Announcing the Final Examination of Benito Graniela for the degree of Doctor of Philosophy

Time & Location: November 4, 2011 at 1:00 PM in Partnership 2 301
Title: HARMONY: AN ARCHITECTURE FOR NETWORK CENTRIC HETEROGENEOUS TERRAIN DATABASE RE-GENERATION

This research investigated an alternative modeling and simulation terrain database generation paradigm that rapidly harmonizes changes in target formats throughout a distributed simulation system while accommodating bandwidth and processing time limitations. This dissertation proposes a “distributed partial bi-directional terrain database re-generation” paradigm, which envisions network based terrain database updates between reliable partners. The approach is very attractive as it reduces the amount of processing and bandwidth required to distribute locally emergent changes throughout a distributed system by only updating the affected target format data elements. In the prototype theoretical architecture that implements the approach, agent theory and ontologies are used to interpret data changes in external target formats and implement the necessary transformations on a server internal terrain database generation system. These changes are then distributed to clients to achieve consistency between all correlated representations. Experimental findings with the prototype suggests smaller network utilization and processing times than conventional terrain database generation will experience while maintaining correlated heterogeneous terrain database representations over time. This Bi-Directional Ontology-driven TDB Re-Generation Architecture has the potential to revolutionize the traditional terrain database generation pipeline paradigm.

Major: Modeling and Simulation

Educational Career:
Bachelor's of B.S.E Electrical Engineering, BS, 1985, Universidad de Puerto Rico, Mayaguez
Master's of M.S.E Computer Engineering, MS, 1992, University of Central Florida

Committee in Charge:
Dr. Michael Proctor, Chair, IEMS
Dr. Avelino Gonzalez, EECS
Dr. Paul Wiegand, EECS
Dr. Brian Goldiez, IST
Dr. Robert M. Cox, U.S. Army PEO STRI

Approved for distribution by Dr. Michael Proctor, Committee Chair, on October 10, 2011.

The public is welcome to attend.