Pinxin Long 龙品辛 **August 2025**

CONTACT INFORMATION
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EDUCATION
University of Electronic Science and Technology of China (UESTC)
Bachelor of Engineering in Automation **Sep. 2008 to June 2012**

PUBLICATIONS Full publications are available on my Google Scholar profile. * denotes equal contribution.

SELECTED JOURNAL PUBLICATIONS

[J7] Liangjun Zhang, Jinxin Zhao, Pinxin Long, Liyang Wang, Lingfeng Qian, Feixiang Lu, Xibin Song, Dinesh Manocha. **An autonomous excavator system for material loading tasks.** ***Science Robotics***, 6 (55), eabc3164, 2021.

[J6] Yajue Yang, Pinxin Long, Jia Pan, Xinbin Song, Liangjun Zhang. Optimization-Based Framework for Excavation Trajectory Generation. *IEEE Robotics and Automation Letters (**RAL**)*, 6 (2), 1479-1486, 2021.

[J5] Tingxiang Fan*, Pinxin Long*, Wenxi Liu, Jia Pan. **Distributed multi-robot collision avoidance via deep reinforcement learning for navigation in complex scenarios.** *The International Journal of Robotics Research (**IJRR**)*, 39 (7), 856-892, 2020.

[J4] Tingxiang Fan*, Xinjing Chen*, Jia Pan, Pinxin Long, Wenxi Liu, Ruigang Yang, Dinesh Manocha Getting Robots Unfrozen and Unlost in Dense Pedestrian Crowds. *IEEE Robotics and Automation Letters (**RAL**)*, 4 (2), 1178-1185, 2019.

[J3] Pinxin Long, Wenxi Liu, Jia Pan. **Deep-Learned Collision Avoidance Policy for Distributed Multi-Agent Navigation.** *IEEE Robotics and Automation Letters (**RAL**)*, 2 (2), 2017.

[J2] Kai Xu, Hui Huang, Yifei Shi, Hao Li, Pinxin Long, Jianong Caichen, Wei Sun, Baoquan Chen. Autoscanning for coupled scene reconstruction and proactive object analysis. *ACM Transactions on Graphics (TOG)*, Vol. 34(6) (Special Issue of *SIGGRAPH ASIA* 2015), 2015.

[J1] Shihao Wu, Wei Sun, Pinxin Long, Hui Huang, Daniel Cohen-Or, Minglun Gong, Oliver Deussen, Baoquan Chen. Quality-driven Poisson-guided Autoscanning. *ACM Transactions on Graphics (TOG)*, Vol.33(6) (Special Issue of *SIGGRAPH ASIA* 2014), 2014.

CONFERENCE PUBLICATIONS

[C3] Tingxiang Fan, Pinxin Long, Wenxi Liu, Jia Pan. Learning resilient behaviors for navigation under uncertainty. *IEEE International Conference on Robotics and Automation (ICRA)*, 5299-5305, 2020.

[C2] Pinxin Long*, Tingxiang Fan*, Xinyi Liao, Wenxi Liu, Hao Zhang, Jia Pan. **Towards Optimally Decentralized Multi-Robot Collision Avoidance via Deep Reinforcement Learning.** *IEEE International Conference on Robotics and Automation (**ICRA**)*, 2018.

[C1] Hao Zhang, Pinxin Long, Dandan Zhou, Zhongfeng Qian, Zheng Wang, Weiwei Wan, Dinesh Manocha, Chonhyon Park, Tommy Hu, Chao Cao, Yibo Chen, Marco Chow, Jia Pan. DoraPicker: An Autonomous Picking System for General Objects. *IEEE International Conference on Automation Science and Engineering (CASE)*, 2016.

WORKSHOP PUBLICATIONS

[W2] Pinxin Long, Xinyi Liao, Hao Zhang, Wenxi Liu and Jia Pan. Exploring Deep Networks for Reactive and Distributed Collision Avoidance Control among Multiple Robots. *ICRA Workshop on Multi-robot Perception-Driven Control and Planning*, 2017.

[W1] Pinxin Long, Xinyi Liao, Wenxi Liu, Hao Zhang and Jia Pan. Deep-Learned Collision Avoidance Policy for Distributed Multi-Agent Navigation. *NIPS Workshop on Learning, Inference and Control of Multi-Agent Systems*, 2016.

Research Experience

Shanghai AI Lab, Shanghai, China

Research Assistant **May 2024 to Jan. 2025**

- **Mentor**: Prof. Huazhe Xu from Tsinghua Embodied AI Lab.
- Focused on imitation learning for robotic manipulation.
- Built a simulation-based learning environment and benchmarking suite for the Galaxea R1 robot with NVIDIA Isaac Sim/Lab.
- Reimplemented imitation learning and reinforcement learning algorithms to solve manipulation tasks in simulation.

City University of Hong Kong, Hong Kong, China

Research Assistant **Mar. 2016 to Sep. 2016**

- **Supervisor**: Prof. Jia Pan
- Designed a novel end-to-end framework to generate reactive collision avoidance policy for fully distributed non-communicating multi-agent navigation [J3][W1].

Shenzhen Institutes of Advanced Technology (SIAT), **Chinese Academy of Sciences (CAS)**, Shenzhen, China

Research Assistant, Visual Computing Research Center **Oct. 2012 to Nov. 2015**

- **Supervisors**: Prof. Hui Huang, Prof. Kevin Xu, and Prof. Baoquan Chen
- Utilized a data-driven approach to model contextual information, capturing both intra-object part relationships and inter-object layouts for enhanced scene understanding.
- Participated in **Amazon Picking Challenge 2015** as part of a team from Dorabot Inc. and Hong Kong University, contributing to key system components including robot description, motion planning, grasping, and overall framework integration [C1].
- Developed an autonomous scene scanning system using the PR2 robot and proposed an object-level scene reconstruction approach integrated with object-centric scene analysis [J2].
- Participated in presenting a novel intrusive acquisition method for plant and foliage scanning and modeling.
- Contributed to designing a quality-driven, Poisson-guided autonomous object scanning method and implemented the system on the PR2 robot [J1].

University of Electronic Science and Technology of China, Chengdu, China

Undergraduate Researcher, Machine Intelligence Institute **Sep. 2010 to June 2012**

- **Supervisor**: Prof. Hong Cheng
- Developed an approach to recognize everyday indoor objects and estimate their real-world dimensions using a Kinect RGB-D camera.
- Designed an indoor mobile robot and implemented map building, autonomous navigation, and people-following capabilities.
- Built multiple quadruped robots from scratch and implemented discrete reaching motions and rhythmic gait patterns using central pattern generator-based locomotion control.

Industry Experience

Baidu Inc., Beijing, China

Autonomous Driving Systems **May 2021 to May 2024**

- Apollo Navigation Pilot (ANP) is China's first vision-based L2+ autonomous driving system, successfully deployed on Jiyue 01 vehicles and delivered to customers by the end of 2023.
- Led the Highway PnC team in developing navigation, decision-making, and planning modules for NOA, with a focus on on/off-ramp scenarios.

Autonomous Excavator Systems **Aug. 2019 to May 2021**

- Designed and built the first autonomous excavator system deployed in real-world commercial applications for hazardous industrial solid waste loading, capable of long-term operation without human intervention [J7].
- Contributed to the design of a novel optimization-based framework for autonomous excavator trajectory generation under multiple objectives [J6].

Multi-Robot Systems **June 2019 to Jan. 2020**

- Designed a decentralized, sensor-level collision avoidance policy for multi-robot systems, and integrated it into a hybrid control framework to enhance robustness and effectiveness [J5].
- Developed an uncertainty-aware navigation network enabling mobile robots to learn resilient behaviors in unfamiliar environments through uncertainty modeling [C3].

The Dr. Tea Project **June 2019 to July 2019**

- Developed an intelligent mobile manipulator, Dr. Tea, capable of pouring tea using a traditional Chinese long-spout teapot and demonstrated the system to Baidu CTO Dr. Wang Haifeng at Baidu Create 2019 (AI Developer Conference).

Metoak Inc., Beijing, China

Senior Algorithm Engineer **Oct. 2017 to May 2019**

- Implemented key modules of a Driver Monitoring System (DMS) with our stereo camera.
- Developed a ROS package for our stereo camera system.
- Improved the performance of Advanced Driver Assistance Systems (ADAS) by integrating data from the Inertial Measurement Unit (IMU).
- Contributed to the development of a navigation framework enabling mobile robots to navigate dense crowds while addressing robot freezing and navigation loss issues [J4].

Dorabot Inc., Shenzhen, China

Research Scientist **Sep. 2016 to Sep. 2017**

- Proposed a decentralized sensor-level collision avoidance policy for multi-robot systems, and optimized it with a multi-scenario multi-stage reinforcement learning framework [C2].
- Deployed the policy on real non-holonomic multi-robot systems [W2].

Robotics Engineer Intern **Jan. 2016 to Mar. 2016**

- Designed and implemented a robotic system for generalized object pick-and-place in warehouse settings. [C1].
- Performed a survey on multi-agent collision avoidance.

AWARDS & HONORS

- Innovation Award, IDG, Baidu Inc. 2021
- Best Innovation Team, TPG, Baidu Inc. 2020
- Seasonal Star Award, Baidu Research, Baidu Inc. 2020
- Final round, The first Amazon Picking Challenge 2015
- SIAT Innovation Program for Excellent Young Researchers 2015
- Outstanding Bachelor Thesis (Grade: 95/100), UESTC 2012
- As the sole representative of UESTC to participate in the 4th Chinese University Students'Creativity Forum. 2011
- The Top 1 Project of Creative Experimental Project of National Undergraduate Students in UESTC, 1 out of 197, Team Leader 2011
- Outstanding students in National Graduates Summer School on Intelligent Robotics 2010
- Several Scholarships in UESTC 2009 - 2011

SKILLS

Robots (I worked with)

Bimanual Mobile Manipulator (Galaxea R1), Electric Cars (Jiyue 01), Excavators, Dr. Tea (A Mobile Manipulator), PR2 (Willow Garage), UR5 (Universal Robots), Turtlebot, Multiple Mobile Robots, Self-made Quadruped Robots

Robotic Simulators/Frameworks

Isaac Sim, Isaac Lab, MuJoCo, OpenAI Gym, ROS, Gazebo, Stage, V-REP