Changjing Liu

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Education

Shanghai Jiao Tong University (SJTU), Shanghai, China Sept. 2021 - Mar. 2024

- *M.Sc. in Instrument Science and Technology* GPA: 3.54 / 4
- Graduate Outstanding Scholarship at Shanghai Jiao Tong University (Top 10%)

Tongji University, Shanghai, China Sept. 2017 - Jun. 2021

- *B.Eng. in Mechanical Engineering (Specialization: Mechatronics)* GPA: 4.56 / 5
- The First Prize Scholarship at Tongji University (Top 5%)

Publication

- **Changjing Liu**, Zhiwu Wang*, Guozheng Yan, Pingping Jiang, Lichao Wang, Yelin Chen, "Simulation of Artificial Anal Sphincter Motion and Interaction with Intestinal Environment using SOFA", *Artificial Organs*, 2023 (SCI Q3) [paper]
- Yelin Chen, Pingping Jiang*, Lichao Wang, Guozheng Yan, Zhiwu Wang, **Changjing Liu**, Ding Han, "Robust voltage controlled transcutaneous energy transfer system for artificial anal sphincter", *Artificial Organs*, 2024 (SCI Q3) [paper]
- Changhong Fu*, Xiaoxiao Yang, Fan Li, Juntao Xu, **Changjing Liu**, Peng Lu, "Learning Consistency Pursued Correlation Filters for Real-Time UAV Tracking", in *IEEE/RSJ International Conference on Intelligent Robots and Systems* (IROS), 2020 [paper]

Work Experiences

Huawei Technologies Co., Ltd. *Autopilot Software Engineer Intern* Jul. 2023 - Sept. 2023

- Researched on ROS parsing of autopilot simulation, and implemented general parser and introspection.
- Developed a ROS parser in autopilot simulation, experimented and analyzed the parsing complexity and speed.

Fragrant Mountain Microwave Co., Ltd. *Robot Software Algorithm Intern* Jul. 2021 - Aug. 2021

- Developed cartesian path decoupling and terminal velocity/acceleration global control on Windows with roslibpy.
- Proposed algorithm on robotic arm for end-effector error estimation, enhancing antenna near-field test accuracy.

Project Experiences

Medical Precision Engineering and Intelligent System Lab at SJTU Mar. 2022 - Mar. 2024

Researcher, supervised by Prof. Zhiwu Wang and Prof. Guozheng Yan, and collaborated with Ruijin Hospital

- Designed and optimized pressure sensors and embedded software for artificial anal sphincter (AAS) system.
- Proposed a simulation platform of AAS mechanical motion and pressure sensors with intestinal environment using SOFA (framework for medical simulation and robotics), and evaluated it in vitro experiments.
- Proposed a hybird LSTM-Kalman algorithm for defecation perception reconstruction, and used the proposed simulation platform for dataset expansion and model training.
- Submitted PR to solve variable compatibility in SOFA, and became the contributor of SOFA (v22.12).

Vision4Robotics Lab at Tongji Univ. Oct. 2019 - Sept. 2020

Research Assistant, supervised by Prof. Changhong Fu

- Researched on correlation filter (CF)-based visual object tracking for drone in complex scenes, and participated in the writing and submission of papers for computer vision conference such as IROS and ECCV.
- Proposed a scale-aware strategy on CF tracking by simultaneously learning discriminative and scale filters, deployed on Sota trackers and evaluated on drone datasets, improving accuracy and ensuring real-time (>30fps).

Skills

- **Knowledge:** Physical Simulation, Medical Robotics, Image and Signal Processing, Machine learning
- **Languages:** Mandarin (Native), English (TOEFL: 85, CET-6: 492), Japanese (JLPT N2: 116)
- **Development tools：** Linux, ROS, PyTorch, PyQt, SOFA Framework, SolidWorks
- **Programming:** C/C++, Python, MATLAB