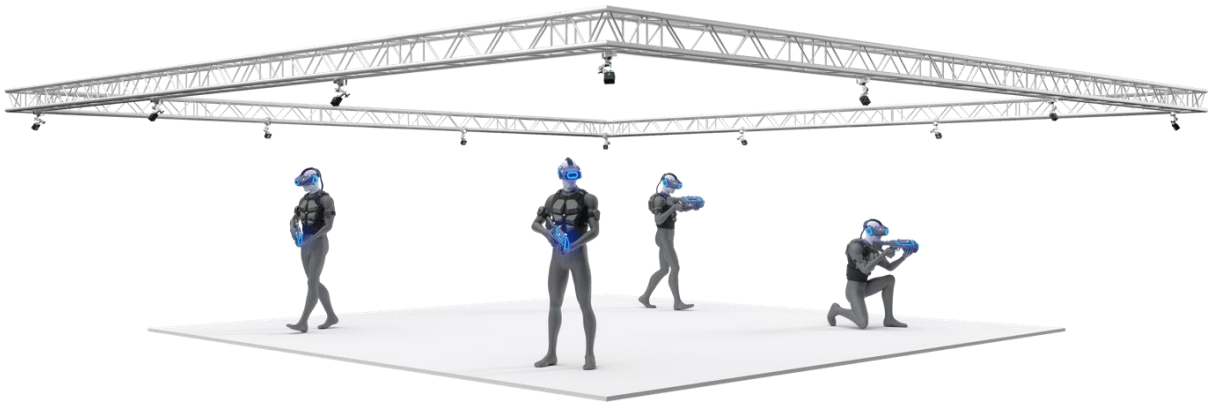
Graduation or Internship Assignment: Visual (Inertial) Odometry Experiment

Visual Odometry is a technique to determine the position and direction of a camera based on the movement of features “seen” in the images. The figure on the right shows such features in green. Visual Odometry can be used as an additional source to estimate the movement of a mobile robot.

There are many VO algorithms available and there are ongoing improvements on those algorithms. The goal of this assignment is to make a valid comparison of the available algorithms. The output of the algorithms is compared to the ground truth of the position of a moving camera measured in our Optitrack lab at the mechatronics research group.

Task description

Desk research on available visual odometry algorithms. Selection of a set to include in the study. Generation of test data in the Optitrack lab and, if possible, also outside. Analysis of the output of the different algorithms. Advice for several applications of the algorithms.



Optitrack lab with camera that can determine the position of optical trackers.

Practical Information

Student Profile: Applied Computer Science, Computer Science (HBO-ICT), Electronics, Mechatronics (with interest in software aspects of robotics)
Duration: February 2022 – July 2022
Compensation: 230 euro per month, before taxes
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