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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(RoMcLa)**, 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

- [J14] Zhang, T., He, X., Han, M., **Su, Y.#**, Zhang, Z.#, Zhu, S. (2024). Multi-Agent Joint Task Planning in Symmetrical Reality. *IEEE Robotics and Automation Letters (RA-L)*. (共同通讯作者)
- [J13] **Su, Y.***, Jiao, Z.*, Li, J., Wang, M., Li, H., Zhang, J., Zhu, Y., 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)
- [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)

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)

- [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.

合作项目

- [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] 第二十六届中国机器人及人工智能大赛人形机器人工程挑战赛, 2024
- [3] 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
- [4] 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”
- [5] 通研院-乐聚人形机器人联合实验室, 2024-2029

获奖情况

- IROS 2023 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 IROS, ICRA, ACC, RO-MAN

期刊审稿: IEEE TRO, TMECH, TIE, RA-L

Elsevier Mechatronics, Robotics and Autonomous Systems