QI YAN

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EDUCATION

Swiss Federal Institute of Technology, Lausanne (EPFL) Sep. 2019 - Present
MSc in Mechanical Engineering

Shanghai Jiao Tong University (SJTU), China Sep. 2015 - June 2019
B.E. in Nuclear Engineering, School of Mechanical Engineering (Honors), GPA: **3.76/4.0**

PUBLICATIONS

Q. Yan, R. Li, and X. Meng. "Tribo-Dynamic Simulation and Motion Control of a Rotating Manipulator Based on the Load and Temperature Dependent Friction", *Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology*, **accepted**.

Q. Yan, L. Jiang and S. S. Kia, "Measurement Scheduling for Cooperative Localization in Resource-Constrained Conditions," in *IEEE Robotics and Automation Letters*, vol. 5, no. 2, April 2020. (also selected by ICRA'20 Committee for conference presentation)

EXPERIENCES

Transferable Crowd Robot Navigation Strategy
Master student, EPFL, Switzerland July. 2020 - Present
Advisor: *Prof. Alexandre Alahi*, Lab of Visual Intelligence for Transportation, EPFL

· Implemented rainbow DQN and soft actor-critic algorithms in PyTorch for robot navigation in a crowd. Next step to exploit representation learning to make policy transferable in various scenes.

Visual Absolute Localization in *a priori* Known Environment
Master student, EPFL, Switzerland Feb. 2020 - June 2020
Advisor: *Dr. Iordan Doytchinov*, Laboratory of Geodetic Engineering, EPFL

· Developed an improved structure-based visual localization method in PyTorch. Achieved ∼10 m & 5 deg accuracy in a large synthetic mountainous dataset, close to state-of-the-art results.

Droplet Size Estimation Using Deep Learning Method
Undergraduate thesis, Shanghai Jiao Tong University, China Mar. 2019 - June 2019
Advisor: *Prof. Xiang Chai*, School of Mechanical Engineering, Shanghai Jiao Tong University

· Employed a learning algorithm for semantic segmentation on droplet images in MATLAB. Attained the size estimation with ∼10% uncertainty, comparable to manual segmentation results.

Cost-effective Cooperative Localization Algorithm Design
Research student, UC Irvine, USA Jul. 2018 - Sep. 2019
Advisor: *Prof. Solmaz S. Kia*, Dept. of Mechanical and Aerospace Engineering, UC Irvine

· Proposed a sub-optimal communication free algorithm for the NP-hard multi-robot measurement selection problem. Compared against the state-of-the-art method with similar performance, it holds no assumption on system observation and works much faster. Paper accepted by RA-L.

Friction Dynamics Analysis and Control of Manipulator
Research student, Shanghai Jiao Tong University, China Dec. 2017 - Dec. 2018
Advisor: *Prof. Xianghui Meng*, School of Mechanical Engineering, Shanghai Jiao Tong University

· Carried out tribo-dynamic modeling of a single manipulator joint considering the effects of motor load and temperature. Proposed a new adaptive terminal sliding mode controller, which doesn't need prior information on disturbance. Paper accepted by *Journal of Engineering Tribology.*

SKILLS

Vision and Perception: digital image processing, visual camera re-localization, object detection and tracking, cooperative localization, Kalman filter

Planning and Actuation: deep Q-learning, actor-critic policy gradient, model predictive control, robotic kinematic and dynamic analysis, system identification

Software: proficient: Python, PyTorch, MATLAB; intermediate: C++, Java, Solidworks

Languages: Chinese: native; English: C1

OTHERS

Reviewer: IEEE Sensors Letters, 2020