ILYASS TAOUIL

@ itaouil95@gmail.com https://itaouil.github.io/ in https://www.linkedin.com/in/ilyass-taouil-8b2b15a7/

RECENT EXPERIENCE

Robotics Research Engineer

Italian Institute of Technology (DLS)

Jul '22 – Present Genova, IT

- Research and development on quadrupedal footstep planning for black-box controllers that led to a first author publication at IROS 2023.
- Sensor setup, electrical cabling, and software development of packages for the autonomous and teleoperated quadrupedal competition at ICRA 2023.
- Research and development on gait optimization for legged locomotion using model-predictive control and machine learning.

Research Assistant

Autonomous Intelligent Systems

Dec '20 – March '22 Bonn, DE

- Developed in simulation a motion planning pipeline that plans high level velocity commands for quadrupeds to overcome irregular terrains, including steps and gaps.
- Integrated an MSCKF backend and GPU accelerated frontend VIO components to estimate the 6D pose of a camera.
- Modified a robot-centric local elevation mapping implementation obtaining a 3x increase in the frequency output on the NVIDIA Jetson Xavier.
- Implemented an efficient obstacle clustering algorithm using the PCL library.

Research Assistant

Humanoid Robotics Lab

Feb '20 – Sep '20 Bonn, DE

- Developed a software solution in ROS, C++, and Python that extended a planner framework allowing navigation through cluttered environments.
- Implemented the individual perception, navigation and manipulation modules, and the overall logic in order for the robot to free the path from obstacles and reach the destination -> https://tinyurl.com/yypupb4b

Engineering Intern

Fotokite AG

Feb '19 – Aug '19 Zurich, CH

- Front-end development of the new GUI with QML.
- Design, development, and testing of the GUI's new back-end infrastructure with C++.
- Design and implementation of real-time video streaming, camera calibration, and video-backtracking features for the GUI.

EDUCATION

MSc in Computer Science

University of Bonn

Oct '19 - Apr'22 Bonn, DE

- Grade: 1.5/4.0 (3.7/4.0 GPA)
- Thesis: Quadrupedal Footstep Planning

BSc in Artificial Intelligence

University of Leeds

Sep '14 – July '18 Leeds, UK

- Rank: 3/63
- Grade: First class
- Thesis: 3D Human Position Estimation

SOME PROJECTS

HSR Navigation

- Developed and tested a navigation stack for mobile robots using ROS, Python and C++.
- Implemented the perception module to assign forensic to detected objects.
- Implemented a primitive actions controller (kick, push, kick) based on the perception output in order to free the path and reach the destination.

Force-Feedback Controller

- Developed as a group project a force-feedback controller ROS package in C++ to control a slave arm (UR5) with a master arm (Panda arm) with force-feedback input.
- Implemented the communication module between the two arms using standard ROS protocols.
- Implemented the force-feedback using torque control and the Jacobian matrix.

3D Human Position Estimation

- Developed a ROS package in Python to estimate humans' 3D position in a mapped environment.
- The SSD network was used for RGB human detection, while synchronized depth images were needed to compute the human-robot distance to finally compute the 3D pose in the map frame.

LANGUAGES

Italian
English
French
Arabic