**HUMAN PREDICTIVE SIMULATION FOR EARTH AND SPACE EXPLORATION**

Decision-support computer tool driven by Artificial Intelligence processing, to find optimal solutions to non-intuitive architectural issues.

**GAME ENGINE** provides:

o3D architectural modalisation

oArtificiel Intelligence implementation

oCharacter behavior simulation

ophysical simulation (gravity, mechanics)

ocompatible with high-level programming languages, such as C++, Python, C#

GENETIC ALGORITHM proceeds an iterative process, capable of modifying the modular architecture according to the Fitness Function

**HOLISTIC APPROACH** fuses the physical, cognitive and social aspects of work, offering

a broader perspective on organizational effectiveness via design

o**PHYSICAL** Study of body size, capabilities-fit

      of the workplace to the individual

o**MENTAL** Work load, job tasks, software interface, the individual at work

o**SOCIAL, COLLABORATIVE** Formal and informal group work, transitions between modes-group spaces

Volkova Tatiana, Ph.D. candidate

EPFL EDCE/Swiss Space Center, [tatiana.volkova@epfl.ch](mailto:tatiana.volkova@epfl.ch)

Dr. Olivier Boisard, École Centrale de Lille