

Fit-for-use indicators for identifying appropriate terrain databases

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ABSTRACT

Environment databases are typically examined for the quality of their imagery, elevation, and cultural elements as well as how closely these correlate with the source data from which they were derived. However, the crucial element of determining whether a collective group of systems is suitable for a particular application or training mission is often not examined as closely. To address this issue for the US Navy, a new set of metrics were developed entitled Fit-for-Use. Fit-for-Use is a matrix of categories and minimum data requirements used to determine whether a system is sufficient to perform a training mission. The Fit-for-Use categories are mapped to the required tests, input parameters and thresholds to those tests, and the level of success that must be achieved by the tests in a format that can be maintained by Subject Matter Experts. Although the investigation had a goal to identify and document all of the integrity and correlation issues faced by Navy flight simulator programs, these categories are extensible to ground simulation or other domains. This paper details the issues that led to the investigation, the process for determining the Fit-for-Use categories and requirements, current and potential applications, and finally, presents future research objectives.

BIO

Mr. Jeremy Joseph is a senior software engineer at GameSim where he focuses on research programs involving terrain correlation and virtual environments. Jeremy has over 10 years of experience with Modeling and Simulation and Software Engineering. Prior to GameSim, Jeremy held the positions of CTO/Co-Owner at Aptas Technologies, Emerging Technologies Manager and Director Technical Services at Presagis and Software Engineer, Chief Engineer, Program Manager, and Deputy Division Manager at SAIC (now Leidos) in Orlando, FL. His specialization is in modeling, simulation, gaming, web, and mobile development for research, development and production contracts as well as product development. He has previously held key positions as OLIVE Program Manager (PM), Constructive Division Deputy, OLIVE Chief Engineer, IRAD Principal Investigator, and Deep Green Software Engineer. Jeremy's education includes a Bachelor of Science in Computer Engineering and a Master of Science in Modeling and Simulation from the University of Central Florida (UCF). He is currently pursuing a Doctor of Philosophy in Modeling and Simulation also from UCF and is a Certified Modeling and Simulation Professional. Jeremy has been the chair of the virtual worlds committee for the Defense GameTech conference. He is also a member of the UCF Engineering Leadership & Innovation Institute (ELI2) Industry Working Group and a mentor for UCF's Senior Design and Young Entrepreneur and Scholar (YES) programs.