Software, Simulations and Graphics

Angelica Garcia NASA/JSC

Simulation and Graphics Capability Manager

Who is Angelica?

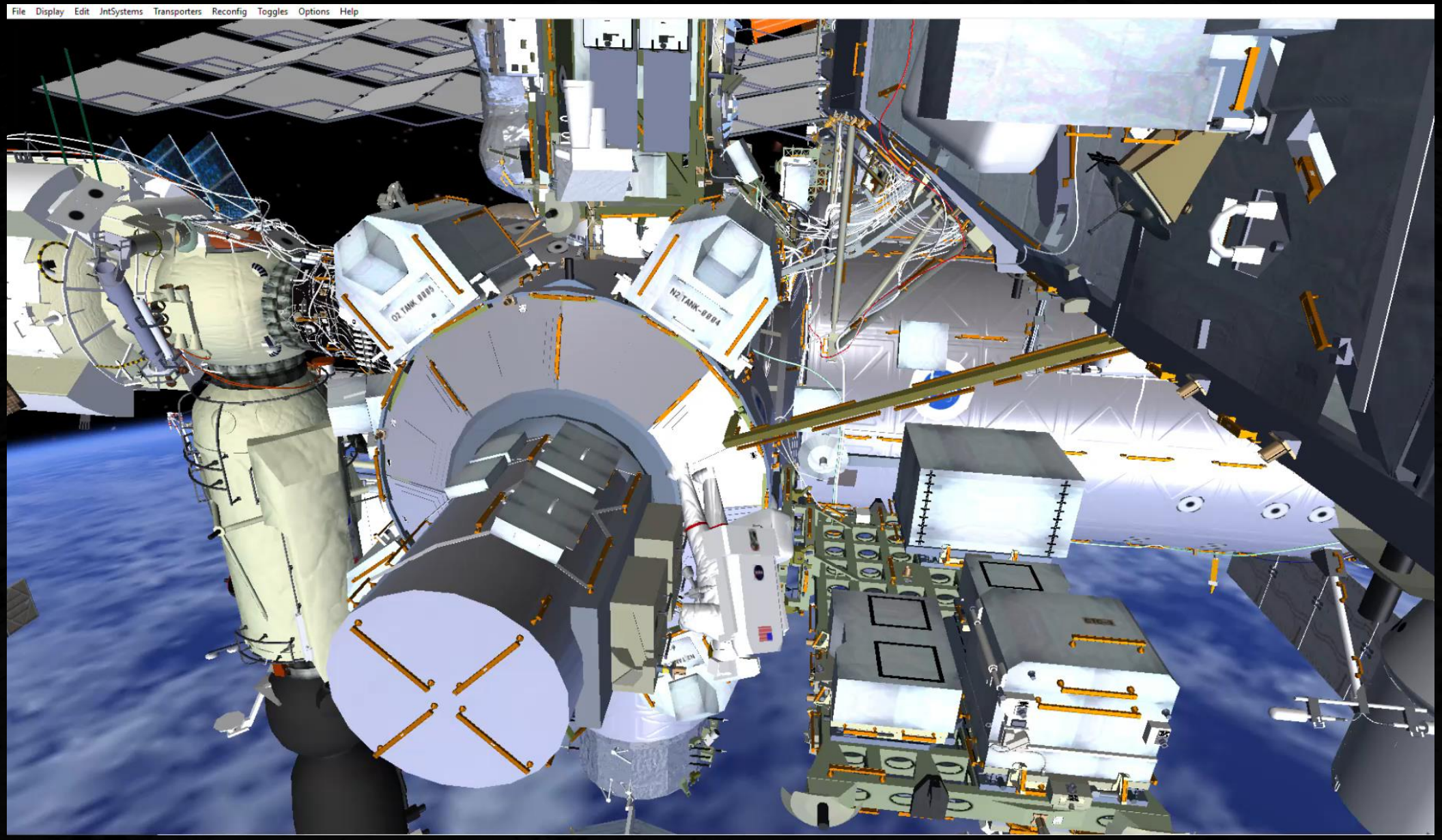
- B.S. in Aerospace Engineering
  - Embry-Riddle Aeronautical University
  - Gulfstream Aerospace Co-Op (5 terms)
- M.S. in Modeling and Simulation
  - University of Central Florida
  - Simulation Software Engineer at Dynamic Animation Systems
  - NASA LaRC Summer VR Simulation Intern
- CACI/NASA Simulation and Software Lead
  - Maintain, develop and deploy training simulation systems for instructor and astronaut certification, mission analysis and planning.
- NASA Simulation and Graphics Capability Manager
  - Support and help manage multiple facilities and teams that develop, maintain and operate simulation systems
  - Optimize the way all the simulation facilities operate
  - Standardize processes across all facilities
  - Promote consistency and reuse in all simulation and graphics tools and capabilities across facilities

NASA Organization and Supporting Programs

ER is the Software, Robotics, and Simulation Division is responsible for defining requirements, analyzing, designing, assembling, integrating, testing, evaluating, verifying, operationally supporting, and managing current and advanced software and hardware systems, in the areas of automation, robotics, flight software, simulation, graphics, and exercise equipment for human surface and space flight operations.

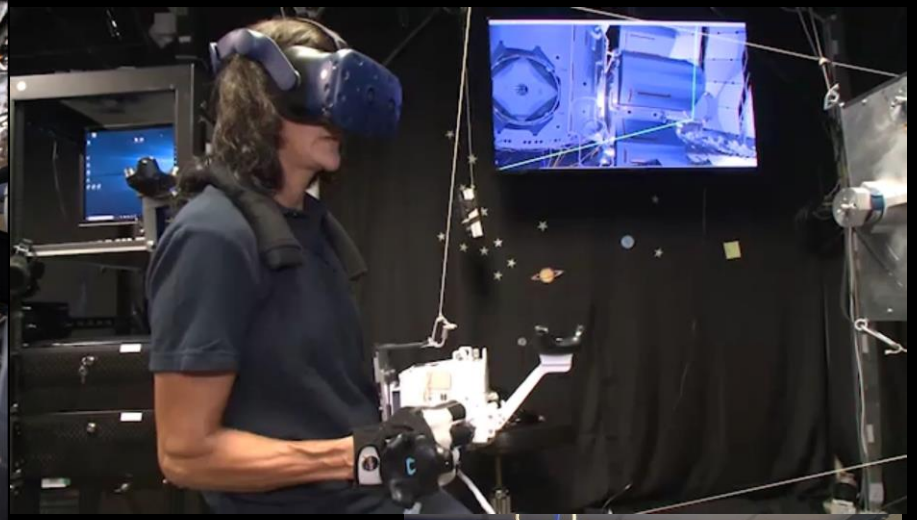
ER supports the International Space Station, Gateway, Orion, Space Launch System (SLS), Human Landing System (HLS), Surface Mobility, xEMU (Suit), Commercial Cargo, Commercial Crew and more…

Graphics Software - DOUG



Virtual Reality Lab (VRL)

Dual EV1 and EV2 VR Training



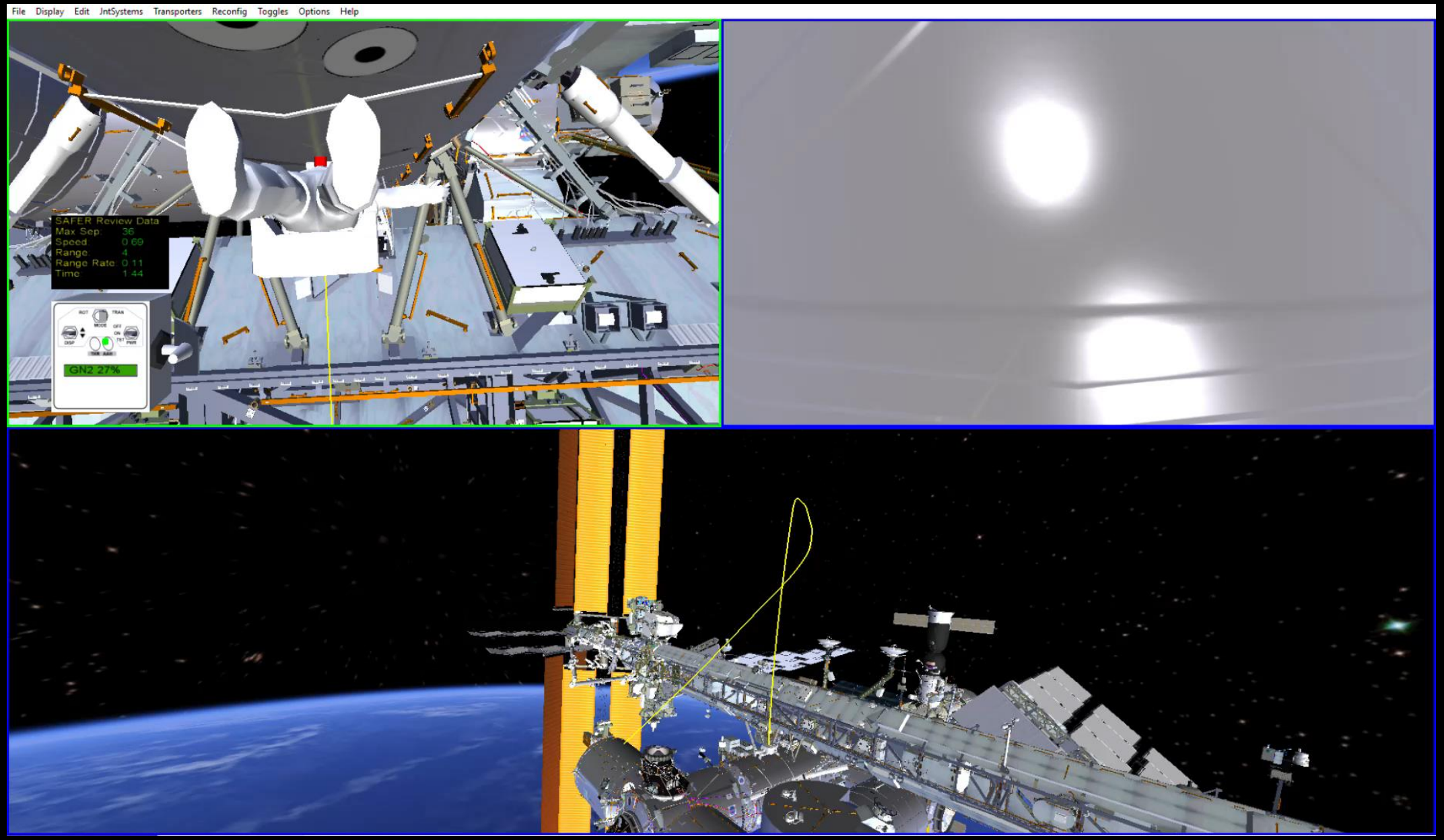
SAFER Onboard VRT and VRL Training

EVA DOUG Training Animations

ROBO EVA Integrated Training

Mass Handling Training

SAFER VR Training – Review Tool



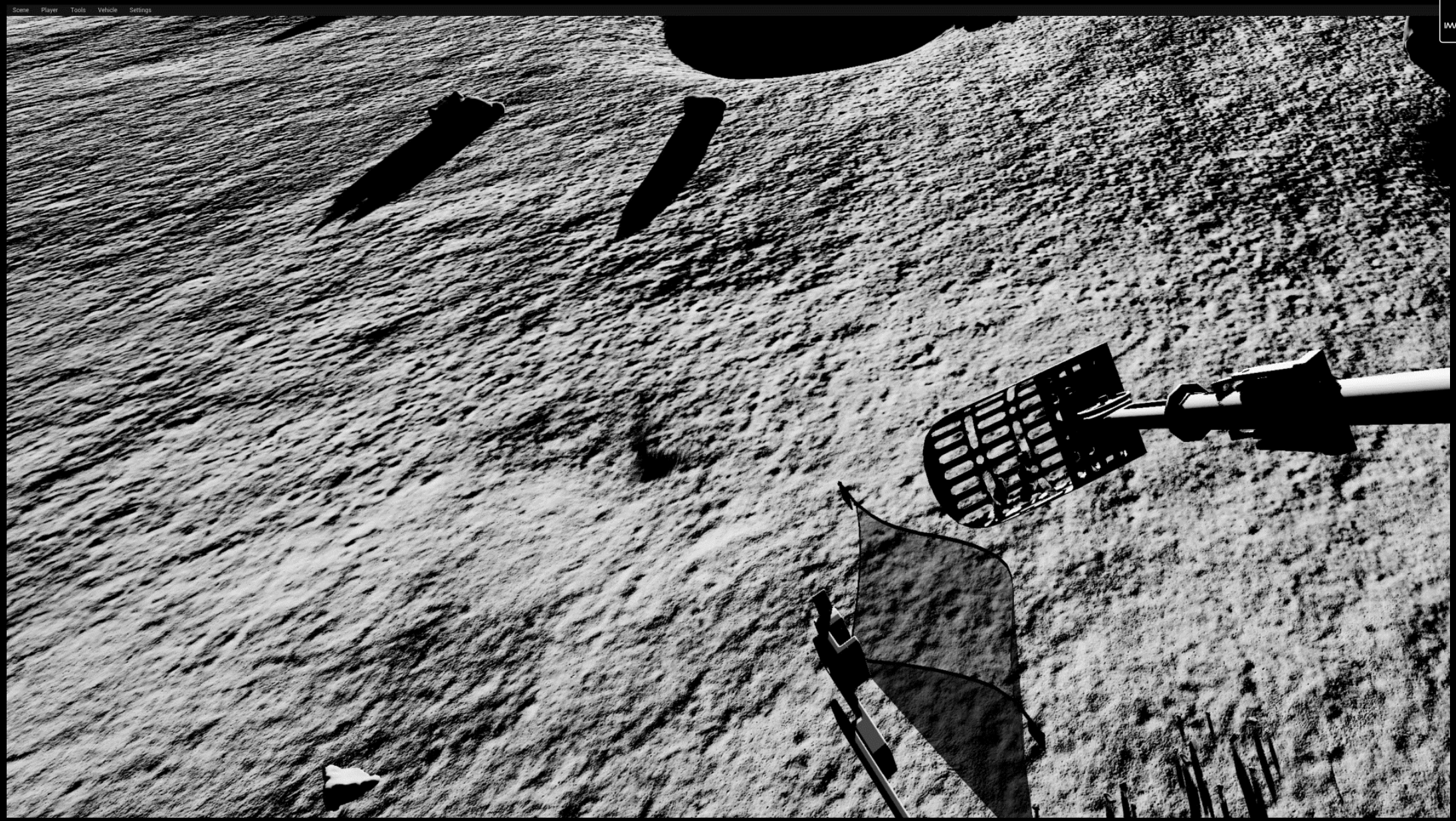
We are Going…to the MOON!

We’re going back to the Moon for scientific discovery, economic benefits, and inspiration for a new generation of explorers: the Artemis Generation. While maintaining American leadership in exploration, we will build a global alliance and explore deep space for the benefit of all.

With Artemis missions, NASA will land the first woman and first person of color on the Moon, using innovative technologies to explore more of the lunar surface than ever before. We will collaborate with commercial and international partners and establish the first long-term presence on the Moon. Then, we will use what we learn on and around the Moon to take the next giant leap: sending the first astronauts to Mars.

Graphics Software - DUST

PIT Lab



NVERSE Multi-player VR

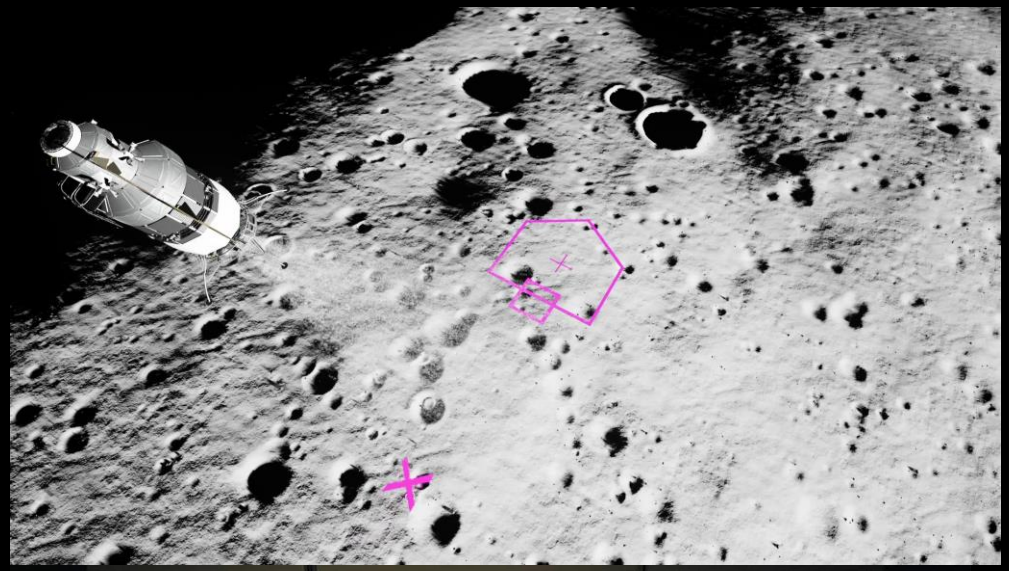
Systems Engineering Simulator Facilities

Alpha Dome – ISS Robotic Operation

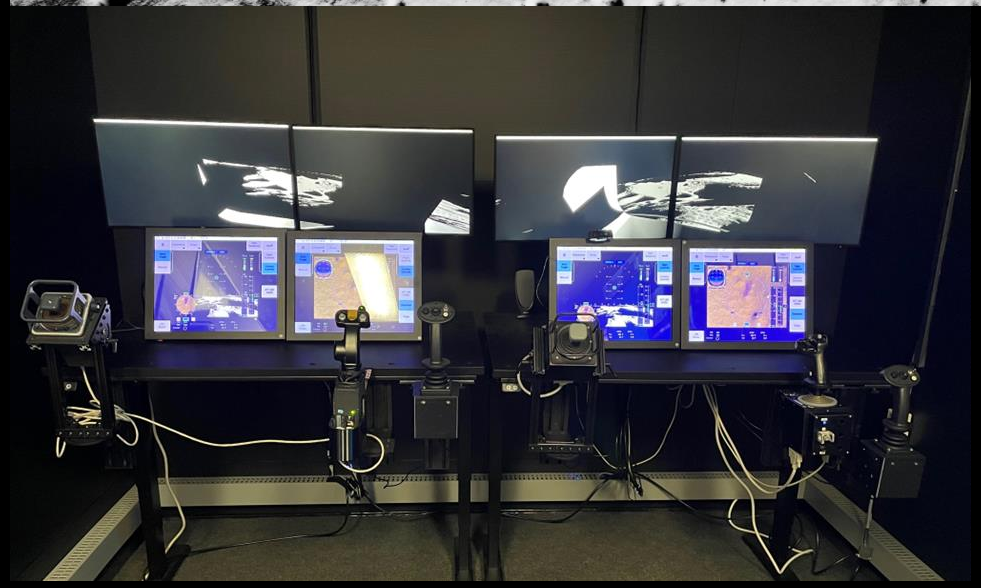
Beta Dome – Orion and Gateway Simulation

Systems Engineering Simulator Facilities

CEL – Supporting Mock MCC

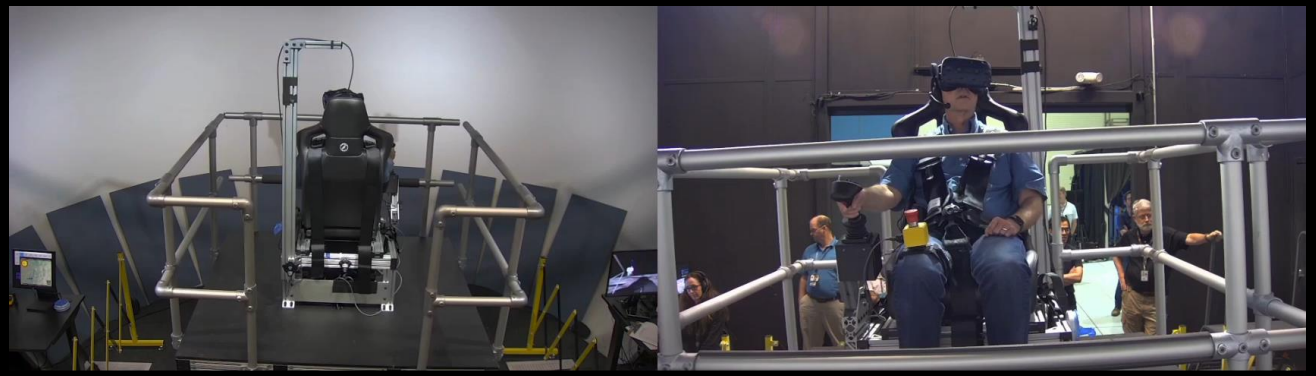


Lunar EVA VR Area

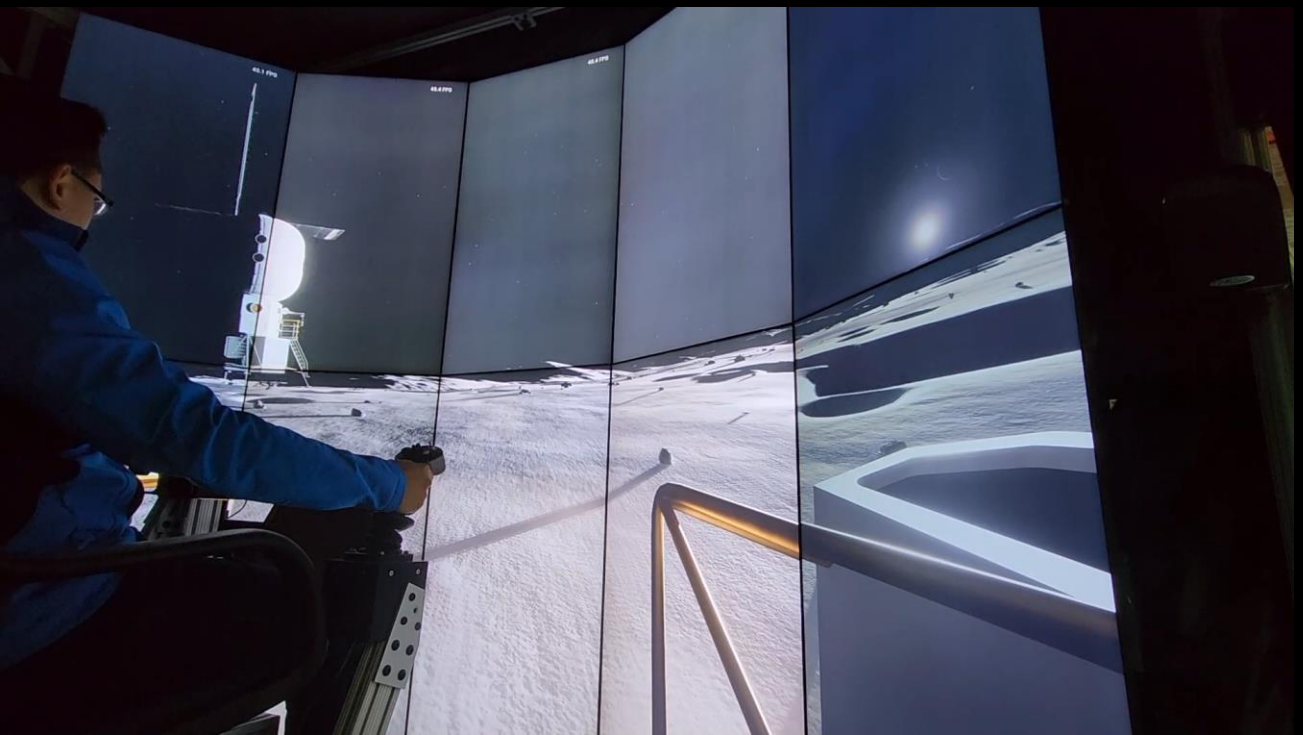


SEAL

Systems Engineering Simulator Facilities



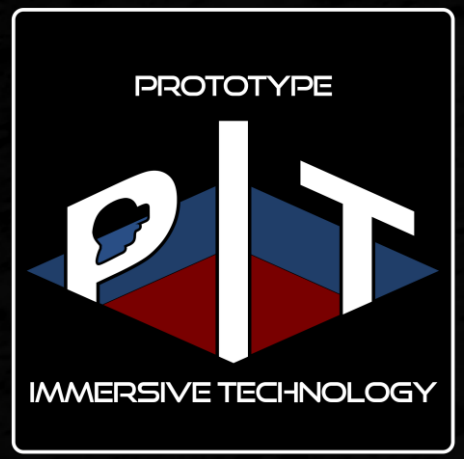
Video Wall



Mini Dome - Motion Table

Resources

- ER7 Website - https://www.nasa.gov/software-robotics-and-simulation-division/simulation-and-graphics-branch/
- DOUG Download - https://www.nasa.gov/doug-1-72-download/
- DUST Download - https://www.nasa.gov/general/prototype-immersive-technologies-lab/
- TRICK and Simulations Tools - https://www.nasa.gov/general/simulation-tools/



Questions