Simultaneous Localization and Mapping in Dynamic Environments

MSc. Project Proposal at

- Autonomous Multi-Robots Lab, Cognitive Robotics, TU Delft
- p4MARS lab, Aerospace Structure and Materials, TU Delft

Brief description: To ensure the safe navigation of mobile robots in dynamic environments, new **S**imultaneous **L**ocalization **A**nd **M**apping (SLAM) methods [1] that are robust to changes caused by moving objects, such as humans and other robots, should be developed and tested.

In this project, we will:

1) You will work with mobile robots to develop a SLAM system
2) Starting from publicly available codes, you will develop a modular SLAM system that can host a range of front-ends, sensors, and back-ends.

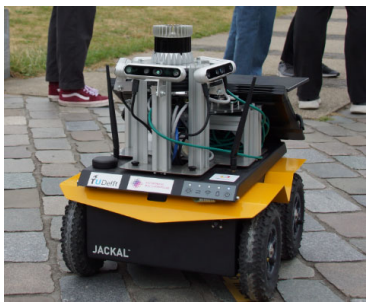

Fig. 1 Jakal Mobile Robot with RGB-D Cameras and Lidar

Requirements: This project doesn't require strong knowledge on math but requires strong programming skills (preferably in Python and/or C++ and ROS) and some patience.

Start date: Anytime

For further questions or to apply, please contact Javier Alonso-Mora (J.AlonsoMora@tudelft.nl) and/or Reza Sabzevari (r.sabzevari@tudelft.nl). When applying, please provide a short motivation, up to date CV, a transcript of your current degree program and intended start date.

Group information: http://www.autonomousrobots.nl/

References:

[1] Elvira, Richard, Juan D. Tardós, and Jose MM Montiel. "ORBSLAM-Atlas: a robust and accurate multi-map system." *2019 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. IEEE, 2019.