# YUHAO JIANG

**Post-doctoral Researcher, EPFL**

## CONTACT

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## EDUCATIONAL EXPERIENCE

**Arizona State University, Tempe** *Jan. 2019 - Aug. 2023*
Ph.D. in Mechanical Engineering
**Advisor:** Prof. Daniel Aukes
**Dissertation:** Design and Modeling of Soft Curved Reconfigurable Anisotropic Mechanisms

**University of Florida, Gainesville** *Sep. 2015 - May 2017*
Master of Science in Mechanical Engineering

**Donghua University, Shanghai** *Sep. 2011 - Jun. 2015*
Bachelor of Engineering in Mechanical Engineering

## PROFESSIONAL EXPERIENCE

**EPFL, Lausanne** *Sep. 2023 - Present*
Post-doctoral Researcher, Reconfigurable Robotics Lab
**Supervisor:** Prof. Jamie Paik

## TEACHING AND STUDENT MENTORING

**Course Instructor**

| Course Name | Affiliation | Period |
|---|---|---|
| ME410: Mechanical Engineering Product Design and Development | STI, EPFL | Fall 2024 |
| ME420: Advanced Design for Sustainable Future | STI, EPFL | Fall 2024 |
| ME410: Mechanical Engineering Product Design and Development | STI, EPFL | Fall 2023 |

**Master's Semester Project Advisor**

| Name | Topic | Program | Period |
|---|---|---|---|
| Louis Flahault | Kinematic study and design for spatial reconfigurable modular robotic platform | MS in Robotics | Spring 2024 |
| Serge Asmar | Locomotion design and control using surface wave change generated by ori-pixel platform | MS in Robotics | Spring 2024 |
| Aurora Ruggeri | Study on soft metamaterials for object sensing and geometry generation | MS in Mechanical Engineering | Spring 2024 |

**Master's Thesis Advisor**

| Name | Topic | Program | Period |
|---|---|---|---|
| Nicolas Nouel | Programmable surface using bistable structure | MS in Robotics | Spring 2024 |

## PUBLICATIONS

### Journal Publications

[1] **Y. Jiang**, F. Chen, J. Paik, and D. M. Aukes, "Locomotion via Vibration of Soft, Twisted Beams with an Under-actuated Quadruped," Under Review, June 2024

[2] **Y. Jiang**, F. Chen and D. M. Aukes, "Tunable Dynamic Walking via Soft Twisted Beam Vibration," IEEE Robotics and Automation Letters, vol. 8, no. 4, pp. 1967-1974, April 2023, https://doi.org/10.1109/LRA.2023.3244716

[3] M. Sharifzadeh, **Y. Jiang**, A. Lafmejani, K. Nichols, and D. M. Aukes, "Maneuverable gait selection for a novel fish-inspired robot using a CMA-ES-assisted workflow," in Bioinspiration & Biomimetics, vol. 16, no. 5, pp. 056017, August 2021, https://doi.org/10.1088/1748-3190/ac165d

[4] M. Sharifzadeh, **Y. Jiang**, and D. M. Aukes, "Reconfigurable Curved Beams for Selectable Swimming Gaits in an Underwater Robot," in IEEE Robotics and Automation Letters, vol. 6, no. 2, pp. 3437-3444, April 2021, https://doi.org/10.1109/LRA.2021.3063961

### Conference Publications

[1] **Y. Jiang**, M. Sharifzadeh, and D. M. Aukes, "Reconfigurable Soft Flexure Hinges via Pinched Tubes," 2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2020, pp. 8843-8850, https://doi.org/10.1109/IROS45743.2020.9341109

[2] **Y. Jiang**, M. Sharifzadeh, and D. M. Aukes, "Shape Change Propagation Through Soft Curved Materials for Dynamically-Tuned Paddling Robots," 2021 IEEE 4th International Conference on Soft Robotics (RoboSoft), 2021, pp. 230-237, https://doi.org/10.1109/RoboSoft51838.2021.9479208

[3] M. Sharifzadeh, **Y. Jiang**, A. Lafmejani, D. M. Aukes, "Compensating for Material Deformation in Foldable Robots via Deep Learning – A Case Study," 2022 IEEE International Conference on Robotics and Automation (ICRA), 2022, https://doi.org/10.1109/ICRA46639.2022.9811752

[4] Sharifzadeh, M, **Jiang, Y**, Khodambashi, R, & Aukes, D. "Increasing the Life Span of Foldable Manipulators With Fabric." Proceedings of the ASME 2020 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference. Volume 10: 44th Mechanisms and Robotics Conference (MR). Virtual, Online. August 17–19, 2020. V010T10A087. ASME, https://doi.org/10.1115/DETC2020-22757

## INVITED TALKES

### Seminar Talks

[1] "Empowering Actuation of Soft Robotic Systems via Soft Curved Reconfigurable Anisotropic Mechanism", hosted by Prof. Nick Gravish and Prof. Michael Tolley, UCSD, Feb 2023.

### Conference Proceedings Talks

[1] **RoboSoft 2023:** "Tunable Dynamic Walking via Soft Twisted Beam Vibration"

[2] **ICRA 2022:** "Compensating for Material Deformation in Foldable Robots Via Deep Learning – a Case Study", https://youtu.be/AwS4vabv-JQ

[3] **ICRA 2021:** "Reconfigurable Curved Beams for Selectable Swimming Gaits in an Underwater Robot", https://youtu.be/EszTDc9slyw

[4] **Robosoft 2021:** "Shape Change Propagation Through Soft Curved Materials for Dynamically-Tuned Paddling Robots"

[5] **IROS 2020:** "Reconfigurable Soft Flexure Hinges via Pinched Tubes", https://youtu.be/J5heXXD6mVo

### Workshop Presentations

[1] **RoboSoft 2023:** "Model Order Reduction for Vibrational Soft Twisted Beams Using Pseudo-rigid-body Modeling – A Case Study"

[2] **ICRA 2022:** "Modular Robots Using Soft Curved Reconfigurable Anisotropic Mechanisms"

## PATENTS

[1] "Pinched tubes for reconfigurable robots", Daniel Aukes, Mohammad Sharifzadeh, **Yuhao Jiang**, Nicholas Gravish, Mingsong Jiang - US Patent US20230127106A1

[2] "Buckling beams for underwater and terrestrial autonomous vehicles", D Aukes, M Sharifzadeh, **Y Jiang** - US Patent US20230121727A1

[3] "Mechanisms for steering robotic fish", D Aukes, M Sharifzadeh, K Nichols, **Y Jiang** - US Patent US11124281B2

## ACADEMIC SERVICES

### Journal Reviewer

The International Journal of Robotics Research (IJRR)
IEEE Transactions on Robotics (T-RO)
IEEE Robotics and Automation Letters (RA-L)
Soft Robotics (SoRo)
Journal of Field Robotics (JFR)
ASME Journal of Mechanisms and Robotics (JMR)

### Conference Reviewer

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)
International Conference on Robotics and Automation (ICRA)
International Conference on Soft Robotics (Robosoft)
ACM Symposium on Computational Fabrication (SCF)

### Organizing Workshops

[1] **Robosoft 2021 Workshop:** "Breaking the Mold: Challenging Current Paradigms in Soft Robotics", https://www.scrambots.com/robosoft-2021-workshop