

Zhichao Liu, PhD

Houston, TX | 281-283-3833 | liuz@uhcl.edu | [LinkedIn](#) | [Website](#)

EDUCATION

University of California Riverside | **Ph.D. in Electrical and Computer Engineering** | 3.95 | Riverside, CA | 2023
University of Pennsylvania | **M.S.E in Electrical and Systems Engineering** | 3.80 | Philadelphia, PA | 2018
Beijing University of Posts and Telecommunications | **B.E in Control and Automation** | 3.68 | Beijing, CHN | 2014

EXPERIENCE

Tenure-Track Assistant Professor Houston, TX
Computer Engineering, University of Houston-Clear Lake Aug. 2025 – Present

Postdoctoral Research Scientist Fayetteville, AR
The Institute for Integrative & Innovative Research (I3R), University of Arkansas Jan. 2025 – Aug. 2025
PI: Dr. Mehran Armand

Postdoctoral Researcher Riverside, CA
Center for Robotics and Intelligent Systems, University of California Riverside Jul. 2023 – Dec. 2024
PI: Dr. Konstantinos karydis

PUBLICATIONS

Journal Articles:

- J1. Z. Liu*, J. Zhou*, C. Mucchiani and K. Karydis. "Vision-assisted Avocado Harvesting with Aerial Bimanual Manipulation", **Advanced Robotics Research**, 2025.
- J2. Z. Liu, Z. Lu, A. Agha and K. Karydis. "Contact-Prioritized Planning of Impact-Resilient Aerial Robots with an Integrated Compliant Arm", **IEEE/ASME Transactions on Mechatronics**, 2023.
- J3. S. Lu, Z. Liu, K. Karydis, "Koopman Operators for Modeling and Control of Soft Robotics", **Current Robotics Reports**, 2023.
- J4. Z. Liu, C. Mucchiani, K. Ye, and K. Karydis, "Safely Catching Aerial Micro-Robots in Mid-air Using an Open-Source Aerial Robot with Soft Gripper", **Frontiers in Robotics and AI**, 2022.
- J5. Z. Lu, Z. Liu, M. Campbell and K. Karydis, "Online Search-based Collision-inclusive Motion Planning and Control for Impact-resilient Mobile Robots", **IEEE Transactions on Robotics**, 2022.
- J6. E. Kokkoni, Z. Liu, K. Karydis, "Development of a Soft Robotic Wearable Device to Assist Infant Reaching", **ASME Journal of Engineering and Science in Medical Diagnostics and Therapy**, 2020.

Conference Proceedings:

- C1. Z. Liu, J. Zhou and K. Karydis, "Hierarchical Tri-manual Planning for Vision-assisted Fruit Harvesting with Quadrupedal Robots", IEEE International Conference on Robotics and Automation (**ICRA**), 2025.
- C2. C Simons, Z. Liu, B Marcus, AK Roy-Chowdhury, K Karydis, "Language-guided Robust Navigation for Mobile Robots in Dynamically-changing Environments", IEEE International Conference on Automation Science and Engineering (**CASE**), 2025.
- C3. Z. Liu and K. Karydis, "Dynamic Modeling and Analysis of Impact-resilient MAVs Undergoing High-speed and Large-angle Collisions with the Environment", IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS**), 2023.
- C4. C. Mucchiani, Z. Liu, I. Sahin, E. Kokkoni and K. Karydis, "Robust Generalized Proportional Integral Control for Trajectory Tracking of Soft Actuators toward Application to a Pediatric Wearable Robotic Assistive Device", IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS**), 2023

- C5. C. Mucchiani, Z. Liu, I. Sahin, J. Dube, L. Vu, E. Kokkoni, K. Karydis, “Closed-loop Position Control of a Pediatric Soft Robotic Wearable Device for Upper Extremity Assistance”, IEEE International Conference on Robot and Human Interactive Communication (**RO-MAN**), 2022.
- C6. Z. Liu and K. Karydis, “Toward Impact-resilient Quadrotor Design, Collision Characterization and Recovery Control to Sustain Flight after Collisions”, IEEE International Conference on Robotics and Automation (**ICRA**), 2021.
- C7. Z. Liu and K. Karydis, “Position Control and Variable-Height Trajectory Tracking of a Soft Pneumatic Legged Robot”, IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS**), 2021.
- C8. Z. Lu, Z. Liu, and K. Karydis, “Deformation Recovery Control and Post-impact Trajectory Replanning for Collision-resilient Mobile Robots”, IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS**), 2021.
- C9. Z. Liu, Z. Lu and K. Karydis, “SoRX: A Soft Pneumatic Hexapedal Robot to Traverse Rough, Steep, and Unstable Terrain”, IEEE International Conference on Robotics and Automation (**ICRA**), 2020.
- C10. Z. Lu, Z. Liu, G. Correa and K. Karydis, “Motion Planning for Collision-resilient Mobile Robots in Obstacle-cluttered Unknown Environments with Risk Reward Trade-offs”, IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS**), 2020.

Patents:

- P1. K. Karydis and Z. Liu, “Soft pneumatic hexapedal robot, and uses thereof”, U.S. Patent (accepted) US20220193891A1.
- P2. K. Karydis Z. Lu and Z. Liu, “Collision resilient robot and aerial vehicle”, U.S. Patent (accepted) US20230399124A1.

TEACHING

- Digital Circuit, Fall 2025, University of Houston-Clear Lake
- Lab for Digital Circuit, Fall 2025, University of Houston-Clear Lake
- Lab for Computer Architecture, Fall 2025, University of Houston-Clear Lake
- Introduction to Robotics - Robot Kinematics and Dynamics, Spring 2025, University of Arkansas
- Advanced Robotics: Dynamics, Control, and Planning for Aerial Robots, Spring 2022, University of California Riverside
- Automatic Control, Spring 2020, University of California Riverside
- Mathematical Methods For Electrical Engineers, Fall 2019, University of California Riverside

GRANTS

- Principal Investigator, CSE Research Startup Funds, University of Houston-Clear Lake, \$20,000, 10/1/2025 - 8/1/2027
- Principal Investigator, Faculty Research Support Funds (FRSF), University of Houston-Clear Lake, \$6,000, 3/1/2026 - 9/1/2027 (Under Review)
- Principal Investigator, Matagorda Bay Mitigation Trust, Matagorda Bay Mitigation Trust, \$449,214, 3/2/2026 - 2/28/2029 (Under Review)

SERVICES

- Associate Editor, Complex & Intelligent Systems Journal, 2023 - Present
- Program Committee Member, Symposium for Undergraduate Research in Data Science, Systems, and Security (REU Symposium), 2025
- Reviewer: ICRA, IROS, CASE, ROBIO, IEEE Transactions on Robotics, IEEE Robotics and Automation Letters, IEEE Transactions on Instrumentation & Measurement, IEEE Transactions on Industrial Electronics, Complex & Intelligent Systems, The Journal of the Franklin Institute, Frontiers in Robotics and AI, International Journal of Intelligent Robotics and Applications, Signal, Image and Video Processing, Processes.

INVITED TALKS

- Department of Computer Engineering, University of Houston-Clear Lake, Houston, USA (2025)
- 2025 IEEE International Conference on Robotics and Automation (ICRA), Atlanta, USA (2025)
- Department of Mechanical Engineering, Northern Arizona University, Flagstaff, USA (2025)
- 42nd Southern California Control Workshop, Riverside, USA (2023)
- 2023 Southern Robotics Symposium (Poster), Irvine, USA (2023)
- Reliable Autonomous System Lab at Massachusetts Institute of Technology (MIT), Boston, USA (2023)
- 2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Detroit, USA (2023)
- 2022 Southern Robotics Symposium (Poster), Los Angeles, USA (2022)
- 2021 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Prague, Czech Republic (2021)
- 2021 IEEE International Conference on Robotics and Automation (ICRA), Xi'an, China (2021)
- 2020 IEEE International Conference on Robotics and Automation (ICRA), Paris, France (2020)

AWARDS

- UC Riverside Dean's Distinguished Fellowship (2018)
- 1st Prize in National Undergraduate Electronic Design Competition - Beijing (2014)
- 2nd Prize in NXP Cup National Undergraduate Intelligent Car Racing (2013)
- 3rd Prize in RoboCup National Competition (2013)