Partner Robot Challenge (Real Space)

Team Northeastern (Boston, MA, US)

Service Robotics Category

サービスカテゴリー

Development point

We developed our whole-body HSR planner in TrajOpt and OpenRAVE environment to achieve various domestic tasks. The task planning system is implemented as a Behavior tree in a modular design so that future extensions can be easily integrated and tested. We also developed a teleoperation interface in virtual reality so that users can interact with remote environment through HSR using high fidelity models. To aid this capability, we trained a Detectron network on the YCB object dataset. We demonstrated the capability by achieving a pick-and-place task remotely.

Introduction of your team

【Inspiration, motivation to form a team 】We believe home and service robotics are an important part of the future, and recognize this competition as an exciting effort to drive this area of robotics.

【Future outlook】We plan to improve our visual detection algorithms so that the environment and objects could be modeled faster and more accurately. With the development in deep learning research, we are experimenting with end-to-end network to obtain the 3D pose directly from pointcloud. Further development of VR interface is also underway to improve the user acceptability and reduce the network bandwidth.

Role	Name	Affiliation/Title	Specialty, Field of study
Team leader	Taskin Padir	Northeastern University, RIVeR Lab, Associate Professor	Robotics
Software Engineer	Rui Luo	Northeastern University, RIVeR Lab, 3rd year PhD student	Networking, Navigation
Software Engineer	Michael Shaham	Northeastern University, RIVeR Lab, 2nd year PhD student	Manipulation
Software Engineer	Drake Moore		Vision, Perception
Software Engineer	Iris Wang		Speech recognition

Contact Northeastern University, RIVeR Laboratory, Taskin Padir, 617-373-8114, t.padir@northeastern.edu

HP etc. https://www.tpadir.info/