Simulation Exploration Experience 2018 Overview

Stephen Pagliolonga,
Priscilla Elfrey,
Edwin Z. Crues

SISO Winter 2018 SIW

Overview of the Overview

- SEE Mission Statement and Purpose
- What is SEE?
- Benefits of SEE
- The Power of Partnership
- How to Participate
- SEE Background and History
- Mission Elements
- Foundational Infrastructure
- Success Stories
- Special Thanks to Bill Waite
- Nothing Like It!

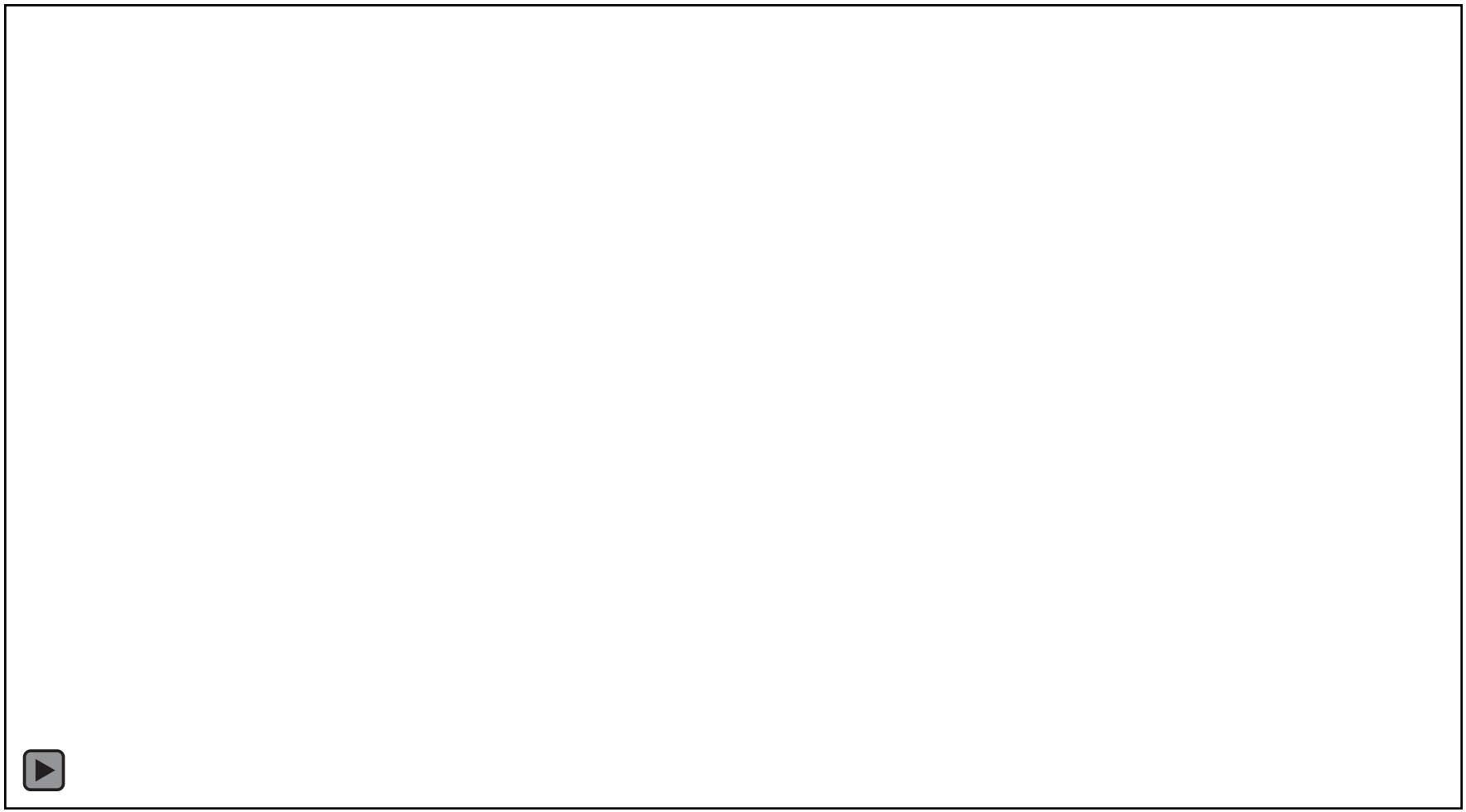
SEE Mission Statement and Purpose

- Mission: Join students, industry, academia, and professional organizations in breaking down barriers to employability by building modeling and simulation proficiency and developing career confidence
- Purpose: Create collaborative college-level modeling and simulation educational opportunities as highly-dispersed inter-university teams design, develop, test and execute simulated space exploration missions

What is SEE?

- The Simulation Exploration Experience (SEE) joins students, industry, professional associations, and faculty together for an annual modeling and simulation (M&S) challenge
- Champions collaborative collegiate-level modeling and simulation by providing a venue for students to work in highly dispersed inter-university teams to design, develop, test, and execute simulated missions associated with space exploration
- Participating teams gain valuable knowledge, skills, and increased employability by working closely with industry professionals, NASA, and faculty advisors
- If you are a student, professor, M&S industry professional, or educator, SEE encourages you to become involved!
- Visit https://www.exploresim.com

What is SEE?



Benefits of SEE

- Student Benefits
  - SEE offers a unique opportunity for student teams to experience modeling and simulation (M&S) interoperability
  - Teams share a memorable interactive problem solving experience
  - Promotes the use of professional M&S methodologies along with extensive coordination among interdisciplinary, diverse and dispersed teams
  - Enhances a student's employability & job readiness
  - Creates strong professional networks, valuable information resources and increases participant credibility and visibility in the job market
- Educators
  - Provides a venue for the application of M&S to relevant problems
  - Gives access to leading M&S practitioners in government, defense, academia and industry

Benefits of SEE *(Continued)*

- Mentors
  - An opportunity to share knowledge, expertise and lessons learned with the next generation of M&S practitioners
- Sponsors
  - An opportunity to expose the next generation of M&S practitioners to your industry leading applications and middleware
  - An opportunity to cultivate, identify and establish relationships with the next generation of M&S professional and potential employees

The Power of Partnership

- SEE relies on the participation and generosity of numerous partners
  - https://www.exploresim.com/partners
- They provide licenses, hosting, educational material, mentoring, etc.

SISO Simulation Interoperability Standards Organization
"Simulation Interoperability & Reuse through Standards"

PITCH

SCS THE SOCIETY FOR MODELING & SIMULATION INTERNATIONAL™

VT MAK
A company of VT Systems

AEgis TECHNOLOGIES

FORWARDSIM

VSee

MBDA MISSILE SYSTEMS

GICSR

CRTN Solutions, LLC

AIHEC AMERICAN INDIAN HIGHER EDUCATION CONSORTIUM

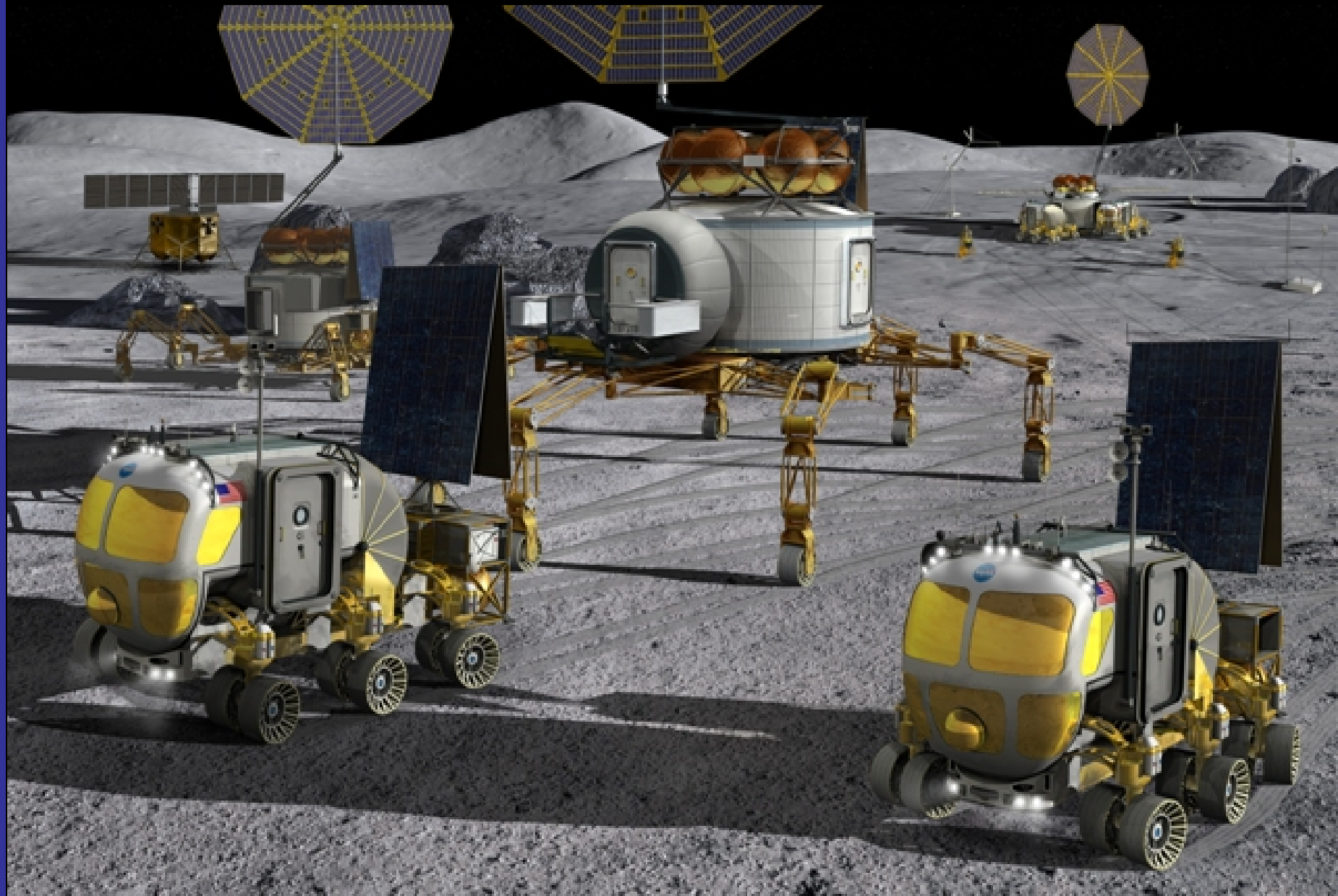
How to Participate

- Student Teams
  - Must have at least one college faculty advisor
  - Must have at least one student with knowledge of C++ and/or JAVA and readiness to learn HLA Evolved, use standards and participate in an inter-university international simulation experience
  - May join as a class, independent researchers, a departmental project, inter-department or inter-university undertaking
  - Must fill out and submit the team official interest form: https://www.exploresim.com/interest-form
  - Wait to be contacted by SEE General Manager - Stephen Paglialonga
  - Participate in technical meetings, tutorials, testing sessions and ultimately the SEE event
- Educators
  - Be a faculty advisor for a team
  - Use the SEE activities as part of a class design project
  - Co-author papers with student team participants
- Mentors
  - Volunteer through the Technical Committee
  - Will be connected with one or more student teams
- Sponsors
  - Contribute products, personnel, expertise, facilities, prizes, and/or funding
- Leadership
  - Volunteer to be on a SEE committee: Outreach, Planning or Technical

SEE Background and History

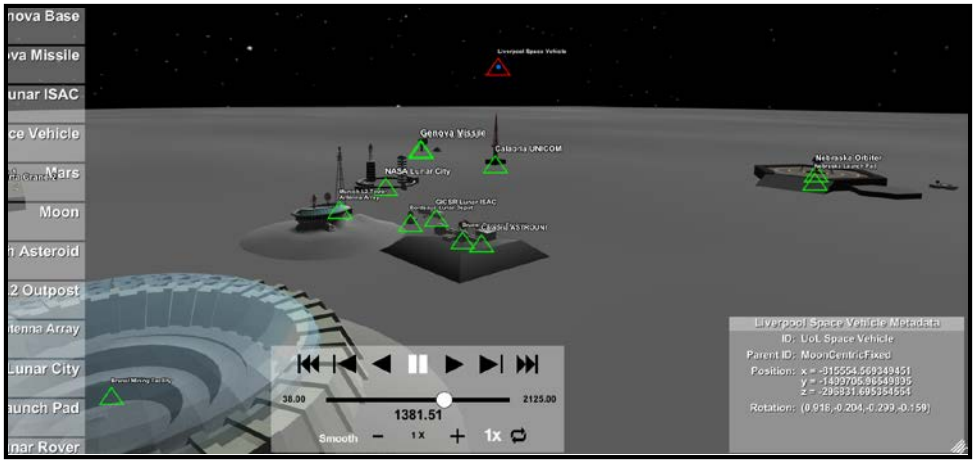
- Originally proposed as the SISO Simulation Smackdown at the SISO Fall 2009 SIW in Orlando, FL
- A core group worked to build consensus support through 2009 and 2010 with generous support from SISO and particularly Bill Waite
- Kicked off initial event planning and activities at SISO Fall 2010 SIW
- Held inaugural event at the 2011 SISO/SCS Spring Simulation Multi-Conference in Boston, MA
- Rebranded as the Simulation Exploration Experience (SEE) in 2014
- Hold events annually every Spring with most recent in April 2017
- Lunar exploration has been the core mission scenario since 2011
- Mission expanded to include a Mars surface exploration component in 2017
- Will hold 8th annual event as a distributed event in April 2018

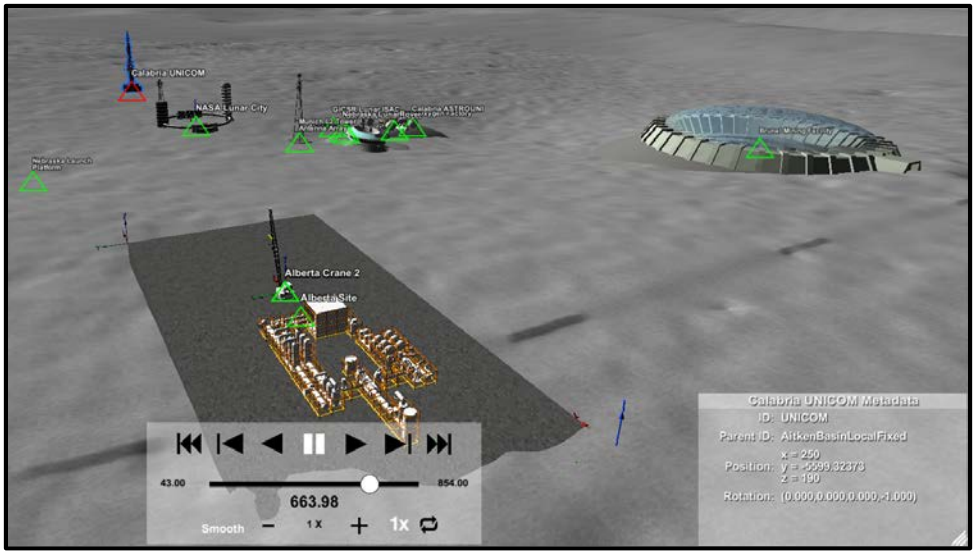
Mission Elements



Mission Elements

- Simultaneous operations
- Lunar Elements
  - Lunar landing craft, rovers and drones
  - Lunar communications network
  - Electromagnetic launcher
  - Waste management
  - Asteroid mining
  - Asteroid protection
- Mars Elements
  - Rovers, surveyors and harvesters
  - Fuel production
  - Maintenance and operations





Foundational Infrastructure

- Professional Products, Processes and Tools
  - VPN connectivity
  - Commercial RTIs hosted on cloud servers
  - Web based collaboration and knowledge management services
  - Video conferenced meetings
  - Industry standard distributed computing tools and products
- Guidance
  - Team of experienced mentors from NASA, academia and industry
  - Weekly technical exchange and support meetings (Jan – Apr)
  - Training and tutorial material

Success Stories

- Former Participants
  - **ZuQun Li** is an alum of the 2011, 2012 and 2013 SEE events. ZuQun is now working in the Simulation and Graphics branch at NASA's Johnson Space Center
  - **Paul Grogan** is an alum of the 2011 SEE event and is now a professor at Stephens Institute and a SEE faculty advisor
  - **Bingyang Wei** is an alum 2012 and 2013 SEE events and is now a professor at Midwestern State University and SEE faculty advisor
  - **Alberto Falcone** is an alum of the 2012, 2013, 2014 and 2015 SEE events, was a mentor for the 2016 and 2017 SEE events. Alberto was a visiting researcher in the Simulation and Graphics Branch at NASA's Johnson Space Center in 2016. He received his Ph.D. from the University of Calabria in July 2017
  - Many other former SEE alum are now M&S practitioners
- SISO Space Reference FOM
  - SEE and the FOM developed to support SEE was a stimulus for the development of the **Space FOM**
  - SEE is an active test activity for the Space FOM

Special Thanks to Bill Waite

1946 - 2015

Faculty say,
“Nothing out there like it.”