Yao Su

Email: suyao@bigai.ai | yaosu@g.ucla.edu
Webisite: https://yaosu.info/
Telephone: (+86)15710929261

RESEARCH INTERESTS

Robotics，UAV，Humanoid，Control and System，Locomotion，Optimization，Planning，Dynamics

EDUCATION

University of California, Los Angeles **Los Angeles, CA**

Ph.D. in Mechanical Engineering 09/2017-06/2021

Mechatronics and Control Laboratory (MacLab), Advisor: Dr. **Tsu-Chin Tsao**

M.S. in Mechanical Engineering 09/2016-06/2017

Robotics and Mechanisms Laboratory (RoMeLa), Advisor: Dr. **Dennis Hong**

Overall GPA: 3.87/4.0

Harbin Institute of Technology **Harbin, China**

B.S in Mechanical Engineering and Automation 09/2012-06/2016

State Key Laboratory of Robotics and System, Advisor: Dr. **Yili Fu**

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

PUBLICATIONS

Under Review/ Preparing for submission

[J11] Gao, H., Wu, P., **Su, Y.**, Zhou, K., Ma, J., Liu, H., & Liu, C. (2023). Probabilistic Visibility Aware Trajectory Planning for Target Tracking in Cluttered Environments. IEEE Robotics and Automation Letters.

[C9] Zhou, K., Wu, P., **Su, Y.**, Gao, H., Ma, J., Liu, H., & Liu, C. (2023). Adaptive Particle Filter Tree with Sigma Point-Based Mutual Information Reward Approximation for Target Search and Tracking. In 2024 IEEE International Conference on Robotics and Automation (ICRA).

[C8] **Su, Y.*,** Zhang, J.*, Li, H., Wang, M., & Liu, H. (2023). Real-time Dynamic-Consistent Motion Planning for Over-actuated UAV. In 2024 IEEE International Conference on Robotics and Automation (ICRA).

[C7] **Su, Y.,** Jiao, Z., Zhang, Z., Zhang, J., Li, H., Wang, M., & Liu, H. (2023). Flight Structure Optimization of Modular Reconfigurable UAVs. In 2024 IEEE International Conference on Robotics and Automation (ICRA).

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

[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, 8(10), 6187-6194. DOI: 10.1109/LRA.2023.3304539.

[J9] Li, W.*, Wang, M.*, Li, J., **Su, Y.**#**,** Jia, D.K., Qian, X., Althoefer K., & Liu, H.# (2023). L3 F-TOUCH: A Wireless GelSight with Decoupled Tactile and Three-axis Force Sensing. IEEE Robotics and Automation Letters, 8(8), 5148-5155. DOI: 10.1109/LRA.2023.3292575.

[J8] **Su, Y.***, Yu, P.*, Gerber, M. J., Ruan, L., & Tsao, T. C. (2023). Fault-Tolerant Control of an Over-actuated UAV Platform Built on Quadcopters and Passive Hinges. IEEE/ASME Transactions on Mechatronics (TMECH). DOI: 10.1109/TMECH.2023.3288032.

[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)

[C6] Wang, M.*, **Su, Y.***, Li, H., Li, J., Liang, J., & Liu, H. (2023). Aggregating Single-wheeled Modular Robots for Omnidirectional Movements. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).

[C5] **Su, Y.*,** Li, J.*, Jiao, Z*., Wang, M., Chu, C., Li, H., Zhu, Y., & Liu, H. (2023). Planning Sequential Aerial Manipulation for Over-actuated Unmanned Aerial Manipulators. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)

[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. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).

[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. 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. IEEE International Conference on Robot and Human Interactive Communication (RO-MAN).

[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. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).

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 03/2012
- First Prize of National Olympiad in Informatics in Provinces, Hebei，China 11/2011
- Second Prize of National Olympiad in Informatics in Provinces, Hebei，China 11/2010

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, Rasberry 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