedings of the 2018 International Conference on Embedded Wireless Systems and Networks, Madrid, Spain, 2018. (EWSN 2018)（**EWSN 2018 物联网可靠通信竞赛　季军**）