

# Yao Su

Email: suyao@biga.ai | yaosu@g.ucla.edu  
Telephone: (+86)15710929261

## RESEARCH INTERESTS

---

Robotics, Control and System, Optimization, Path Planning, Dynamics, Simulation

## EDUCATION

---

University of California, Los Angeles	Los Angeles, CA
Ph.D. in Mechanical Engineering	09/2017-06/2021
M.S. in Mechanical Engineering	09/2016-06/2017
Overall GPA: 3.87/4.0	
Harbin Institute of Technology	Harbin, China
B.S in Mechanical Engineering and Automation	09/2012-06/2016
Overall GPA: 3.83/4.0      Major GPA: 3.92/4.0	

## APPOINTMENTS

---

National Key Laboratory of General Artificial Intelligence, Beijing Institute for General Artificial Intelligence(BIGAI)	
Research Scientist in Robotics	06/2021–Present
Mechatronics and Control Laboratory(MacLab)	
Graduate Student Researcher, Advisor: Dr. Tsu-Chin Tsao	09/2017–06/2021
Robotics and Mechanisms Laboratory(RoMeLa)	
Graduate Student Researcher, Advisor: Dr. Dennis Hong	09/2016–09/2017

## PUBLICATIONS

---

**Journal Paper**    (\*indicates joint first authors, # indicates joint corresponding authors)

- [J11]      Gao, H., Wu, P., **Su, Y.**, Liu, H., Zhou, K., Liu, C. (2023). Probabilistic Visibility-Aware Trajectory Planning for Target Tracking in Cluttered Environments. IEEE Robotics and Automation Letters (submitted).
- [J10]      Yu, P. \*, **Su, Y.**\*, Gerber, M. J., Ruan, L., & Tsao, T. C. (2023). Compensating Aerodynamics of Over-actuated Multi-rotor Aerial Platform with Data-driven Iterative Learning Control. IEEE Robotics and Automation Letters (submitted).
- [J9]      Li, W. \*, Wang, M. \*, Li, J., **Su, Y.**#, Jia, D.K., Qian, X., Althoefer K., & Liu, H.# (2023). L3 F-TOUCH: A Light-weight, Low-cost, and WireLess GelSight with Extended Force Sensing. IEEE Robotics and Automation Letters (submitted).
- [J8]      **Su, Y.**\*, Yu, P. \*, Gerber, M. J., Ruan, L., & Tsao, T. C. (2023). Fault-Tolerant Control of Over-actuated UAV Platform Built on Quadcopters and Passive Hinges. IEEE/ASME Transactions on Mechatronics (TMECH) (accepted).
- [J7]      Ruan, L. #, Pi, C. \*, **Su, Y.**#, Yu, P., Cheng, S., & Tsao, T. C. (2023). Control and experiments of a novel tiltable-rotor aerial platform comprising quadcopters and passive hinges. Mechatronics, 89, p.102927. DOI: 10.1016/j.mechatronics.2022.102927.

- [J6] **Su, Y.**, Jiang, Y., Zhu, Y., & Liu, H. (2021). Object Gathering With a Tethered Robot Duo. IEEE Robotics and Automation Letters, 7(2), 2132-2139. DOI : 10.1109/LRA.2021.3141828 .
- [J5] **Su, Y.\***, Ruan, L.\* , Yu, P.\* , Pi, C. H., Gerber, M. J., & Tsao, T. C. (2021). A Fast and Efficient Attitude Control Algorithm of a Tilt-Rotor Aerial Platform Using Inputs Redundancies. IEEE Robotics and Automation Letters, 7(2), 1214-1221. DOI : 10.1109/LRA.2021.3138806.
- [J4] **Su, Y.\***, Yu, P.\* , Gerber, M. J., Ruan, L., & Tsao, T. C. (2021). Nullspace-Based Control Allocation of Overactuated UAV Platforms. IEEE Robotics and Automation Letters, 6(4), 8094-8101. DOI: 10.1109/LRA.2021.3095035
- [J3] Yu, P.\* , **Su, Y.\***, Gerber, M. J., Ruan, L., & Tsao, T. C. (2021). An Over-Actuated Multi-Rotor Aerial Vehicle With Unconstrained Attitude Angles and High Thrust Efficiencies. IEEE Robotics and Automation Letters, 6(4), 6828-6835. DOI: 10.1109/LRA.2021.3095035
- [J2] Luo, J., Gong, Z., **Su, Y.**, Ruan, L., Zhao, Y., Asada, H. H., & Fu, C. (2021). Modeling and Balance Control of Supernumerary Robotic Limb for Overhead Tasks. IEEE Robotics and Automation Letters, 6(2), 4125-4132. DOI: 10.1109/LRA.2021.3067850
- [J1] Luo, J., **Su, Y.**, Ruan, L., Zhao, Y., Kim, D., Sentis, L., & Fu, C. (2019). Robust Bipedal Locomotion Based on a Hierarchical Control Structure. Robotica, 37(10), 1750-1767. DOI: 10.1017/S0263574719000237

#### Conference Paper (\*indicates joint first authors)

- [C7] **Su, Y.\***, Li, J.\* , Jiao, Z.\* , Wang, M., Chu, C., Li, H., Zhu, Y., & Liu, H. (2023). Planning Sequential Aerial Manipulation for Over-actuated UAMs. In 2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) (submitted). IEEE
- [C6] Wang, M.\* , **Su, Y.\***, Li, H., Li, J., Liang, J., & Liu, H. (2023). Aggregating Single-wheeled Modular Robots for Omnidirectional Movements. In 2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) (submitted). IEEE
- [C5] **Su, Y.**, Jiao, Z., Zhang, Z., Chu, C., Li, J., Li, H., Wang, M., & Liu, H. (2023). Flight Structure Optimization of Modular Reconfigurable UAVs. In 2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) (submitted). IEEE
- [C4] **Su, Y.\***, Chu, C.\* , Wang, M., Li, J., Yang, L., Zhu, Y., & Liu, H. (2022). Downwash-aware Control Allocation for Over-actuated UAV Platforms. In 2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). IEEE
- [C3] Pi, C., Ruan, L., Yu, P., **Su, Y.**, Cheng, S., & Tsao, T. C.(2021). A Simple Six Degree-of-Freedom Aerial Vehicle Built on Quadcopters. In 2021 IEEE Conference on Control Technology and Applications(CCTA).
- [C2] Wang, M., **Su, Y.**, Liu, H., & Xu, Y. (2020). WalkingBot: Modular Interactive Legged Robot with Automated Structure Sensing and Motion Planning. In 2020 IEEE International Conference on Robot and Human Interactive Communication (RO-MAN) (pp. 307-312). IEEE.
- [C1] Lin, X., Krishnan, H., **Su, Y.**, & Hong, D. W. (2018,). Multi-limbed robot vertical two wall climbing based on static indeterminacy modeling and feasibility region analysis. In 2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) (pp. 4355-4362). IEEE.

#### Dissertation

Su, Y."Compensation and control allocation with input saturation limits and rotor faults for multi-rotor copters with redundant actuations." PhD diss., University of California, Los Angeles, 2021.

## INTERNSHIP

## PERSONAL EXPERIENCE

---

- Recommended for admission to Harbin Institute of Technology (HIT) without examination 03/2009
- First Prize of National Olympiad in Informatics in Provinces, Hebei, China 11/2008
- Second Prize of National Olympiad in Informatics in Provinces, Hebei, China 11/2007

## HONORS AND AWARDS

---

- The Excellent Graduate of HIT (3%)
- The Second Prize of Summer Social Practice in HIT
- Merit Students for three times (6%)
- The First Prize Scholarship of “Accompanying Grows” (3%)
- People’s Scholarship for eight times (3%)
- The Third-class scholarship of SMC (8%)

## SKILLS

---

- **Programming:** Pascal, C, C++, VB, Python, Raspberry Pi, Arduino
- **Simulation Tool:** ROS/Gazebo, V-rep, Openai Gym/Mujoco, Webots
- **Software:** MATLAB/Simulink, LabVIEW
- **CAD:** AutoCAD, SolidWorks

## PERSONAL SERVICE

---

**Conference Reviewer:** IEEE IROS, ICRA, RO-MAN

**Journal Reviewer:** IEEE RA-L, Robotica, Micromachines, Sensors