

Towards an Automated Process for Updating and Translating 3D Models and Terrain Databases to Meet New Simulation Requirements

Bob Kuehne

ABSTRACT

There is an increasing demand within the Modeling and Simulation (M&S) community to support a greater number of disparate simulation terrain formats and 3D models. Even with ongoing efforts to standardize the use and implementation of terrain databases through initiatives such as the Common DataBase (CDB) and NPSI, there remains an expanding need to support multiple visual, gaming, and SAF terrain formats already in use on various training platforms. Many times, a high-quality terrain database with complex 3D models may have already been developed for a given simulation format but are incompatible with another, possibly newer, simulation format without significant manual re-work of the terrain database and 3D models. As a result, significant costs and resources are employed to manually generate these complex and realistic synthetic environments (often-times using expensive domain experts) and each time a new simulation platform is introduced into the training program, the same labor intensive operations need to be performed to rebuild the new database and 3D models. Moreover, while the appetite for more realistic 3D content increases, terrain database developers are often required to utilize their existing resources within the same budget and timeline constraints while fulfilling greater expectations to support multiple simulation formats. As a result, database developers are looking for more efficient and cost-effective processes and methodologies for reusing existing terrain content when new simulation formats are introduced into their training programs. One solution for this problem is to reduce the amount of time and effort needed to manually recreate the new terrain formats and 3D models through the use of *automated data translation procedures* that intelligently ‘update’ existing terrain content and 3D models to then new data structures and attribution requirements. This paper will present the ongoing results and efforts to develop an application for reconfigurable and automated data translation procedures to reduce 3D model modernization costs and create a repeatable workflow for more efficiently reusing existing terrain content in new simulation formats. Our goal is to introduce a flexible and automated solution for reusing and updating existing terrain content and 3D models to save valuable time and money when supporting new simulation platforms.

BIO

Bob Kuehne

Bob Kuehne is an entrepreneur currently acting as CEO of Blue Newt Software (BNS) and President of Renaissance Sciences Corporation (RSC). Each company performs work in visual simulation, developing products and services for the commercial and governmental markets respectively in order to bring data to life. RSC creates visual simulation training systems to familiarize and train pilots, spec ops forces, and soldiers in night vision system operation, flight simulation, and location-based tracking systems for defense customers around the world. Blue Newt creates driving simulators for major auto companies such as Ford and Mercedes, and is currently deploying the first real-time live player tracking system for a major American football league. Bob volunteers time to mentor other entrepreneurs and is a board member for the Detroit chapter of Entrepreneurs Organization.