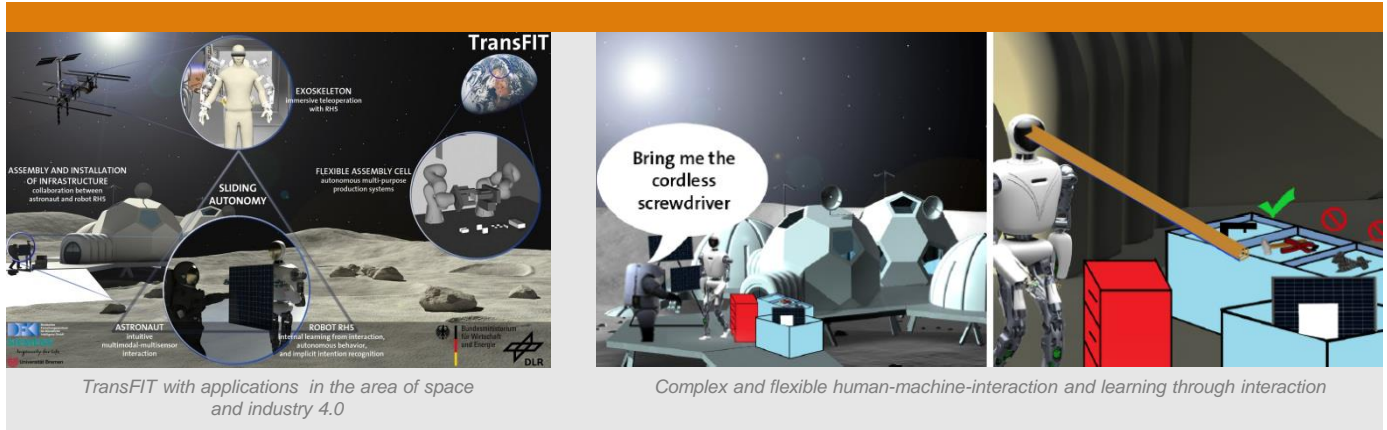


TransFIT

Flexible interaction for infrastructure establishment by means of teleoperation and direct collaboration and transfer into industry 4.0



Flexible interaction for infrastructures establishment by means of teleoperation and direct collaboration and transfer into industry 4.0

The project TransFIT is part of the space road map of the DFKI Robotics Innovation Center. The project focuses on the assembly and installation of infrastructure for space applications by humans and robots either autonomously or in cooperation. The cooperation between humans and robots follows the concept of “sliding autonomy”.

This means that the control over a robot by a human can be very strong as it is the case during teleoperation, weaker as in case of teleoperation with an autonomous control of components or like supervision only in case of “operator in the loop” approaches.

The goal of the human-robot interaction is not only task sharing but also the training of robots to enable them for more complex autonomous behavior.

Goals of the project

- Development of hardware and software solutions for a safe human-machine cooperation using a demand-driven sliding autonomy
- Development of knowledge-based technologies for robot control and environment perception for the application of setting up an infrastructure
- Development of a semi-autonomous assistance system for an intuitive human-machine-interaction

supporting the astronaut depending on his/her current situation and based on automated feedback approaches using psychophysiological data

- Increase of the autonomy of robots based on online-learning for behavior optimization, automatic adaptation to hardware changes and learning from interacting with the human (“operator in the loop” approach)
- Transfer of the developed technologies into the context of industry 4.0 with the aim of an interactive and flexible assembly cell

Duration: 07/2017 – 06/2021

Partners:

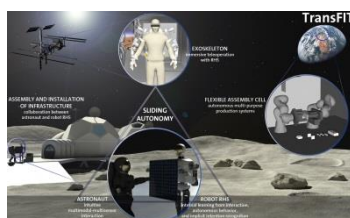
SIEMENS  **Universität Bremen**

Supported by:



on the basis of a decision
by the German Bundestag

This project is funded by the Space Agency of the German Aerospace Center with federal funds of the Federal Ministry for Economic Affairs and Energy (BMWi) in accordance with the parliamentary resolution of the German Parliament, grant no. 50RA1701, 50RA1702 and 50RA1703.



Contact:

DFKI GmbH & University of Bremen
Robotics Innovation Center

Director: Prof. Dr. Frank Kirchner
Phone: +49 421 - 17845 - 4100

E-mail: robotik@dfki.de

Website: www.dfki.de/robotik