WRIVA

WALK-THROUGH RENDERING FROM IMAGES OF VARYING ALTITUDE

INTELLIGENCE VALUE

The WRIVA program aims to develop software systems to perform site modeling in scenarios where a limited volume of ground-level imagery to enable mission rehearsal and planning. WRIVA will bring the advantages of site modelling to a variety of law enforcement and intelligence applications by providing a low-cost, low data requirement, rapid, and agile modelling capability for large scale scenes of 2 city blocks.

Site models are highly desired to allow personnel to train and rehearse prior to executing a mission, but typically require a large volume of carefully collected data. Many agencies in the U.S. Intelligence Community, Department of Defense, or law enforcement require this capability to enhance safety while conducting activities where a rich corpus of imagery is unavailable to prepare operations, such as humanitarian and disaster relief (HADR). Expanding site modelling capabilities would allow these activities to be conducted more effectively, with reduced risk to personnel.

WRIVA's goal is to develop software systems that can create photorealistic, navigable 3D site models using a highly limited corpus of imagery, to include ground level imagery, surveillance height imagery (traffic camera), unmanned aerial vehicle altitude imagery, and satellite imagery. Additionally, where imagery lacks metadata indicating geolocation, information about camera parameters, or is corrupted by artifacts, WRIVA seeks to detect and correct these factors to incorporate the imagery in site-modelling and other downstream image processing and analysis algorithms. WRIVA aims to create site models with fewer than 10 ground images ground images and geolocate cameras to within 5m.

cameras to within 5m.

PRIME PERFORMERS

- Accenture Federal Services
- Johns Hopkins University
- SRI International

TESTING AND EVALUATION PARTNERS

- Johns Hopkins University Applied Physics Laboratory
- MITRE Corporation

KEYWORDS

- Imagery
- Site modeling
- Mission rehearsal

Example 3D site models created of the Johns Hopkins University Campus using WRIVA technologies. These examples were created using still images collected at a variety of lighting and environmental conditions and from different camera and altitudes

PROGRAM MANAGER
Ashwini Deshpande
Phone: (301) 243-2034
ashwini.deshpande@iarpa.gov