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13. ABSTRACT (Maximum 200 words) This paper describes advances in the development IR/EO scene generation to support the Infrared Sensor Stimulation system (IRSS) which will be used for installed system testing of avionics electronic combat systems. The IRSS will provide a high frame rate, real-time, reactive, hardware-in-the-loop test capability for the stimulation of current and future infrared and ultraviolet based sensor systems. The IRSS program is a joint development effort under the leadership of the NAWCAD, Air Combat Environment Test and Evaluation Facility (ACETEF) with close coordination and technical support from the Electronic Combat Integrated Test (ECIT) Program Office. The system will be used for testing of multiple sensor avionics systems to support the DT&E and OT&E objectives of the U.S. Navy and Air Force. Scene generation in the IRSS is provided by an enhanced version of the Real-time IR/EO Scene Simulator (RISS) which was previously developed by Amherst Systems. RISS utilizes the symmetric multiprocessing environment of the Silicon Graphics® Onyx2™ to support the generation of IR/EO scenes in real-time. It is a generic scene generation system which can be programmed to accurately stimulate a wide variety of sensors. RISS capabilities have been greatly improved in the past year. This paper will discuss the addition of new simulation techniques which have been added to the system to better support the high resolution, geospecific testing requirements of a new generation of imaging sensors. RISS now better supports the use of high resolution databases which contain material maps at photo realistic precision. Other developments which will be discussed include extensive improvements to the databases and scenario development tools, advancements in the support for multiple synchronized scene generation channels, and new support for sea and ship models.				
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Conference: Technologies for Synthetic Environments: Hardware-in-the-Loop Testing III

Conference: Technologies for Synthetic Environments: Hardware-in-the-Loop Testing IV

Conf. Chair: Robert Lee Murrer, Jr., Air Force Research Lab

Title: Advancements in Real-Time IR/EO Scene Generation Utilizing the SGI Onyx2

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Presentation: Oral

Abstract:

This paper describes advances in the development IR/EO scene generation to support the Infrared Sensor Stimulator system (IRSS) which will be used for installed system testing of avionics electronic combat systems. The IRSS will provide a high frame rate, real-time, reactive, hardware-in-the-loop test capability for the stimulation of current and future infrared and ultraviolet based sensor systems. The IRSS program is a joint development effort under the leadership of the Naval Air Warfare Center - Aircraft Division, Air Combat Environment Test and Evaluation Facility (ACETEF) with close coordination and technical support from the Electronic Combat Integrated Test (ECIT) Program Office. The system will be used for testing of multiple sensor avionics systems to support the Development Test & Evaluation and Operational Test & Evaluation objectives of the U.S. Navy and Air Force.

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Hardware-in-the-Loop Simulation

ABSTRACT ONLY

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Biography:

Mr. Makar is a principle software engineer at Amherst Systems. His primary duties involve the design, implementation and testing of real-time IR rendering algorithms for a variety of computational platforms. Mr. Makar is the Project Engineer of the Infrared Sensor Stimulator System (IRSS) development program for the Navy. In this function, he oversees design, development and testing of all aspects of real-time IR/EO modeling and simulation on SGI platforms. In the past, Mr. Makar has been involved with a variety of visual and IR rendering projects. Mr. Makar holds a Master's degree in Computer Science from the State University of New York at Buffalo.