Pinxin Long 龙品辛   September 2017

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INTERESTS   **Autonomous Driving, Robotics, Deep Learning and Reinforcement Learning**

EDUCATION

University of Electronic Science and Technology of China (UESTC), Chengdu, China
     B.Eng., Automation   **Sep. 2008 to June 2012**

EXPERIENCE

Dorabot Inc., Shenzhen, China

Robotics Engineer/Researcher   **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 [1].
- Deployed the policy on the real non-holonomic multi-robot systems.

Robotics Engineer Intern   **Jan. 2016 to Mar. 2016**
- Developed a robotic system that is capable of both picking and placing general objects in warehouse scenarios [3].
- Performed a survey on multi-agent navigation (collision avoidance).

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 [2].

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
- Employed a data-driven approach to modeling contextual information covering both intra-object part relations and inter-object layouts for scene understanding [4].
- Participated in the Amazon Picking Challenge 2015 along with other teammates from Dorabot Inc and Hong Kong University. I mainly worked on several components of the challenge: creating the robot URDF file, motion planning, grasping, and the overall framework [3].
- Developed an autonomous scene scanning system with the PR2 robot and proposed an approach for object-level scene reconstruction coupled with object-centric scene analysis [5].
- Participated in presenting an intrusive acquisition solution for scanning and modelling of plants and foliage [6].
- Participated in designing a quality-driven, Poisson-guided autonomous object scanning method and implemented the proposed system on the PR2 robot [7].

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 for recognizing the everyday indoor objects and measuring their real size with an RGB-D camera.
- Built an indoor mobile robot and performed map building, autonomous navigation and people following with the robot.
- Designed several quadruped robots from scratch and implemented discrete reaching movement and rhythmic movements (four different gaits) on them by using Central Pattern Generator-based locomotion control methods.

PUBLICATIONS

[1] <u>Pinxin Long</u>*, Tingxiang Fan*, Xinyi Liao, Wenxi Liu, Jia Pan. **Towards Optimally Decentralized Multi-Robot Collision Avoidance via Deep Reinforcement Learning.** *Under review*, 2017.

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

[3] Hao Zhang, <u>Pinxin Long</u>, 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.

[4] Yifie Shi, <u>Pinxin Long</u>, Kai Xu, Hui Huang, and Yueshan Xiong. **Data-Driven Contextual Modeling for 3D Scene Understanding.** *Computer & Graphics (C&G)*, 55: 55-67, 2016.

[5] Kangxue Yin, Hui Huang, <u>Pinxin Long</u>, Alex Gaissinski, Minglun Gong, and Andrei Sharf. **Full 3D Plant Reconstruction via Intrusive Acquisition.** *Computer Graphics Forum (CGF)* Vol. 34(2), 2016.

[6] Kai Xu, Hui Huang, Yifei Shi, Hao Li, <u>Pinxin Long</u>, Jianong Caichen, Wei Sun, and 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.

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

WORKSHOP PRESENTATIONS

[8] <u>Pinxin Long</u>, 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.

[9] <u>Pinxin Long</u>, 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.

AWARDS & HONORS

- 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

Programming Languages
Python, C/C++, LATEX, MATLAB

Software/Libraries
TensorFlow, PyTorch, Keras, MXNet, OpenAI Gym, ROS, PCL, OpenCV, MoveIt!

Robot simulators
Stage, Gazebo, V-REP

Robots (I worked with)
PR2 (Willow Garage), UR5 (Universal Robots), Turtlebot, Multiple Mobile Robots, Self-made Quadruped Robots