# VR Environment II

**This project aims at developing a virtual reality environment to increase the realism of space analogue missions**



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| **Laboratory:** | SKIL, eSpace |
| **Number of students:** | 1 |
| **Section:** | All |
| **Status:** | Available (Fall 2021) |

## Description of the project

Asclepios aims at organizing an analogue space mission. Therefore, by design, it will take place on earth, where a lot of parameters are different than on other celestial bodies, making it less realistic. This can be an issue for example when the goal is to simulate an extravehicular activity (EVA) and analyze how astronauts would react under pressure, to repair impaired critical infrastructures - e.g. solar panels. Therefore, this project aims at increasing the immersive dimension of analogue space missions, by integrating a series of elements that would make it as close to lunar or martian conditions as possible.

This project will be realised in three steps. The first step, conducted in Spring semester 2021, focused on the interactions between real and virtual environments (i.e. how to include real objects into virtual environments, and how to interact with them). The second steps (Fall 2021) will extend the scope of this first project by identifying the different existing VR technologies, and assessing their adequacy with respect to a much broader set of activities conducted during space exploration missions; Finally, the third step will take care of the virtual environment itself, by integrating a wide range of realistic details such as the actual constellations, orbiting satellites, etc.

## Description of the student's work and mission

- Identifying a set of activities that would be conducted during an (analogue) space mission, and the potential to simulate them in a VR environment;
- Assessing the adequacy of different technologies to achieve the identified activities;
- Developing a system allowing analogue astronauts conducting an EVA - using the VR equipment - to communicate with the Mission Control Center

In order to conduct this project, the student will need to have strong coding skills (C, C-sharp), be curious & autonomous, and be able to work in a team.

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space@your service