**Pinxin Long** **August 2017**

CONTACT INFORMATION
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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

*Research Scientist* **Sep. 2016 to Present**

- Refined the proposed multi-agent navigation solution via deep reinforcement learning, and evaluated it in a set of simulated and real scenarios with 180 degree 2D laser scanners [1].
- Deployed the solution 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 3 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] Pinxin Long, Xinyi Liao, Wenxi Liu, Jia Pan. **Sensor-Level Multi-Robot Collision Avoidance via Deep Reinforcement Learning.** *In preparation*, 2017.

[2] Pinxin Long, 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, 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.

[4] Yifie Shi, Pinxin Long, 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, Pinxin Long, 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, Pinxin Long, 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, Pinxin Long, 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] 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.

[9] 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.

## 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

**Software/Libraries**
TensorFlow, PyTorch, Keras, MxNet, ROS, PCL, OpenCV, MoveIt!

**Programming Languages**
Python, C/C++, LaTeX, MATLAB

**Operating Systems**
Linux, Windows

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