

Dr. Junrui LIANG



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Education

<i>Ph.D. in Mechanical and Automation Engineering</i> (Advisor: Prof. Wei-Hsin Liao)	Aug. 2007 – Sept. 2010
Dept. of Mechanical and Automation Engineering, The Chinese University of Hong Kong	Hong Kong, China
<i>M.S. in Precision Instrument and Machinery</i> (Advisor: Prof. Chunyu Zhao)	Sept. 2004 – Mar. 2007
School of Electronics, Information and Electrical Engineering, Shanghai Jiao Tong University	Shanghai, China
<i>B.S. in Instrumentation Engineering</i> (Advisor: Prof. Cai Ping)	Sept. 2000 – Jul. 2004
School of Electronics, Information and Electrical Engineering, Shanghai Jiao Tong University	Shanghai, China

Working Experiences

<i>Associate Professor (tenured)</i>	Jul. 2021 – present
School of Information Science and Technology, ShanghaiTech University, Shanghai	Shanghai, China
<i>Assistant Professor (tenure-track)</i>	Nov. 2013 – Jul. 2021
School of Information Science and Technology, ShanghaiTech University, Shanghai	Shanghai, China
<i>Visiting Scholar</i> (Host faculty member: Prof. Seth R. Sanders)	Jul. 2015 – Jan. 2016
Department of Electrical Engineering and Computer Sciences, University of California, Berkeley	CA, USA
<i>Postdoctoral Researcher</i> (Advisor: Prof. Henry S.-H. Chung)	Jan. 2013 – Oct. 2013
Department of Electrical Engineering, City University of Hong Kong	Hong Kong, China
<i>Postdoctoral Researcher</i> (Advisor: Prof. Wei-Hsin Liao)	Oct. 2010 – Dec. 2012
Dept. of Mechanical and Automation Engineering, The Chinese University of Hong Kong	Hong Kong, China

Teaching Experiences

- Instructor at ShanghaiTech University from Fall 2013 to Spring 2024: *Introduction to Information Science and Technology (co-instructor), Introduction to Embedded Systems, Renewable Energy Systems, Analog Integrated Circuits, Industrial Survey, Technical Writing in English (co-instructor)*
- Teaching Assistant at The Chinese University of Hong Kong from Fall 2007 to Fall 2009: *Engineering Profession, Smart Materials and Structures, Introduction to Control Systems, Manufacturing Technology*

Selected Honors and Awards

- Second Award, The Sixth Innovation and Entrepreneurship Competition, ShanghaiTech University
- Listed in Stanford University's career and 2022 lists of the top 2% scientists in the world
- Teaching Achievement Award (one out of five awardees), Chinese Academy of Science
- Excellent Research Award, SIST, ShanghaiTech University
- Postgraduate Research Output Award 2010, The Chinese University of Hong Kong

Research Interests

Everlasting power solutions for distributed IoT devices / simulation and design algorithms for power & energy circuits and systems / joint dynamics of electromechanical coupling systems / mechatronics and electromechanical power conversion / human-factored IoT solutions

Publications

- *Journal papers:* As of Jan. 2024, Dr. Liang has published 87 papers in referred international journals, such as *IEEE Trans. Circuits Syst. I, Reg. Papers, IEEE Trans. Power Electron., IEEE/ASME Trans. Mechatronics, IEEE Internet Things J., Nano Energy, Smart Mater. Struct.* Five featured journal papers are listed as follows.
 - Bao Zhao#, Jiahua Wang#, Guobiao Hu, Andrea Colombi, Wei-Hsin Liao*, and Junrui Liang*, “Time-sharing orbit jump and energy harvesting in nonlinear piezoelectric energy harvesters using a synchronous switch circuit,” *Mech. Syst. Signal Process*, vol. 200, art. no. 110601, 2023.
 - Shiyi Liu, Xin Li, Li Teng, Guobiao Hu, and Junrui Liang*, “Energy and dynamic analysis of quasi-static toggling mechanical energy harvester,” *Nano Energy*, vol. 104, art. no. 107887, 2022.

- Xin Li, Li Teng, Hong Tang, Jingying Chen, Haoyu Wang, Yu Liu, Minfan Fu, and Junrui Liang*, “ViPSN: a vibration-powered IoT platform,” *IEEE Internet Things J.*, vol. 8, no. 3, pp. 1728-1739, 2021.
- Junrui Liang*, Yuheng Zhao, and Kang Zhao, “Synchronized triple bias-flip interface circuit for piezoelectric energy harvesting enhancement,” *IEEE Trans. Power Electron.*, vol. 34, no. 1, pp. 275-286, 2019.
- Junrui Liang and Wei-Hsin Liao*, “Improved design and analysis of self-powered synchronized switch interface circuit for piezoelectric energy harvesting systems,” *IEEE Trans Ind. Electron.*, vol. 59, no. 4, pp. 1950–1960, 2012.
- *Conference papers*: As of Jan. 2024, Dr. Liang has published 76 conference papers and given lecture or poster presentations at different flagship international conferences such as *IEEE International Symposium on Circuits and Systems (ISCAS)*, *IEEE Energy Conversion Congress & Expo (ECCE)*, *IEEE Applied Power Electronics Conference & Exposition (APEC)* / *SPIE Smart Structures + Nondestructive Evaluation*.
- *Patent applications*: 4 China Patents and 15 China Patent Applications as of Jan. 2024.

Seminar/ Invited / Keynote Talks

Since 2014, Dr. Liang has made 47 Seminar / Invited / Keynote Talks at different events and places, such as the Keynote Talk at the VEH 2024 conference (Jun. 2024), Tutorial at IEEE ISCAS 2021, Seminar Talks at the University of California, Berkeley (Dec. 08, 2015), Stony Brook University (Nov. 10, 2015), The Chinese University of Hong Kong (Aug. 12, 2014), Shanghai Jiao Tong University (May 23, 2014).

Student Mentoring

As of 2024, Dr. Liang has graduated 3 Ph.D. students and 13 master's students and mentored 58 undergraduate students. After graduation, his students work at leading companies, such as Huawei Co. and Texas Instruments, or pursue Ph.D. studies at world-renowned universities, such as ETH Zurich, Cornell, Caltech, etc. His group now has 3 Ph.D. candidates and 11 master's students.

Professional Affiliations and Activities

- *Founder and Chief Scientific Officer* of ViPSN Co. Ltd. (vipsn.cc)
- *Co-director* of Center for Intelligent Power and Energy Systems (CIPES), School of Information Science and Technology, ShanghaiTech University (Apr. 2019 – now)
- *Senior Member* of IEEE, *Member* of ASME, *Member* of SPIE
- *Associate Editor* of *IEEE Transactions on Circuits and Systems II: Express Briefs* (Apr. 2023-now) and *IET Circuits, Devices & Systems* (March 2018-now)
- *Guest Editor* of *Frontiers in Mechanical Engineering and Symmetry (MDPI)*
- *General Chair* of the 2nd International Conference on Vibration and Energy Harvesting Applications (VEH) 2019, ShanghaiTech University, Shanghai, China
- *Track Chair* (2023, 2024) and *Review Committee Member* (RCM, 2018-now) of IEEE International Symposium on Circuits and Systems (ISCAS)
- *Co-Chair* (2022, 2023) / *Secretary* (2021) of Energy Harvesting Technical Committee (EHTC) in Adaptive Structures and Material Systems Branch, ASME Aerospace Division
- *Secretary* (2023) of Power and Energy Circuits and Systems (PECAS) Technical Committee in IEEE Circuits and Systems Society (CASS)
- *Technical Committee Member* of Power and Energy Circuits and Systems (PECAS) in IEEE Circuits and Systems Society (2016-now) / Energy Harvesting Technical Committee (EHTC) in Adaptive Structures and Material Systems Branch, ASME Aerospace Division (2016-now)
- *Technical Program Committee Member* of SPIE Smart Structures + Nondestructive Evaluation Conference (2016-now) / International Conference on Vibration and Energy Harvesting Applications (2018-now)
- *Special Session Organizer* in IEEE International Symposium on Circuits and Systems (ISCAS) 2018-2024 / IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM) 2018 / The International Power Electronics Conference (IPEC - ECCE ASIA) 2018, etc.
- *Session Chair* in IEEE International Symposium on Circuits and Systems (ISCAS) 2017-2024 / SPIE Smart Structures + Nondestructive Evaluation Conference 2014, 2015, 2016 / IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM) 2018 / IEEE Applied Power Electronics Conference (APEC) 2021, etc.