

InFuse

Common Data Fusion Framework for Space Robotics



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InFuse aims to develop a comprehensive data fusion toolset for robot sensors (Common Data Fusion Framework, or CDFF) that will serve in the context of many space robotics applications, on planetary surface as well as in orbit or other space environments. The CDFF will be developed relying on the expertise of partners having substantial experience with a wide range of sensor data handling and processing techniques (perception and navigation related) in different robotic applications – both in space and terrestrial conditions.

Project Details

InFuse is a European project that emerged from the Horizon 2020 PERASPERA (Plan European Roadmap and Activities for Space Exploitation of Robotics and Autonomy) call on Space Robotics Challenges (SRC). Inside the SRC the projects are referred to as Operational Grants (OG) and each one focusses on a particular open challenge in the Space Robotics development. InFuse makes provision for a convenient and effective articulation with the other Horizon 2020 SRC common building blocks, in particular OG1 (RCOS), OG2 (Autonomy Framework) and OG4 (Inspection Sensor Suite).

The solution proposed in this project to wrap and handle data fusion techniques and their produced data will make their adoption easy and effective by a variety of users, both among the SRC stakeholders and in the wider space robotics community. In particular, InFuse will not only provide access to an extensive set of

robust data fusion capabilities, relevant both for On-Orbit and planetary scenarios, but will also include a data fusion orchestration and product management tool allowing to control the data fusion processes and to retrieve conveniently (on-demand) products such as maps, models of the environment or objects and science relevant data.

The potential impact of InFuse is huge, as such a tool will be suitable and useful in a large number of robotic applications and user communities – not only in the SRC activities and more widely in the space robotics area, but also in many non-space domains (e.g. marine, aerial, terrestrial robotic applications). No such comprehensive data tool exists so far: InFuse will be a European asset that many industrial, research and academic roboticists in Europe (and farther) may benefit from.

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