Luo Yan

luoyan99@sjtu.edu.cn (+86)188-174-64668
Supervisor: Ding Han (Academician of the Chinese Academy of Sciences),
Xiong Zhenhua (Professor at Shanghai Jiao Tong University).

EDUCATION

Shanghai Jiao Tong University (SJTU), Shanghai, China *Sep.2021-present*

Major in Mechanical Engineering, ***going from a Bachelor's to a Ph.D.***

Relevant Coursework: Computational vision (A), Digital signal processing(A), Robot performance simulation and control principle(A-), Basis of software technique(A), Modern control theory(A-), Intelligent control technique(A-). **(GPA:3.51/4.0)**

Yanshan University, Hebei, China *Sep.2017-June.2021*

Major in Automation, ***Bachelor.***

Relevant Coursework: Advanced Mathematics(B+), Linear Algebra(A), Feedback Control Theory(A), Microcomputer Principle(A+), Simulation Electronic Technology(A), Physical Fitness Test(A), Embedded single chip microcomputer principle(A+), Numerical Analysis(A).

EXPERIENCE AND SKILLS

- Responsible for intelligent manipulation and grasping of semi-humanoid robotic embodiment, including **language-vision-motion modeling**. Using **teleoperation** to acquire motion data combined with **reinforcement learning** for training.
- Responsible for Jiangsu Provincial Science and Technology Department's Frontier Leading Technology Basic Research Program and Jiangsu Province Industrial And Information Industry Transformation And Upgrading Project : **Humanoid robot** dynamic balance control algorithm research and development.
- Participated in the project of Science and Technology Development Program of Jilin Province: Research and development of robot operation system based on machine vision technology, responsible for **3D vision** disordered grasping and **vision servo**.
- Participated in China Internet+ Innovation and Entrepreneurship Competition, responsible for **quadruped robot** control algorithm development as well as China University Student Mathematical Modeling Competition, responsible for **simulation and algorithm optimization**.
- Proficient in python, C++, C, Matlab, Blander, SolidWorks, etc. Familiar with Ubuntu, ROS, Gazebo, Isaac Gym, etc. Language: CET-6 exam (444), CET-4 exam (509).

ACADEMIC ACHIEVEMENTS

- CoPickVLM: A Vision-Language Model Guided Dual-Arm Collaborative System for Occlusion Aware Tomato Harvesting. *Jul.2025*
- MotionVL: Visual-Language Supervision for Guiding Reinforcement Learning in Humanoid Motion *Jul.2025*
- **Luo Y**, Liu C, Wu J, et al. DCM-based dynamic stable walking under terrain-induced

time-varying disturbances for humanoid robots[J]. Science China Tech Sciences. *Jan. 2025*

- Pang F, Chen Y, **Luo Y**, et al. A Fast Obstacle Detection Algorithm Based on 3D LiDAR and Multiple Depth Cameras for Unmanned Ground Vehicles[J]. *Nov.2024*
- **Luo Y**, Chen G, Liu C, et al. Image Foreground Segmentation Based on Small Data Set for Visual Servo Applications[C]//2023 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM). IEEE, 2023: 715-720. *Jun.2023*
- Chen G, **Luo Y**, Huang B, et al. BP neural network-fuzzy control-based uncalibrated visual servoing technology for robots[J]. Science, Technology and Engineering, 2023. *Mar.2023*
- Zhang M, **Luo Y**, Chen G, et al. Design and research of intelligent maintenance robot for steam generator in nuclear power plant[J]. Science, Technology and Engineering, 2023, 23(22): 9559-9566. *Feb,2023*
- [Utility model] A gripper mechanism suitable for disorderly grasping of automobile tire lock plate (ranking first) *Nov.2022*
- [Invention Authorization] A visual servo method based on the mixing of multiple image feature information (ranking second) *Sep.2022*
- [Invention Announcement] A robot automatic loading and unloading system (ranking first) *Jun.2020*
- [Invention Announcement] An intelligent recognition handwritten mathematical formula review system (ranking first) *Nov.2019*

HONORS AND AWARDS

- Senior Consultant Expert of Nanjing Production and Economy Consultant Pool *Oct.2024*
- Chief liaison officer of world famous universities of Jiangsu Innovation and Entrepreneurship Alliance *Apr.2024*
- Outstanding Student of the School of Mechanical Engineering, SJTU *Apr.2024*
- Academic first-class scholarship *Sep. & Mar.2022*
- Yanshan University Person of the Year (Only 5 person in school) *Jan.2021*
- National scholarship (award percentage was 0.2%) *Dec.2020*
- Hebei provincial Merit Student (award percentage was 0.14%) *May.2020*
- National Bronze Award in the 5th "Internet+" Innovation and Entrepreneurship Competition (ranking third) *Dec.2019*
- First Prize of Hebei Division of National College Students Mathematical Modeling Competition (ranking first) *Oct.2019*

ACTIVITIES

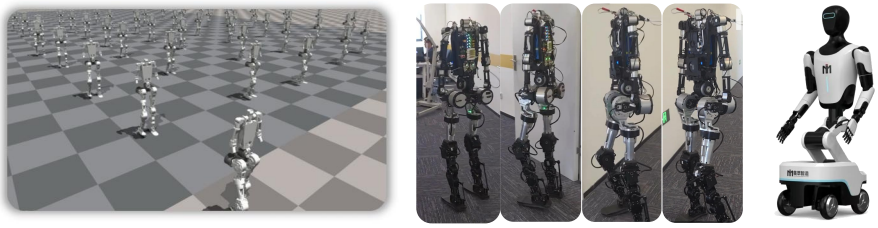
- During my postgraduate studies, I participated in the **Robotics Innovation and Technology Forum** and the **China Humanoid Robotics Association**, and exchanged ideas about the development of humanoid robots with Xingxing Wang, CEO of Unitree. I also went to Seattle, USA to participate in **academic conferences** and give presentations. I participated in the **Joint Entrepreneurship School** between the KIT(Germany) and the SJTU.
- During my undergraduate studies, I served as **class president** (won the honor of **provincial excellent class group**) and **vice president** of the university student union. I actively participated in social practice and was awarded '**Advanced Individual in Social Practice**'.

RELEVANT INFORMATION

Ph.D. Thesis Proposal Title： Stability Control of Humanoid Robots and Embodied Intelligent Manipulation and Perception.

Achieved results1: A new control method DCM-TVDW is proposed for dynamic balance control under time-varying disturbances, and the lower limb balance stability is experimentally verified.

Achieved results2: Large Language Model(LLM) generative reward function is trained with reinforcement learning(RL) in Isaac Gym , combined with visual language model(VLM) for supervision, and finalized for training and end-side deployment of humanoid straight-knee walking. The fusion of LLM and RL allows robots to learn different skills autonomously, reduces the threshold of reward function design, and improves training efficiency.



Achieved results3: Two teleoperation modes, VR and low-cost master-slave, are implemented, and algorithms such as ACT, Π0, and Octo are reproduced and ported, and improved. Collected more operation data, completed the complete process of cleaning and training, and achieved some generalizability. Vision-based 6D position grabbing is also realized, and the inference ability of VLM is utilized to have better operation capability.