Yili Qin

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My research interests include robot control, motion planning, manipulation planning, task planning, behavior prediction and optimal decision-making, which involve robotics and AI, and make robots more autonomous. I am glad my work in JRL can be presented in top Conference/Journal in robotics such as IROS and RA-L.

Skills

- **Languages**: Mandarin (native), English (working proficiency), Japanese (JPLT N1)
- **Programming languages**: Morden C/C++, Shell, Python, Matlab
- **Common Tools**: GCC/G++, CMake, GDB, Git, CI, Vim, Latex, Docker, Doxygen
- **Softwares & Libraries**: ROS/ROS2, Rviz, MoveIt, mc_rtc, Choreonoid, Bullet, MuJoCo, OpenRTM, OMPL, SBPL
- **Robot Platforms**: HRP-2Kai, HRP-5P, Fetch, UR10, UFACTORY Lite 6

Education

- **University of Tsukuba** — Tsukuba, Japan
  Ph.D. in Intelligent Interaction Technologies (IIT) — *2019.04 - 2023.09*
- **University of Tsukuba** — Tsukuba, Japan
  M.S. in Intelligent Interaction Technologies (IIT) — *2017.04 - 2019.03*
- **Northeastern University** — China
  B.S. in Department of Electronic Information Science and Technology — *2006.09 - 2010.07*

Publications & Talks

- **Peer-reviewed Publications**
  - "Dual-arm Mobile Manipulation Planning of a Long Deformable Object in Industrial Installation", by **Yili Qin**, Adrien Escande, Fumio Kanehiro, Eiichi Yoshida, in **IEEE Robotics and Automation Letters (RA-L)**, will present in **IROS 2023**, USA
  - "Vision-based Belt Manipulation by Humanoid Robot", by **Yili Qin**, Adrien Escande, Arnaud Tanguy, Eiichi Yoshida, in **IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)**, 2020, USA
  - "Cable Installation by a Humanoid Integrating Dual-Arm Manipulation and Walking", by **Yili Qin**, Adrien Escande, Eiichi Yoshida, in **IEEE/SICE International Symposium on System Integration (SII)**, 2019, France
- **Domestic Presentations & Talks**
  - "Take a Long Deformable Belt out of a Bobbin by Humanoid Robot", by Y. Qin, A. Escande, A. Tanguy, E. Yoshida, in Robotics and Mechatronics Conference (ROBOMECH), 2020
  - "Dual-arm Mobile Cable Installation by a Humanoid Robot", by Y. Qin, A. Escande, E. Yoshida, in Advanced Robotics Joint Workshop, 2018
  - "Dual-arm Cable Manipulation by Whole-body Control of a Humanoid Robot", by Y. Qin, A. Escande, E. Yoshida, in Robotics and Mechatronics Conference (ROBOMECH), 2018

Work & Research Experience

- **National Institute of Advanced Industrial Science and Technology (AIST)** — Tsukuba, Japan
  Robotics Software Engineer *- CNRS-AIST Joint Robotics Laboratory (JRL)* — *2022.04 - 2023.03*
  - **Project "AIST-ICPS"**: A strategic research project in AIST. In convenience stores, use mobile manipulator Fetch robot to load and unload items.
    (**Keywords:** Manipulation planning, mobile manipulation, object detection.)

- **National Institute of Advanced Industrial Science and Technology (AIST)** Tsukuba, Japan
  Research Assistant *- CNRS-AIST Joint Robotics Laboratory (JRL)* *2019.4 - 2022.3*
  - **Project "JRP: BeltAssembly"**: A cooperation project with a Fortune Global 500 company in Europe. In the production hall, use a humanoid robot to unwind a long flexible belt from a bobbin, and assemble the belt to some specified rollers in an installation station.
    (**Keywords:** Manipulation planning, dual-arm manipulation of deformable objects, loco-manipulation.)

  - **Project "JRP: PushBigObject"**: A cooperation project with a Fortune Global 500 company in Europe. In the production hall, use a humanoid robot to move a very big and heavy (> 100 kg) industrial bobbin to desired position by humanoid robot.
    (**Keywords:** Loco-manipulation, whole-body motion control.)

  - **Project "TrackDOShape"**: A pre-research project for project "JRP: BeltAssembly". Visual detection and tracking of 1D and 2D long deformable objects (e.g. ropes, cables and belts) in 3D space with RGB-D camera.
    (**Keywords:** Point-set registration, visual detection and tracking.)

- **National Institute of Advanced Industrial Science and Technology (AIST)** Tsukuba, Japan
  Research Assistant *- CNRS-AIST Joint Robotics Laboratory (JRL)* *2018.4 - 2019.3*
  - **Project "JRP: InstallCable"**: A subproject of COMANOID. Project COMANOID is a research project with aerospace corporation Airbus, part of the European Horizon H2020 program. Inspired by the scenario in the aircraft manufacturing industry, we investigated the approaches to use a humanoid robot to install a long cable to some specified clamps.
    (**Keywords:** Task planning, primitive-based motion planning, whole-body motion control.)

- **Dingli Communications Corp., Ltd.** BeiJing, China
  FPGA Engineer *- R&D Department* *2010.9 - 2015.6*
  - **Project "Signaling Generation System"**: We developed a communication signaling system for testing the load capacity of the core network. I am the team leader of a 4-person team in this project.
    (**Keywords:** Communication signaling generation device, core network test system.)

  - **Implementation of circuit interface and communication protocol.**: FPGA-based implementation of the core network communication protocol. Utilize the high-speed and parallel processing characteristics of FPGA, collect data from the massive data flow in the core network.
    (**Keywords:** Communication protocol, data collection.)

Awards & Honors

- **Excellent Master Thesis (Finalist)**
  University of Tsukuba *2019, Japan*
- **Outstanding graduate**
  Tokyo Meros Language School *2017, Japan*
- **Annual outstanding staff**
  Dingli Communications Corp., Ltd. *2014, China*
- **Annual outstanding staff**
  Dingli Communications Corp., Ltd. *2013, China*
- **Excellent Graduation Thesis**
  Northeastern University *2010, China*
- **University Innovation Scholarship**
  Northeastern University *2009, China*
- **Provincial First Prize**
  2009 National Undergraduate Electronics Design Contest *2009, China*
- **University Scholarship**
  Northeastern University *2008, China*