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INTUITIVE MACHINES

COMMERCIAL LUNAR PAYLOAD SERVICES INITIATIVE UPDATE

UNSTOPPABLE

A Message From Steve Altemus

The deep freeze revealed a lot about Texas' infrastructure, and even more about who we are as a company.

Most of us lost power, access to clean water, and some are still repairing burst pipes that left their homes flooded, but in the midst of the freeze we came together and proved how *unstoppable* we are as a team.

Some of you opened your homes for co-workers without heat, others gave water or food, and everyone checked in on each other. That's the culture I envisioned when we started this ride in 2013 and that's the culture that will land us on the Moon.

President & CEO

FEBRUARY COMPANY HIGHLIGHTS

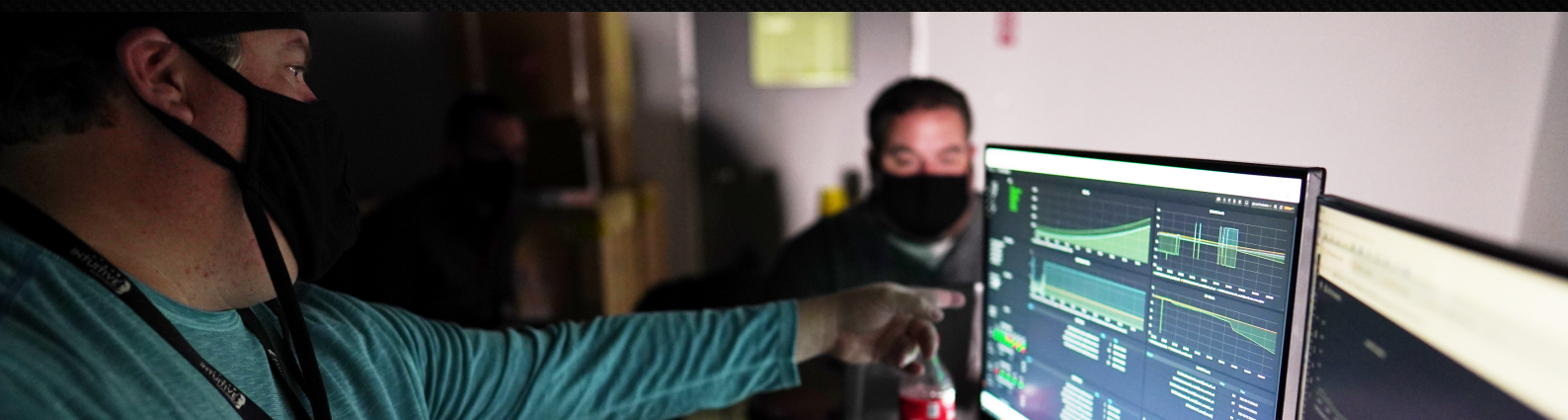
- NAV POD TESTING
- SYNTHETIC MOON IMAGERY
- PDI SIMULATION
- HOT FIRE #44
- VTS INFRASTRUCTURE
- CLPS EMPLOYEE SPOTLIGHT

TERRESTRIAL NAVIGATION POD TESTING

IM engineers had major success and took a significant step toward sticking the IM-1 landing in November during Safe and Precise Landing Integrated Capabilities Evolution (SPLICE) testing.

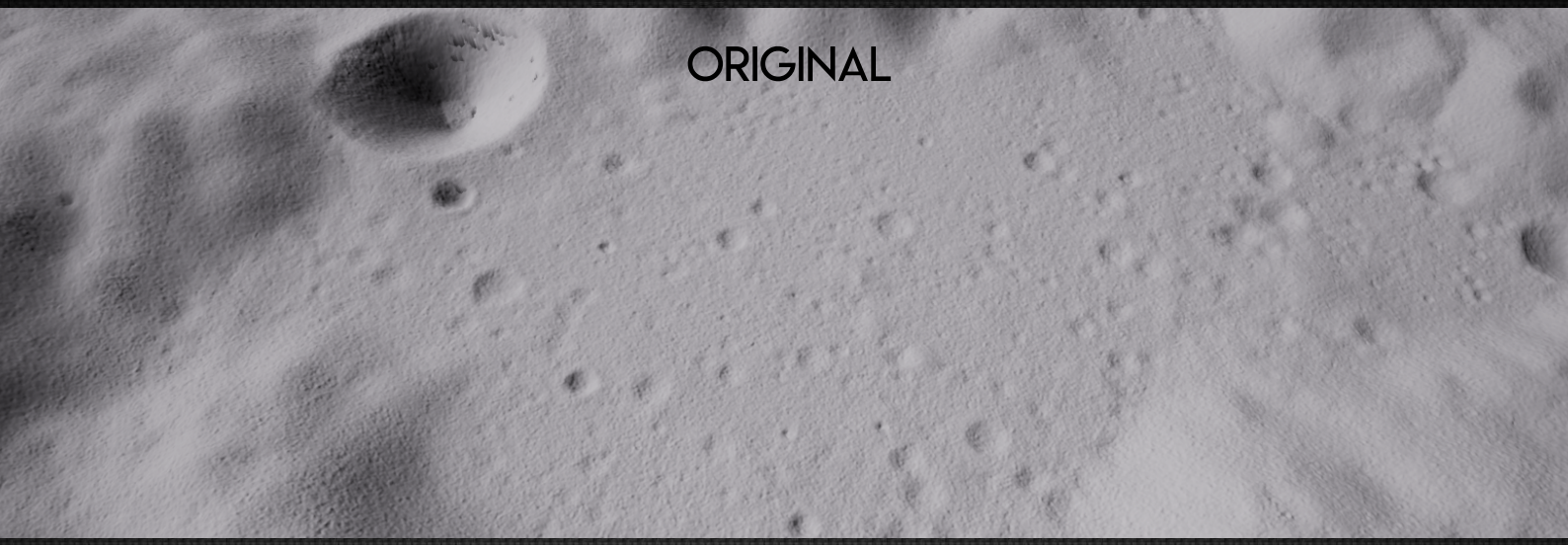
SPLICE Objectives Successfully Demonstrated:

- Functional data flow between Intertial Measurement Unit (IMU), camera, laser range finder, Vision Processing Unit (VPU) apps, and CPU navigation
- Moding and operation of CPU navigation from console Grafana apps
- Stability of CPU navigation processing synthetic star tracker and crater tracking data
- Processing of laser range finder data live in motion over SPLICE tiles
- Generation and processing of Delta-Position (DPOS) measurements in lateral, vertical, and coordinated motion over SPLICE tiles
- Crater Detection Algorithm (CDA) operation over SPLICE tiles
- Image collection and coordination with IMU data across a variety of lighting and tile configurations for offline analysis and testing of the Crater Identification Algorithm (CIA), Hazard Detection Avoidance (HDA) software, and DPOS



SYNTHETIC MOON IMAGE GENERATION CLEARS A PATH FOR IM-1 LANDING

In order to navigate lunar terrain and avoid hazards during landing, IM is using synthetic imagery to train the lander's camera algorithms to detect craters and large boulders. Synthetic imagery generation involves placing Digital Elevation Models (DEMs) in specific lighting conditions to reproduce what the spacecraft's camera would see during the actual mission.



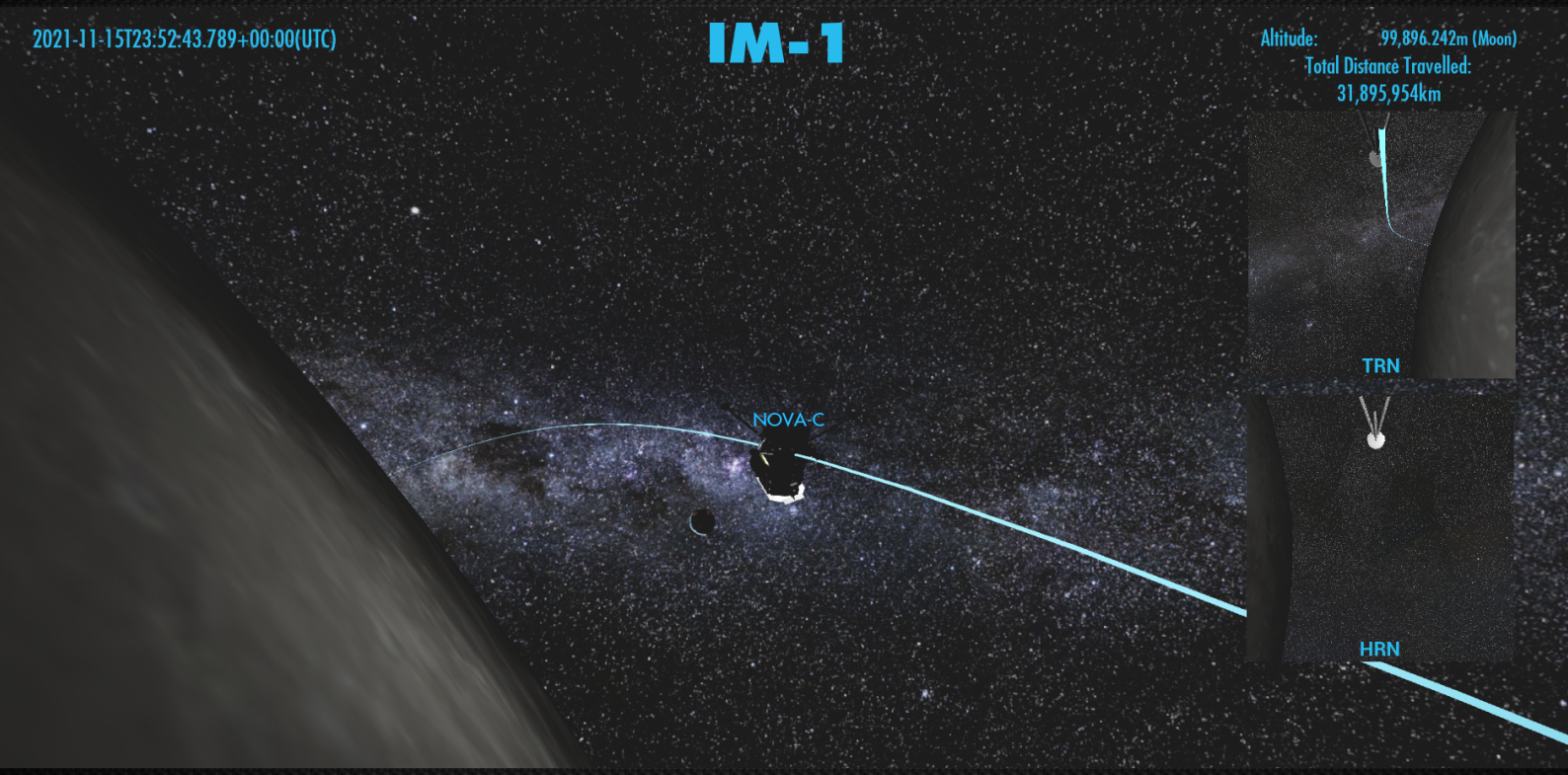
ORIGINAL

- IM is improving the synthetic imagery resolution with image data using a combination of computer graphics software
- The game engine, Unreal Engine 4, is being used to apply high-definition lunar surface shades on top of the pre-existing images to improve the resolution
- Additional normal maps to create more distinct craters are being generated in Substance Painter and layered on top

SYNTHETIC IMAGE

POWERED DESCENT INITIATION SIM, GO

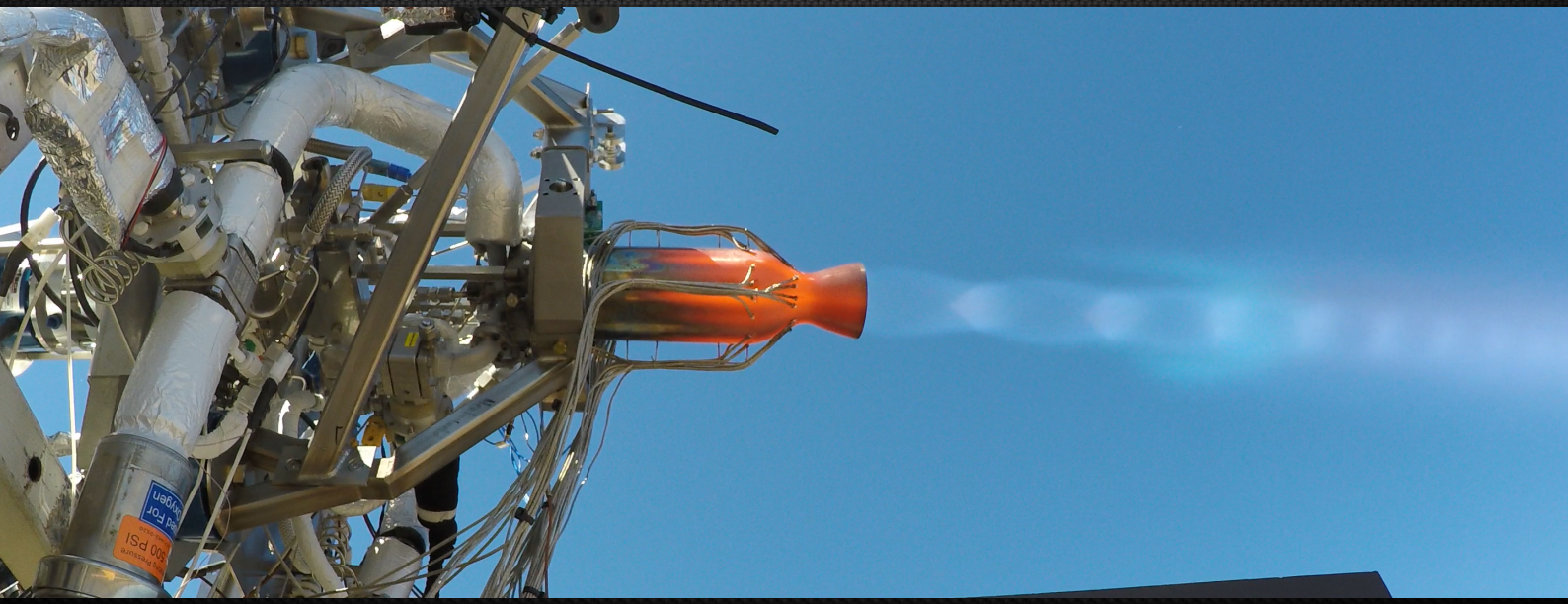
IM Mission Controllers successfully completed Powered Descent Initiation (PDI) training inside Nova Control.



- Demonstrated the first end-to-end descent and landing sim featuring dry runs of our Descent Orbit Insertion (DOI) burn and powered descent to landing at the surface
- Visualization of landing site including a simulated elevation relief terrain at the final stages of descent was deployed and used in the control room
- Nova Control and the simulator proved that IM has the capability to put mission controllers in the critical path and take certain mission issues and elevate them in a way beyond design to allow learning, evaluation, and iteration to occur to contribute to mission success

HOT FIRE 44 MOVES LANDER ENGINE TOWARD QUALIFICATION ON MOBILE TEST STAND (MTS)

Hot Fire 44 maintained IM's perfect safety record and achieved all testing goals. Our ability to dial up burn duration while maintaining thermal stability has been outstanding. The VR900 engine has the performance we need and we are continuing to refine the flight design to improve reliability.



- Adjusted mixture ratios
- Adjusted throttle rate
- Simulated two landing sequences with throttle downs and low power level shutdowns
- Performed 11 vacuum ignitions of the main engine igniter qualification unit

VERTICAL TEST STAND (VTS) EQUIPPED FOR FLIGHT TESTING

IM's VTS will test the fully integrated Nova-C propulsion system. Engineers accelerated VTS infrastructure production and integration.

- Final design for gimbal stand complete and started manufacturing
- Mounted blast wall
- Completed work on power and avionics cabinets
- Finished fire extinguisher assemblies
- Integrated helium and propellant tank stands
- Insulated propellant tanks
- Installed helium and propellant tanks into tank stands

CLPS EMPLOYEE SPOTLIGHT

GOING VERTICAL WITH IM BUILD MANAGER, MIKE WATTS

I joined the team at IM late November 2020. From the day I walked in, I started working on building a Vertical Test Stand (VTS) for the VR900 engine. In two weeks, we had flat-bed truck purchased and delivered to the Spaceport. In two short months we've completed the VTS's main components and have them on site being installed now. Final design for the rocket mount is complete and the newly designed gimbal is in stress test simulations. We are 90 percent complete with the VTS. To work safely at that speed is incredible, and its 100 percent possible because of *how* we work.
Increasing the sense of urgency is the most important step to completing agile work. Everyone on the team understands what we're trying to accomplish and how long we have to complete the job.

I've worked in R&D and design type manufacturing for years and I know that transitioning to high volume manufacturing is a mentality where you don't take no or maybe for an answer. There's always an innovative solution to get the job done even when the needed work is being completed by an outside vendor. We are upfront with vendors about our ambitious timelines and communicate the same sense of urgency we have at our level. Still, sometimes that's not enough and we do hit blockages in our production timeline that are out of our control. In those rare cases, we all come together to find ways to continue making meaningful progress and stay on schedule.

We are completing this essential piece of equipment faster than anyone else because no one works like us.

-Mike Watts, Build Manager

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