SPACE EXPLORATION SYMPOSIUM (A3)
Mars Exploration – Science, Instruments and Technologies (3B)

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MOTIGRAVITY: A NEW VR SYSTEM TO INCREASE THE PERFORMANCE AND SAFETY IN MARS MISSION

Abstract

For long-duration crewed missions to Mars, human space mission simulators play an important role in developing and testing hardware and software technologies. Simulators also provide a viable platform for conducting research in psychology, physiology, medicine, mission operations, human factors and habitability. These research areas are critical for ensuring the well-being of the crew and enhancing performance in long-term space missions. Motigravity is a new immersive instrument developed by the Mars Planet (former Italian Mars Society) where one or more persons interact with a virtual environment with their visual and biomechanical system. The application of this system focused on space operation simulation for Mars. this facility allows: • Immersive visual scenario • Reduction of weight to emulate varying surface acceleration • Mobility / locomotion on a treadmill • Real-time connection with other users in virtual reality • Virtual interaction with immersive visual and audio environments using the Oculus Rift technology. • Tracking of user movements inside a 3D virtual environment and reproduction of these movements by an avatar. This paper aims to bring to the scientific community the knowledge of the last developed technology to incentivize cooperation, development and utilization of this facility.