Liuchao (Christopher) **Jin**

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Education

08/2022-Present
Hong Kong, China

Chinese University of Hong Kong (CUHK), Doctor of Philosophy - Ph.D.
Major : Mechanical and Automation Engineering **Supervisor** : Prof. Wei-Hsin Liao
Research Direction : 3D/4D Printing, Smart Materials & Adaptive Structures, Soft Robotics.
Award : Hong Kong PhD Fellowship Scheme (HKPFS)

09/2018-06/2022
Chengdu, China

Sichuan University - Pittsburgh Institute (SCUPI), Bachelor of Engineering - BE
GPA : 4.0/4.0 **Weighted Average Mark** : 96.29/100 **Major** : Mechanical Engineering **Ranking** : 1/79

Experiences

- 08/2023 - Present, Southern University of Science and Technology (SUSTech), Visiting Scholar.
  Supervisor : Prof. Qi Ge. Program : SUSTech Fellowship Program.
- 08/2024 - Present, Shenzhen University, Visiting Scholar.
  Supervisor : Prof. Shitong Fang and Zhihui Lai. Program : Shenzhen University Fellowship Program.
- 08/2022 - Present, The Chinese University of Hong Kong, Teaching Assistant.
- 02/2020 - 06/2022, Sichuan University - Pittsburgh Institute, Teaching Assistant.
- 04/2021 - 09/2021, Westlake University, Research Assistant.
  Supervisor : Prof. Weicheng Cui. Program : Westlake University Summer Graduate Research Internship.
- 03/2021 - 09/2021, McGill University, Research Assistant.
  Supervisor : Prof. Abdolhamid Akbarzadeh Shafaroudi. Program : Mitacs Globalink Research Internship.

Honors & Awards

02/2025 Outstanding Students Award at The Chinese University of Hong Kong
11/2022 Outstanding Senior Project Award in Sichuan University
10/2022 Best Paper Award in 2022 IEEE International Conference on Unmanned Systems (ICUS)
06/2022 Outstanding Senior Project Award in Sichuan University-Pittsburgh Institute
05/2022 First Prize in The 7th National Academic English Vocabulary Competition (NAEV)
05/2022 Outstanding Senior Project Poster Award in Sichuan University-Pittsburgh Institute
03/2022 Outstanding Graduate of Sichuan Province
03/2022 Outstanding Communist Party Member of Sichuan University-Pittsburgh Institute
01/2022 A-level Certificate in Comprehensive Quality of University Students in Sichuan Province
12/2021 2020-2021 Academic Year National Scholarship (China) (¥8,000)
10/2021 Outstanding Graduate of Sichuan University
10/2021 2020-2021 Academic Year Outstanding Student of Sichuan University
10/2021 2020-2021 Academic Year Sichuan University-Pittsburgh Institute Best Academic Achiever Award (¥60,000)
09/2021 First Prize in Chinese Tale - English Talk
06/2021 Second Prize in Videos and Voices Short Video Contest
05/2021 Second Prize in The 6th National Academic English Vocabulary Competition (NAEV)
04/2021 Honorable Mention in 2021 Mathematical Contest in Modeling (MCM)
12/2020 2019-2020 Academic Year National Scholarship (China) (¥8,000)
10/2020 2019-2020 Academic Year Outstanding Student of Sichuan University
09/2020 Excellent Teaching Assistant Award for Sichuan University-Pittsburgh Institute
09/2020 2019-2020 Academic Year Sichuan University-Pittsburgh Institute Academic Star (¥10,000)
12/2019 2018-2019 Academic Year National Scholarship (China) (¥8,000)
12/2019 Excellent Student in Party School of the Sichuan University Committee of the Communist Party of China
10/2019 2018-2019 Academic Year Outstanding Student of Sichuan University
09/2019 2018-2019 Academic Year Sichuan University-Pittsburgh Institute Best Academic Achiever Award (¥60,000)
07/2019 First Prize in the Special Category of the 9th ”Video Friends Cup” China University TV Awards
07/2019 Excellent Student of Military Skills Training in Sichuan University
02/2019 Student Ambassador of Sichuan University-Pittsburgh Institute

Publications & Patents

- **Liuchao Jin**, Shouyi Yu, Jianxiang Cheng, Zhigang Liu, Kang Zhang, Sicong Zhou, Xiangnan He, Guoquan Xie, Mahdi Bodaghi, Qi Ge, Wei-Hsin Liao. (2025). Machine learning powered inverse design of strain fields of hierarchical architectures. *Composites Part B : Engineering*. (Accepted)
- Wenpeng Xu, Mengyu Zhang, Hao Xu, **Liuchao Jin***, Xiaoya Zhai*, Jingchao Jiang. (2025). INPR-connector : Interlocking negative Poisson's ratio connectors design for deployable energy absorption structures. *Composites Part B : Engineering*, 297, 112243.
- **Liuchao Jin**, Xiaoya Zhai, Wenbo Xue, Kang Zhang, Jingchao Jiang, Mahdi Bodaghi, Wei-Hsin Liao. (2025). Finite element analysis, machine learning, and digital twins for soft robots : state-of-arts and perspectives. *Smart Materials and Structures*, 34(3).
- **Liuchao Jin**, Shouyi Yu, Jianxiang Cheng, Haitao Ye, Xiaoya Zhai, Jingchao Jiang, Kang Zhang, Bingcong Jian, Mahdi Bodaghi, Qi Ge, Wei-Hsin Liao. (2024). Machine learning-driven forward prediction and inverse design for 4D printed hierarchical architecture with arbitrary shapes. *Applied Materials Today*, 40, 102373.
- **Liuchao Jin**, Xiaoya Zhai, Kang Wang, Kang Zhang, Dazhong Wu, Aamer Nazir, Jingchao Jiang, Wei-Hsin Liao. (2024). Big data, machine learning, and digital twin assisted additive manufacturing : A review. *Materials & Design*, 24, 113086. (Cover Paper, Top Cited, Top Downloaded)
- **Liuchao Jin**, Xiaoya Zhai, Jingchao Jiang, Kang Zhang, Wei-Hsin Liao. (2024). Optimizing stimuli-based 4D printed structures : A paradigm shift in programmable material response. In *Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2024* (Vol. 12949, pp. 321-332). SPIE.
- **Liuchao Jin**, Xiaoya Zhai, Kang Zhang, Jingchao Jiang. (2024). Unlocking the potential of low-melting-point alloys integrated extrusion additive manufacturing : Insights into mechanical behavior, energy absorption, and electrical conductivity. *Progress in Additive Manufacturing*.
- **Liuchao Jin**, Xiaoya Zhai, Kang Zhang, Jingchao Jiang, Wei-Hsin Liao. (2024). 3D printing low-melting-point alloys integrated soft robots. *Materials Science in Additive Manufacturing*, 3(3), 4144. (Most Downloaded)
- **Liuchao Jin**, Xiaoya Zhai, Kang Zhang, Jingchao Jiang, Wei-Hsin Liao. (2024). Spider web-inspired additive manufacturing : Unleashing the potential of lightweight support structures. In *21st International Conference on Manufacturing Research*.
- **Liuchao Jin**, Weicheng Cui. (2024). On technical issues for underwater charging of robotic fish schools using ocean renewable energy. *Ships and Offshore Structures*, 19(9), 1465-1475.
- **Liuchao Jin**, Yuchen Lou, Lu-An Chen, Qi Lu. (2022). 6 Degree of freedom unified tracking controller for tilt-rotor multi-rotor unmanned aerial vehicles based on unit dual quaternion. In *2022* 5th *IEEE International Conference on Unmanned Systems (ICUS)*. IEEE.
- Wenbo Xue, **Liuchao Jin**, Bingcong Jian, Qi Ge. (2025). Origami-based flexible robotic grippers via hard-soft coupled multi-material 3D printing for soft robotics. *Soft Robotics*. (Accepted)
- Sicong Zhou, Kang Zhang, **Liuchao Jin**, Qiang Gao, Wei-Hsin Liao. (2025). Efficient data driven optimization framework for designing B-spline honeycombs with excellent energy absorption. *Thin-Walled Structures*, 209, 112941.
- Tielin Dai, **Liuchao Jin**, Chen Shang, Xiaoya Zhai, Xiao-Ming Fu, Ligang Liu. (2025). Advances in Intelligent Design of Metamaterials. *Journal of Computer-Aided Design & Computer Graphics*, 37(1).
- Changyue Liu, **Liuchao Jin**, Wei-Hsin Liao, Zhijian Wang, Qiguang He. (2024). Achieving rapid actuation in liquid crystal elastomers. *National Science Open*.
- Kang Zhang, Qiang Gao, Jingchao Jiang, Meishan Chan, Xiaoya Zhai, **Liuchao Jin**, Jiangfan Zhang, Jifan Li, Wei-Hsin Liao. (2024). High energy dissipation and self-healing auxetic foam by integrating shear thickening gel. *Composites Science and Technology*, 249, 110475.
- Jingchao Jiang, **Liuchao Jin**, Xiaoya Zhai, Kang Zhang, Jun Chen, Wei-Hsin Liao. (2023). A novel strategy to fabricate low-melting-point alloy and its composite parts using extrusion additive manufacturing. In *The 50th International Conference on Computers and Industrial Engineering*.
- Xiaoya Zhai, Yundong Gai, **Liuchao Jin**, Wei-Hsin Liao, Falai Chen, Ping Hu. (2023). Isogeometric topology optimization of auxetic materials based on moving morphable method. In *Materials Research Proceedings*, 31, 172-186.
- Jingchao Jiang, Xiaoya Zhai, Kang Zhang, **Liuchao Jin**, Qitao Lu, Zhichao Shen, Wei-Hsin Liao. (2023). Low-melting-point alloys integrated extrusion additive manufacturing. *Additive Manufacturing*, 72, 103633.
- Jingchao Jiang, Xiaoya Zhai, **Liuchao Jin**, Kang Zhang, Jun Chen, Qitao Lu, Wei-Hsin Liao. (2023). Design for reversed additive manufacturing low-melting-point alloys. *Journal of Engineering Design*, 1-14.
- Xiaoya Zhai, **Liuchao Jin**, Jingchao Jiang. (2022). A survey of additive manufacturing reviews. *Materials Science in Additive Manufacturing*, 1(4). (Most Downloaded)
- China Invention Grant Patent : Tracking Control Method for Tilt-Rotor Multi-Rotor UAV Based on Dual Quaternion. Patent number : ZL 2022 1 0739442.2.
- China Utility Model Patent : Air Purification Device. Patent number : ZL 2021 2 2679101.4.

Leadership & Extracurricular Activities

- 06/2024 - Present, Sichuan University - Pittsburgh Institute Alumni Association, Alumni Mentor.
- 09/2022 - 09/2023, The Postgraduate Halls Residents' Association, General Administrator.
- 03/2022 - 03/2023, Mitacs Globalink, Ambassador.

- 09/2019 - 09/2020, Sichuan University The 31st Student Congress, Representative.
- 03/2019 - 06/2020, Sichuan University Student Television Station, Deputy Director.
- 09/2018 - 06/2019, Sichuan University-Pittsburgh Institute Student Council, Member.

Community Contributions

- 05/2021 & 11/2019, Chengdu Blood Center, Blood Donor.
- 02/2021, UNESCO, Disaster Risk Management at UNESCO Designated Sites, Volunteer.
- 07/2020-08/2020, GREENPEACE, Blue Planet Rescue Plan, Volunteer.
- 02/2019, SCU – Return to Alma Mater, Social Practice of Winter Vacation, Participant.