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] M. Sharifzadeh, **Y. Jiang**, R. Khodambashi, D. M. Aukes, "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:** "Breaking the Mold: Challenging Current Paradigms in Soft Robotics", https://www.scrambots.com/robosoft-2021-workshop