

# Liuchao (Christopher) Jin

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📍 William M.W. Mong Engineering Building, The Chinese University of Hong Kong, Hong Kong SAR, 999077, China  
🌐 [Liuchao-JIN.github.io](https://github.com/Liuchao-JIN) 📅 20 Nov 1999, Shaoxing, Zhejiang, China



## 🎓 Education

08/2022-Present Hong Kong, China	Chinese University of Hong Kong (CUHK), Doctor of Philosophy - Ph.D. <b>Major</b> : Mechanical and Automation Engineering <b>Supervisor</b> : Prof. Wei-Hsin Liao <b>Joint Training</b> @ Southern University of Science and Technology (SUSTech) <b>Co-Supervisor</b> : Prof. Qi Ge <b>Research Direction</b> : Soft Robotics, 3D/4D Printing, Smart Materials & Adaptive Structures. <b>Award</b> : Hong Kong PhD Fellowship Scheme (HKPFS), SUSTech Fellowship Program
09/2018-06/2022 Chengdu, China	Sichuan University - Pittsburgh Institute (SCUPI), Bachelor of Engineering - BE <b>GPA</b> : 4.0/4.0 <b>Weighted Average Mark</b> : 96.29/100 <b>Major</b> : Mechanical Engineering <b>Ranking</b> : 1/79

## 📖 Publications & Patents

- > **Liuchao Jin**, Weicheng Cui. (2023). On Technical Issues for Underwater Charging of Robotic Fish Schools Using Ocean Renewable Energy. *Ships and Offshore Structures*. <https://doi.org/10.1080/17445302.2023.2245164>
- > 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*. <https://doi.org/10.1109/ICUS55513.2022.9986880>.
- > 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. <https://doi.org/10.21741/9781644902592-19>.
- > **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. <https://doi.org/10.1109/ICUS55513.2022.9986880>.
- > Xiaoya Zhai, **Liuchao Jin**, Jingchao Jiang. (2022). A survey of additive manufacturing reviews. *Materials Science in Additive Manufacturing*. 1(4). <https://doi.org/10.18063/msam.v1i4.21>.
- > 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.

## 💻 Projects & Experiences

09/2021-06/2022 Chengdu China	<b>Sichuan University, Pittsburgh Institute, Project Leader</b> <ul style="list-style-type: none"><li>&gt; Designed a 6 degree of freedom unified tracking controller for tilt-rotor multi-rotor unmanned aerial vehicles based on unit dual quaternion.</li><li>&gt; Did research on the uncertainty and disturbance estimator-based robust region tracking control for swarms of quad-rotors.</li></ul>
02/2020-06/2022 Chengdu China	<b>Sichuan University, Pittsburgh Institute, Teaching Assistant</b> <ul style="list-style-type: none"><li>&gt; Assisted Professors for Mechanical Measurements, Automatic Controls, Mechanical Vibration, Mechanical Design, MATLAB, Numerical Methods, Differential Equations, Analytical Geometry and Calculus, and Physics for Science and Engineering.</li><li>&gt; Established class QQ group, managed the BlackBoard course system, checked students' homework, quizzes, and exams, lectured to students in the recitation class, and provided daily Q&amp;A of courses.</li></ul>
04/2021-09/2021 Hangzhou China	<b>Westlake University, Summer Research, Intern</b> <ul style="list-style-type: none"><li>&gt; Made device design for underwater charging of robotic fishes using marine renewable energy under the guidance of Prof. Weicheng Cui.</li><li>&gt; Did research on technical solutions and scientific insights that advance engineering and robotics by leveraging the methodologies and design principles of robotic fish.</li></ul>

03/2021-09/2021 Montréal Canada	<b>McGill University, 3D Printing and Multi-scale Modelling of Lattice Structures, Intern</b> <ul style="list-style-type: none"> <li>➤ Examined potential energy resources in automotive and aeroplane/helicopter, e.g. vibration of helicopter rotor system, embedded strain in vehicle frame, and solar energy received by the frame.</li> <li>➤ Developed a methodology for harvesting energy from the wasted resources using lightweight smart cellular solids made of piezoelectric materials or active composites.</li> </ul>
09/2020-09/2021 Chengdu China	<b>SCU-IDMR, Post-Disaster Air Management, Project Member</b> <ul style="list-style-type: none"> <li>➤ Designed the post-disaster scrubber air cleaning system under the guidance of Prof. Tetsuo Shoji.</li> <li>➤ Modeled the structure of the scrubber air cleaning system.</li> </ul>
04/2020-12/2020 Deyang China	<b>Dongfang Electric Machinery Co., Ltd, Mechanical Designer</b> <ul style="list-style-type: none"> <li>➤ Researched on the characterization method of stator winding insulation defects based on partial discharge online measurement technology.</li> <li>➤ Studied the design of the mechanical part of the partial discharge detector.</li> </ul>

## Honors & Awards

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

## Leadership & Extracurricular Activities

- 09/2022 - Present, 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.