



## A small step for man...

# Human-Computer Interaction for Space Exploration

### BACKGROUND

The greatest human imagination has always included the idea of going to space and becoming an extraterrestrial species. However, maintaining a human's health, happiness, and productivity in space is challenging. Our biological system, which developed in the unique environment of the earth, is hardly capable of surviving on its own in space and on other planets.

Space research is becoming more feasible thanks to recent developments in aerospace engineering and the democratization of access to space via startups like SpaceX, Blue Origin, etc. In order to support humans living and working in space and in the solar system, new forms of computer interfaces can be designed, providing an exciting opportunity to contribute to the grand undertaking of space exploration.

### RESEARCH QUESTION

How can human-computer interfaces (e.g., via wearables, robots, AR/VR, smart vehicles, fabrication, habitats, etc.) support humans' physical and mental performance in space?

This thesis aims to investigate the unique interplay of human-computer interaction (HCI) and space exploration. A prototype of a computer interface in space should be implemented in VR, and the defined concepts should be evaluated by conducting a user study.

Based on **bachelor/master** level the scope will be adapted.

### CONTACT PERSON



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### RESEARCH INTEREST

Augmented / Virtual Reality  
Future Mobility  
Computational Design

### FOCUS IN THIS PROJECT

VR simulation of HCI in space  
Design of new interfaces  
Conducting a user study