

## Research Project

### European Robotic goal-oriented autonomous COntroller (ERGO)

#### Third-party funded project

**Project title** European Robotic goal-oriented autonomous COntroller (ERGO)

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**Organisation / Research unit**

Departement Mathematik und Informatik / Artificial Intelligence (Helmert)

**Department**

**Project start** 01.11.2016

**Probable end** 31.01.2019

**Status** Completed

In recent years, there has been an increasing interest in the autonomy of space missions such as earth observation, space station operations, planetary robotic exploration, and deep space probes. The capabilities of such systems have grown drastically, but the dependency on human supervision slows down many space missions significantly.

The ERGO project is part of the European strategic research cluster on "Space Robotic Technologies". Its main goal is to realise a software framework for the development of highly autonomous space robotics missions. Given a high level goal, the robot will plan and schedule actions such that a goal is achieved under consideration of temporal, spatial and resource constraints. Uncertainty in the plan execution is met with a monitoring and replanning approach.

Limited on-board resources and the need for real-time behaviour will force the planner to compromise between investment of time and energy in planning versus spending resources on execution. An optimal plan is therefore a plan that optimally balances the demand for planning-time resources against the anticipated demand for execution-time resources. Planning techniques where a resource-intensive precomputation (which can be performed on-ground) allows for informative yet compact guidance of the on-board planner are therefore the key challenge of our research.

#### Financed by

Commission of the European Union

**Add publication**

**Add documents**

**Specify cooperation partners**

ID	Kreditinhaber	Kooperationspartner	Institution	Laufzeit - von	Laufzeit - bis
3721888	Helmert, Malte	Medina, Alberto	GMV Aerospace and De- fense	01.11.2016	31.01.2019

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3721892	Helmert, Malte	Coles, Andrew	King's College, London	01.11.2016	31.01.2019
3721894	Helmert, Malte	Bensalem, Saddek	University of Grenobles-Alpes/VERIMAG	01.11.2016	31.01.2019
3721896	Helmert, Malte	Silva, Nuno	Airbus Defense and Space	01.11.2016	31.01.2019
3721898	Helmert, Malte	Woods, Mark	Scisys UK	01.11.2016	31.01.2019
3721899	Helmert, Malte	Dissaux, Pierre	Ellidiss Technologies	01.11.2016	31.01.2019
3721901	Helmert, Malte	Delfa, Juan Manuel	GMV Innovating Solutions	01.11.2016	31.01.2019