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<https://scholar.google.com.hk/citations?hl=zh-CN&user=avEO2jsAAAAJ>

Academic qualifications

- **09/2018 — 06/2023** (State Key Laboratory of Mechanical Systems and Vibration)
Ph.D. in Mechanical Engineering (QS #15) Shanghai Jiao Tong University(SJTU)
Advised by Prof. Qingbo He & Zhike Peng *Focus: Metamaterials*
- **09/2014 — 06/2018**
B.E. in Mechanical Engineering Shandong University(SDU)
Rank: No. 1 in the school (1/235) *Focus: Mechatronics*

Present academic position

- **09/2023 — 05/2024** (Nanomechanics Laboratory)
Postdoctoral associate in Mechanical Engineering The University of Hong Kong(HKU)
Advised by Prof. Yang Lu *Focus: Nanomechanics*
- **06/2024 — present** (HKU, *Principal Investigator, PI*) Jockey Club STEM Early Career Research Fellow

Research interest

- **Metamaterial Designs:** Bioelectronics, Mechanics, Nano-Manufacturing, Computational Sensing
- **Bio-inspired Systems:** 4D Functional Materials, Stimuli-responsiveness, Mechanoreceptors

Professional awards

- [05/2024] Jockey Club STEM Early Career Research Fellow (The Jockey Club selected only **10** fellows worldwide, only **3** from HKU were selected, the only award-winning postdoctoral fellow in Engineering of HKU)
- [03/2023] Outstanding Graduate of Shanghai (ranked **top 1%** in mechanical engineering of SJTU)
- [09/2022] National Scholarships of China (ranked **top 1%** in mechanical engineering of SJTU)
- [12/2021] Academic Star of Shanghai Jiao Tong University (This award recognizes a SJTU graduating PhD student who has made outstanding contributions to academic research, **10** out of **2900** students: **0.3%**, the only award-winning PhD student in mechanical engineering)
- [08/2024] Best Paper Award of the National Conference on Equipment Monitoring, Diagnosis & Maintenance (top **12** of over **800** submissions got the award)
- [11/2021] Best Report Award of the First National Doctoral Forum of Advanced Structural Engineering Science
- [06/2021] Best Report Award of Liyuan Academic Forum of Shanghai Jiao Tong University (top **1** got the award)
- [11/2020] Best Paper Award of the 8th Youth Forum on Equipment Vibration (ranked **1st** of **150** submissions)
- [08/2020] Best Paper Award of the National Conference on Equipment Monitoring, Diagnosis & Maintenance (ranked **2nd** of **500** submissions, top **10** got the award)
- [07/2018] Outstanding Graduate of Shandong Province (ranked **1st** in mechanical engineering of SDU)
- [10/2017] National Scholarships of China (ranked **1st** of **235** students in mechanical engineering of SDU)
- [08/2016] The first prize of the 7th National College Student Equipment Innovation Competition (group leader)

Selected articles

- [09/2023] Li, C., Liao, X. X., Peng, Z. K., Meng, G. & He, Q. B. Highly sensitive and broadband meta-mechanoreceptor via mechanical frequency-division multiplexing, *Nature Communications*, DOI: <https://doi.org/10.1038/s41467-023-41222-9>
- [03/2022] Li, C., Peng, Z. K. & He, Q. B. Stimuli-responsive metamaterials with information-driven elastodynamics programming, *Matter* (a sister journal of *Cell*), DOI: <https://doi.org/10.1016/j.matt.2021.11.031>

[02/2021] Li, C., Jiang, T. X., He, Q. B. & Peng, Z. K. Smart metasurface shaft for vibration source identification with a single sensor. *Journal of Sound and Vibration*, DOI: <https://doi.org/10.1016/j.jsv.2020.115836>

[09/2020] Li, C., Jiang, T. X., He, Q. B. & Peng, Z. K. Stiffness-mass-coding metamaterial with broadband tunability for low-frequency vibration isolation, *Journal of Sound and Vibration*, DOI: <https://doi.org/10.1016/j.jsv.2020.115685>

[05/2020] Jiang, T. X., Li, C., He, Q. B. & Peng, Z. K. Randomized resonant metamaterials for single-sensor identification of elastic vibrations, *Nature Communications*, DOI: <https://doi.org/10.1038/s41467-020-15950-1>

[04/2023] Liao, X. X., Jiang, T. X., Li, C., Yu, X. L., Peng, Z. K. & He, Q. B. Spatial-Vibration-Modulation-Assisted Blade Damage Localization for Industrial Quadrotor UAVs, *IEEE Transactions on Industrial Electronics*, DOI: <https://10.1109/TIE.2023.3262883>

[03/2023] Li, C., He, Q. B., Meng, G. & Peng, Z. K. Elastic coding metamaterials for highly sensitive micro-motion sensing. The 6th International Conference on Dynamics, Vibration and Control. (Shanghai, China).

Project experience

AI-powered Nanoscale Meta-mechanoreceptor (HK\$ 2.64 million) **Jockey Club STEM, Hong Kong**
Principal Investigator (PI) 06/2024 – present

- A nanoscale micro-motion sensor via mechanical frequency-division multiplexing is designed.
- Zero effective mass realizes the frequency-dependent effective piezoelectric coefficient.
- Computational multichannel demodulation algorithm is developed.

Dynamics and Vibration Control of Complex Equipment **NSFC, P.R. China**
Student researcher 01/2022 – 06/2023

- Stimuli-responsive metamaterials with information-driven elastodynamics programming is developed.
- Adaptive disorder-order state transition system shows vibrational on-off states.
- Mechanical implementation of read-write operations leads to information perception.
- These works are published in *Nature Communications* (2023) and *Matter* (2022).

Direction-sensitive Acoustic Metamaterials for Vibration Source Detection **NSFC, P.R. China**
Student researcher 01/2019 – 12/2022

- A smart metasurface shaft is designed to realize vibration source identification with a single sensor.
- A dynamic model with distributed negative effective masses is developed.
- Combining compressive sensing algorithm realizes computational sensing of elastic waves.
- These works are published in *Nature Communications* (2020) and *Journal of Sound and Vibration* (2021).

Patens related

[09/2021] He, Q. B., Jiang, T. X., Li, C., Peng, Z. K. Single-sensor vibration identification system based on randomized elastic wave metamaterials, *Patent No: CN111412976A*

[05/2021] He, Q. B., Li, C., Jiang, T. X., Peng, Z. K. Actively coded metamaterial system for low-frequency broadband vibration isolation, *Patent No: CN111853154A*

[05/2016] Li, C., Wang, K., Shao, Y., Zhang, X. Z., Gao, Y. T., Wang, L. Z., Qin, F. Assistive device for vertical cargo transportation through stair climbing, *Patent No: ZL201620400100.8*

Teaching skills

Advanced Theory of Vibration Shanghai Jiao Tong University, P.R. China
Teaching assistant 03/2020 - 07/2020

- Classical Vibration Theory and Elastic Wave Theory
- Algorithms, Applications, and Implementations of Advanced Vibration Control Techniques

Media coverage on research

[MIT Technology Review] Metamaterials with information-driven elastodynamics programming, Jan 12, 2022

[Cell Press] Metamaterials with information-driven elastodynamics programming, Dec 28, 2021

[Chinese Journal of Science] Randomized resonance metamaterial structures, May 20, 2020

[China Science Network] Randomized resonance metamaterial structures, May 20, 2020