

# Yao Su

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## RESEARCH INTERESTS

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

## EDUCATION

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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

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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

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

- [J9]      **Su, Y.\***, Yu, P.\*, Gerber, M. J., Ruan, L., & Tsao, T. C. (2023). Fault-Tolerant Control of Overactuated Multirotor UAV Platform Under Propeller Failure. IEEE/ASME Transactions on Mechatronics (TMECH) (submitted).
- [J8]      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).
- [J7]      Ruan, L.\*#, Pi, C.\*, **Su, Y.#**, Yu, P., Cheng, S., & Tsao, T. C. (2023). Control and experiments of a novel tilttable-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

Robotics Engineer at DMAI, Los Angeles, CA 90024

01/2018-04/2020

## 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

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- 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

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- **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

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**Conference Reviewer:** IROS, ICRA

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