

Long-term Robot Deployments To Achieve Robot Autonomy In Everyday Environments

Abstract

Thanks to the efforts of the robotics community, the capabilities of robots are ever increasing. This has produced an increasing demand from end-users for autonomous service robots that can operate in real-world environments. Until a few years ago, robot autonomy was limited by the dynamics of the environment, making robot operation for extended periods in real-world environments hard to achieve.

In the EU-funded STRANDS project (<http://strands.acin.tuwien.ac.at/>), we tackled this barrier by integrating state-of-the-art artificial intelligence and robotics research into mobile service robots and deploying these systems for long-term installations in security and care environments. In this talk I will discuss the achievements of the STRANDS project, describing the approach we used to enable long-term autonomous operation in everyday environments and how our robots are able to use their long run times to improve their own performance. Finally I will present the opportunities that arose from the developments on this project.

Short biography:

Jaime Pulido Fentanes is a Post-Doctoral Research Fellow at the Lincoln Centre for Autonomous Systems, at the University of Lincoln, U.K. Jaime has fourteen years experience in the field of mobile robots, working in multiple research topics within the field such as Robot Navigation and Mapping, Exploration, Social Robotics, Human-Robot Interaction, and Agricultural Robotics.

He received his Ph.D. at the University of Valladolid in Spain where he proposed an exploration method oriented to create a 3D model of an outdoor environment. In 2013 he became a post-doctoral researcher at the university of Lincoln as part of the STRANDS project, where he worked on the development of spatio-temporal representations for robotic navigation.

Currently, he is carrying out new research in Robotic Mapping of Soil Moisture, including the integration of a novel mobile soil moisture sensor with a new outdoor mobile robot platform and development of soil mapping techniques, data acquisition strategies and outdoor mobile robot navigation.