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研究方向

机器人学, 无人机, 人形机器人, 控制算法, 运动控制, 优化, 运动规划, 动力学

教育背景

2017-09 至 2021-05 美国加州大学洛杉矶分校 (UCLA), 机械与航天工程学院, 机械工程, 博士
机电系统与控制实验室 **Mechatronics and Control Laboratory(MacLab)**, 导师: **Tsu-Chin Tsao**

2016-09 至 2017-06 美国加州大学洛杉矶分校 (UCLA), 机械与航天工程学院, 机械工程, 硕士
机器人学与机械学实验室 **Robotics and Mechanisms Laboratory(RoMeLa)**, 导师: **Dennis Hong**

2012-09 至 2016-07, 哈尔滨工业大学, 机电学院, 机械设计制造及自动化, 学士
机器人技术与系统国家重点实验室, 导师: 付宜利

科研经历

2021-06 至今 跨媒体通用人工智能全国重点实验室, 北京通用人工智能研究院, 机器人实验室, 研究员

论文发表

审稿中

- [C18] Huang, W.*, Zhang, J.* #, Hu, X., Wu, J., Zhang, S., Zhu, S., Liu, H., Yang, Y., **Su, Y.#** (2025). A Reinforcement Learning Framework of Humanoid Robots for Minimizing Energy Consumption. IEEE International Conference on Robotics and Automation (ICRA). (通讯作者)
- [C17] Li, W.*, Lin, P.*, Wang, M., Jiao, Z., **Su, Y.#**, Liu, H.# (2025). FTact: A Round High-Frequency Vision-based Tactile Sensor for Accurate Shape Reconstruction. IEEE International Conference on Robotics and Automation (ICRA). (共同通讯作者)
- [C16] Wang, M., Li, W., Chen, Q., Li, H., **Su, Y.#**, Liu, H.# (2025). Real-time High-accuracy Visuo-Tactile Localization with Structured 3D Patterns. IEEE International Conference on Robotics and Automation (ICRA). (共同通讯作者)
- [C15] Zhang, T., He, X., Han, M., **Su, Y.#**, Zhang, Z.#, Zhu, S. (2025). Multi-Agent Joint Task Planning in Symmetrical Reality. IEEE International Conference on Robotics and Automation (ICRA). (共同通讯作者)
- [J17] Liu, H., Zhang, Z., Xie, Q., Leng, X., Sun, L., Yuan, T., Zhu, S., Zhang, J.#, He, Z.#, **Su, Y.#**(2024). PR2: A Physics- and Photo-realistic Humanoid Testbed with Pilot Study in Competitions. IEEE Robotics and Automation Letters (RA-L). (通讯作者)
- [J16] Gao, H., Li, Z., Zhou, K., Ding, K., **Su, Y.**, Liu, H., Li, S., & Liu, C.#(2024). BVA-Tracker: Belief-Space Visibility-Aware Target Tracking in Unknown Cluttered Environments. IEEE Transactions on Automation Science and Engineering (TASE).
- [J15] Zhou, K., Li, Z., Gao, H., **Su, Y.**, Liu, H., Yu, J., & Liu, C.#(2024). ReSPIRe: Informative and Reusable Belief Tree Search for Robot Probabilistic Search and Tracking in Unknown Environments. IEEE Transactions on Systems, Man, and Cybernetics (TSMC).
- [J14] Jiao, Z., Niu, Y., Zhang, Z., Wu, Y., **Su, Y.**, Zhu, Y., Liu, H.#, & Zhu, S. (2024). Integration of Robot and Scene Kinematics for Sequential Mobile Manipulation Planning. Science Advances.

[J13] **Su, Y.***, Jiao, Z.*, Liu, H., Li, J., Wang, M., Li, H., Liang, H., Zhang, J., Zhu, S., & Liu, H.#(2024). Design, Planning, and Control of an Over-actuated Aerial Manipulator for Sequential Manipulation. IEEE Transactions on Robotics (TRO). (一作)

期刊论文 (*表示共同一作, #表示共同通讯)

[J12] He, Z.*, Wu, J.*, Zhang, J., Zhang, S., Shi, Y., Sun, L., **Su, Y.#**, Leng, X.# (2024). CDM-MPC: An Integrated Dynamic Planning and Control Framework for Bipedal Robots Jumping. IEEE Robotics and Automation Letters (RA-L). (共同通讯作者)

[J11] Fu, Y., **Su, Y.**, Wei, J., Wang, B., Li, J. (2024). Auto-focusing Femtosecond Laser Manufacturing System via Acoustic Emission Technology. Optics Letters, 49, 558-561. DOI: 10.1364/OL.516076

[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 (RA-L), 8(10), 6187-6194. DOI: 10.1109/LRA.2023.3304539. (共一、通讯作者)

[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 (RA-L), 8(8), 5148-5155. DOI: 10.1109/LRA.2023.3292575. (共同通讯作者)

[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. (一作、通讯作者)

[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. (共同通讯作者)

[J6] **Su, Y.**, Jiang, Y., Zhu, Y., & Liu, H. (2021). Object Gathering with a Tethered Robot Duo. IEEE Robotics and Automation Letters (RA-L), 7(2), 2132-2139. DOI: 10.1109/LRA.2021.3141828. (一作)

[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 (RA-L), 7(2), 1214-1221. DOI : 10.1109/LRA.2021.3138806. (一作、通讯作者)

[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 (RA-L), 6(4), 8094-8101. DOI: 10.1109/LRA.2021.3095035. (一作、通讯作者)

[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 (RA-L), 6(4), 6828-6835. DOI: 10.1109/LRA.2021.3095035. (共一)

[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 (RA-L), 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

会议论文 (*表示共同一作)

[C14] Qian, Y., Yu, P., Wu, Y., **Su, Y.**, Wang, W.*#, & Fan, L.*#(2024). Learning Concept-Based Visual Causal Transition and Symbolic Reasoning for Visual Planning. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).

- [C13] Wang, M.* , Li, W.* , Liang, H., Li, B., Althoefer K., **Su, Y.*** , & Liu, H.* (2024). Large-scale Vision-based Tactile Sensor Deployment on Multi-fingered Grippers. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). （共同通讯作者）
- [C12] **Su, Y.***, Jiao, Z., Zhang, Z., Zhang, J., Li, H., Wang, M., & Liu, H. (2024). Flight Structure Optimization of Modular Reconfigurable UAVs. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). （一作）
- [C11] Li, Z.* , Niu, Y.* , **Su, Y.***, Liu, H., Jiao, Z.* (2024). Dynamic Planning for Sequential Whole-body Mobile Manipulation. IEEE Conference on Industrial Electronics and Applications (ICIEA).
- [C10] Zhou, K., Wu, P., **Su, Y.***, Gao, H., Ma, J., Liu, H., & Liu, C. (2024). ASPIRe: An Informative Trajectory Planner with Mutual Information Approximation for Target Search and Tracking. IEEE International Conference on Robotics and Automation (ICRA).
- [C9] **Su, Y.***, Zhang, J.* , Li, H., Wang, M., & Liu, H. (2024). Real-time Dynamic-Consistent Motion Planning for Over-actuated UAVs. IEEE International Conference on Robotics and Automation (ICRA). （一作）
- [C8] Gao, H., Wu, P., **Su, Y.***, Zhou, K., Ma, J., Liu, H., & Liu, C. (2024). Probabilistic Visibility Aware Trajectory Planning for Target Tracking in Cluttered Environments. IEEE American Control Conference (ACC).
- [C7] Zhang, Z., Zhang, Z., Jiao, Z., **Su, Y.***, Liu, H., Wang, W., & Zhu, S. On the Emergence of Symmetrical Reality. IEEE Conference on Virtual Reality and 3D User Interfaces (VR).
- [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). （共一）
- [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). （一作）
- [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). （一作）
- [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) .

博士毕业论文

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.

横向项目

- [1] 安徽乐聚人工智能应用技术服务有限公司, 双足机器人抓取操作规划控制方法研究, 2023
- [2] 乐聚（深圳）机器人技术有限公司, 双足机器人运动控制算法研究, 2024
- [3] 通研院-乐聚人形机器人联合实验室, 2024-2029

纵向项目

[1] 第二十六届中国机器人及人工智能大赛人形机器人创新挑战赛, 2024

[2] 工信部 2023 年未来产业创新任务揭榜挂帅, 人形机器人方向, “面向危险作业的典型应用”, 2024-2026

[3] 国家自然科学基金青年基金, 基于全向推力生成器的过驱动无人机构型设计与智能控制规划方法研究, 2025-2028

获奖情况

- IROS 2023 最佳移动操作论文提名奖 Best Paper Award on Mobile Manipulation--Finalist
- 哈工大优秀毕业生 (3%)
- 哈工大三好学生 3 次 (6%)

实习经历

2018-01 至 2020-04 暗物智能公司 (DMAI) 洛杉矶分部, 机器人实验室研究员

个人经历

- 2012-03 保送至哈尔滨工业大学
- 2011-11 河北省信息学竞赛 (NOIP) 一等奖
- 2010-11 河北省信息学竞赛 (NOIP) 二等奖

专业技能

- 编程语言: Pascal, C, C++, VB, Python, Rasberry Pi, Arduino
- 机器人仿真平台: ROS/Gazebo, Isaacgym, V-rep, Openai Gym/Mujoco, Webots
- 软件: MATLAB/Simulink, LabVIEW
- 设计软件: AutoCAD, SolidWorks

论文评审

IEEE ICRA 2024 Section Chair of Aerial Systems: Applications

会议审稿: IEEE RSS, IROS, ICRA, ACC, RO-MAN

期刊审稿: IEEE TRO, TMECH, TIE, RA-L, Communications Magazine

Elsevier Mechatronics, Robotics and Autonomous Systems