## **I/ITSEC 2021 DIS 101 Tutorial Outline**

* What is distributed simulation? Scaling from isolated networks to the Web.
* Military modeling & simulation, distributed simulation standards, interoperability
* Underlying TCP/IP network requirements common to all distributed simulations
* DIS: goals, design principles, basic structure, stability, Entity State PDUs explained
* DIS: distributed identification of all participants, Entity Types and Entity IDs
* DIS: tracks and Coordinate Systems, real time clocks, packet PDUS, code APIs
* DIS: collisions, shooting, Dead Reckoning, Smoothing, visual synchronization
* DIS and Open-DIS: DIS standard development, ongoing implementation efforts
* Resources and References for further activity, including latest open-source software builds

Several areas of future work are in progress. Supplementary materials include summaries for

* Support for SISO standardization work-in-progress on DIS version 8 and Compressed DIS (C-DIS)
* DIS PDU recording/playback/streaming for interpolator-driven X3D Graphics visualization in HTML
* Experimental XML Schema, stream processing, and potential Big Data analytics
* Data Format Description Language (DFDL) parsing/unparsing and DIS Ontology for Semantic Web
* Potential addition of OpenDIS7 library in Python programming language and a OpenC2SIM bridge

Complete tutorial slideset is maintained and regularly updated online as part of an NPS graduate course at

* <https://gitlab.nps.edu/Savage/NetworkedGraphicsMV3500/tree/master/conferences/IITSEC2021>

For a corresponding half-day Open-DIS workshop, these materials will be customized to meet the needs of I/ITSEC participants. We emphasize numerous programming examples and encourage participants to run code themselves, on their laptops during the tutorial and with community support before/after the workshop. Helpful feedback from IITSEC 2020, SISO SIW 2020 and VIITSEC 2021 make this tutorial and workshop appropriate as a regular offering that complements the regularly offered Friday workshop on HLA and TENA.

Full NPS MOVES course materials on Networked Simulation with primary emphasis on DIS are found at

* <https://gitlab.nps.edu/Savage/NetworkedGraphicsMV3500>

Open-DIS library projects are maintained online in open source at <https://github.com/open-dis>

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