

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)  
 Enabling the Future: Developing the Space Workforce (5)

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A 21ST CENTURY STEAM EDUCATION PARADIGM: TRAINING NEXTGEN WORKFORCE AND  
 ANALOG ASTRONAUTS WITH FULLY-IMMERSIVE EXPERIENTIAL SIMULATION TRAININGS,  
 VIRTUAL ASTRONAUTICS WORKSHOPS, AND IN-PERSON MISSIONS USING EXPONENTIAL  
 TECHNOLOGY

**Abstract**

This presentation highlights the integration of experiential learning with exponential and frontier technologies, shaping a new workforce for both Space and Earth. Through programs offered since 2016 by MMAARS (Mars-Moon Astronautics Academy and Research Sciences) Analog Astronauts VIRTUAL and IN-PERSON Analog Astronaut Training Programs, participants engage in fully-immersive simulation-based experiences, fostering skill development and innovation. By combining experiential learning with cutting-edge technologies, such as VR,AR,XR, robotics, AI and STEAM -focused simulation workshops, the training educational programs train and upskill the NextGen leaders, educators, innovators, researchers and citizen scientists for the challenges of the 21st Century. This approach not only cultivates essential skills for space exploration but also impacts new economies and industries. It fosters the emergence of new skill sets and job opportunities, driving innovation and economic growth in sectors ranging from space exploration to advanced manufacturing and beyond. As we navigate the frontier of space and Earth exploration, the development of this new workforce is essential for shaping the future of industries

and economies in the 21st century. Furthermore, MMAARS advocates and underscores the importance of Diversity, Equity, Inclusion, and Access (DEIA) in the advancement of space exploration and aim to democratize access to space exploration opportunities for all, including underserved and underrepresented communities. Through innovative initiatives, eg, MMAARS Parastronauts, Apollonauts, Women-in-STEM Programs, we strive to break barriers and provide global access to cutting-edge technologies, empowering individuals from diverse backgrounds to engage in space-related endeavors. By embracing DEIA principles, we not only foster inclusivity in space exploration but also cultivate a more diverse and representative cohort of future astronauts and space settlers. This inclusivity not only enhances the richness of perspectives and experiences in space missions but also promotes equity and fairness in access to space-related opportunities. Additionally, by providing opportunities for individuals from underserved communities to participate in space exploration initiatives, we contribute to the development of a more inclusive and equitable society, both on Earth and beyond.