EC **2021 SIW (author)**

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

| New Submission | Submission 28 | 2021 SIW | Premium | Conference | News | EasyChair |

2021 SIW Submission 28

If you want to **change any information** about your paper, use links in the upper right corner.

For all questions related to processing your submission you should contact the conference organizers. Click here to see information about this conference.

Update information
Update authors
Add files

Withdraw

Submission 28	
Title:	REPEATABLE UNIT TESTING OF DISTRIBUTED INTERACTIVE SIMULATION (DIS) PROTOCOL BEHAVIOR STREAMS USING WEB STANDARDS
Author keywords:	DIS X3D Java Open source
Abstract:	The IEEE Distributed Interactive Simulation (DIS) protocol is used for high-fidelity real-time information sharing among simulations and trainers across the entire international Modeling and Simulation (M&S) community. If archivally saved and replayed, DIS streams have the potential to become a valuable source of Big Data. The availability of archived prerecorded behavior streams for replay, adaptation, and analysis can benefit an immense variety of application areas. The computer science principle "a stream is a stream" indicates that data in motion is equivalent to data at rest. This characteristic can enable powerful capabilities for DIS. This thesis presents prototypes to demonstrate how various forms of repeatability are key to gaining improved benefits from DIS stream analysis. Unit testing of DIS behavior streams allows confirmation of both repeatability and correctness when testing all manner of applications, exercises, simulations, and training sessions. A related use case is automated after-action review (AAR) from recorded DIS streams. This thesis also shows how a DIS stream is converted into autogenerated code that can animate an X3D Graphics model. Many obstacles were overcome during this work, and so various best practices are provided. Of note is that unit testing might even become a contract requirement for incrementally developing and stably maintaining Live Virtual Constructive (LVC) code bases. Recent progress includes autogeneration of all SISO enumerations as Java classes and development of a complete type-safe XML Schema for a DIS-XML encoding as well. This progress provides many opportunities for future work including C-DIS and DISv8 activity. Thesis online at https://calhoun.nps.edu/handle/10945/65436
Submitted:	Nov 10, 04:21 GMT
Last update:	Nov 10, 04:21 GMT
Paper/Presentation	The authors are submitting an abstract for a Paper accompanied by a presentation.
SIW Registration and Attendance	Potential authors agree that for a paper/presentation to be selected for presentation and eventual publishing, at least one author will register for and attend the virtual conference, and present the paper/presentation.
Non-exclusive world rights	Author(s) agree to provide signed Paper/Presentation Clearance Release Form with submission of paper and/or presentation.
2021 Virtual SIW Privacy Policy	I understand and accept.

first name	last name	email	country	affiliation	Web page	corresponding?	presenter
Don	Brutzman	brutzman@nps.edu	United States	NAVAL POSTGRADUATE SCHOOL (NPS)	https://faculty.nps.edu/brutzman	✓	✓
Terry	Norbraten	tdnorbra@nps.edu	United States	Naval Postgraduate School (NPS)		✓	
Tobias	Brennenstuhl	tobiasbrennenstuhl@bmvg.bund.de	Germany	Bundeswehr		✓	

Authors