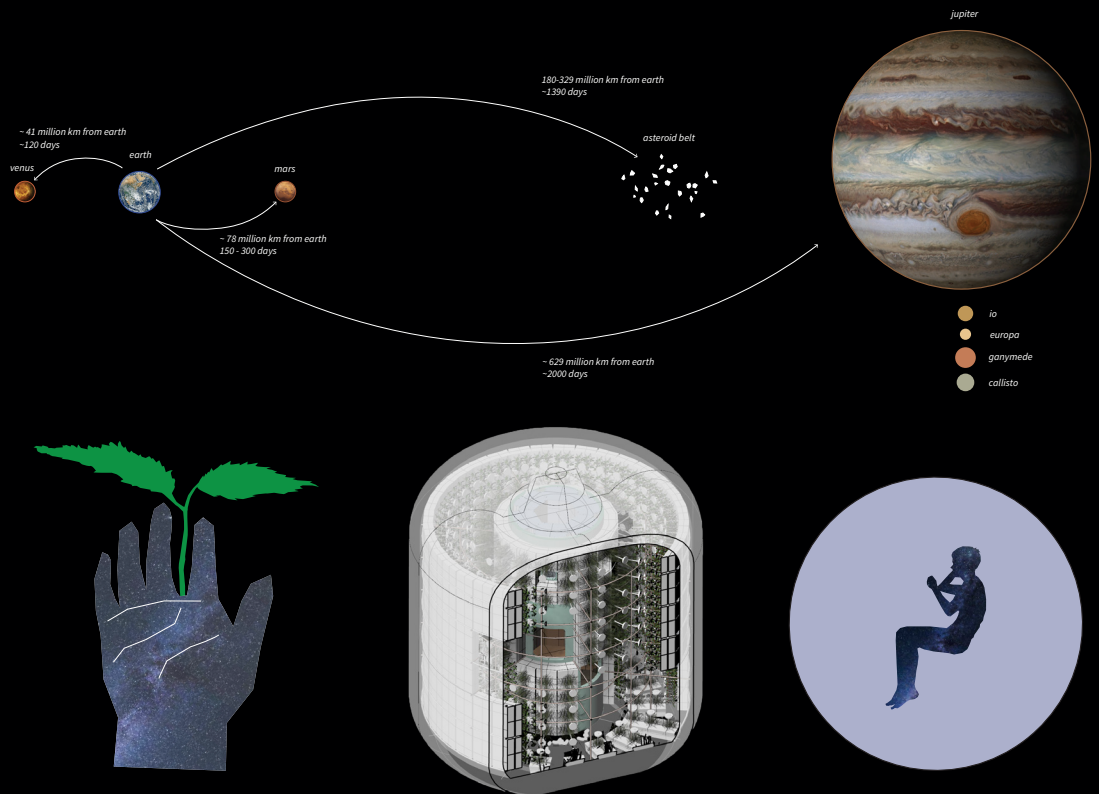


ALEXANDRA BÄCKSTRÖM

# MATTER, OUTER SPACE, STRUCTURE

- Space Architecture from a Healthcare Perspective



## HEALTHCARE

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This thesis delves into spaceship design with a focus on the health and well-being of the people inhabiting it. A mission to Mars will take around six months, and if we send people to Jupiter's moons, that could take several years. Both of these trips would mean a long time spent in a small environment with no possibility to leisurely step outside to get some fresh air. It affects the human body as well as the human mind in ways that we don't yet fully know, but studies made onboard the International Space Station indicates that the consequences can be severe. I have looked into these issues to see what solutions can be offered.

Space Architecture is not a new profession, but has been emerging ever since the first long-term manned missions began - over 40 years ago. It is interdisciplinary, connecting aerospace engineering, architecture and design, space sciences, psychology etc. and combining technical solutions with human needs for living and working. Just like "Earth Architects", Space Architects need to look at the "big picture" as well as every small detail of the designed environment.

In this project the focus has not been on designing technical details, but on the holistic design solutions of the interior. The aim has been to create a *catalogue of design guidelines* to meet each challenge and then integrate them in to a *design suggestion* for a spacecraft habitat meant to be used for long-distance space traveling.

My research and design has touched upon a variety of different subjects, such as color, lighting, materials, farming, claustrophobia, social interactions, weightlessness etc.

Vital Reality is one of the tools that I have used in my design process, which proved to be incredibly valuable. The VR-headset provided the experience of naturally moving through the interior spaces, and made me notice views and sightlines that I had not previously seen. Especially when working with a small, enclosed and isolated environment, understanding the user experience is crucial.

Keywords : *Spaceship, Space architecture, Mental well-being, Physical health, Interior design, VR*