Deformable Buildings in Synthetic Environments
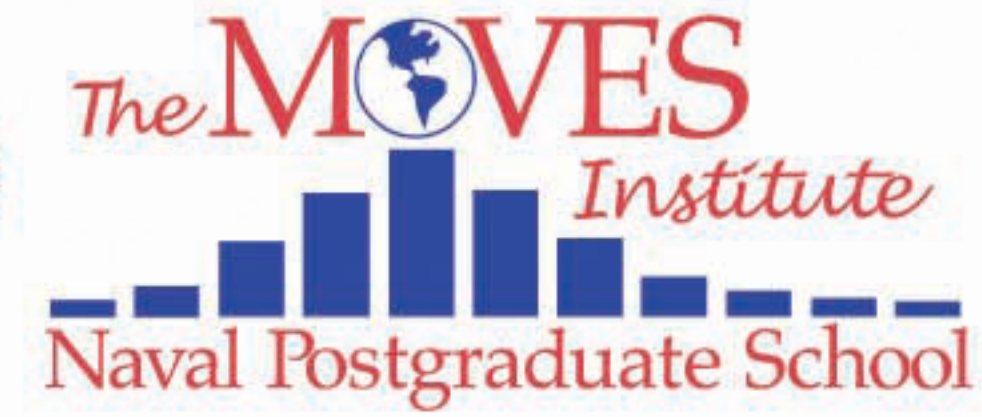
Physics-based Interactions using X3D Graphics and XML Interchange

The MOVES Institute
Naval Postgraduate School

Motivation

Combined capabilities for OneSAF Objective System (OOS)

Analytical and training applications

Rehearsal, Reality, Replay

Web-compatible standards for open data re-use

Extensible Modeling & Simulation Framework (XMSF)

Technologies

Extensible 3D Graphics (X3D) for rendering & physics computations

XML Interchange between formats

CAD Model Conversion

Ultra High Resolution Buildings (UHRB)

Future Work

Integrate high-resolution physics engines

Web Services accessibility, use of SEDRIS with XML

Integrate open-source Java Xj3D software with OOS

Possible Configuration Change Board (CCB) to ensure interoperability for future revisions

Repeatable design pattern to connect multiple models

Compatible approach for terrain rendering & deformation

Process

ERDC Rapid Building Generator

UHRB Building Schema

UHRB Editor

UHRB Building .xml

X3D-UHRB Building prototypes

Physics-based Shooter Applications
- collision detection
- munitions, sensors
- deformations

Distributed via DIS

SAVAGE Library Models, DTED