

NAVY Transition Assistance Program

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NEED & CUSTOMER REQUIREMENT

Need: Surveillance/security video and infrared (IR) cameras need algorithms developed that allow for scene understanding - an automatic extraction and representation of image contents in the form of semantics, syntax, perception and grammar development.

Value to the Warfighter: The technology will allow automatic scene understanding and analysis for surveillance networks, automating video search capabilities and scene understanding. The technology will greatly reduce the workload of commanders and warfighters reviewing video in demanding environments where understanding of situations that arise and appropriate responses need to be made quickly.

Operational Gap: Closed-circuit television (CCTV) based surveillance systems employ a network of cameras to monitor large facilities and areas. These networks generate a tremendous amount of video data, and sifting through it for forensic analysis is a painstaking and tedious task, too large for human-centric approaches.

Customer Specifications: Develop a knowledge management architecture that supports forensic ability for both tagged and untagged imagery. Query both imagery and human activity. Target mensuration capabilities. Design interfaces to defense systems for support IMagery INTelligence (IMINT) within an intelligent video surveillance system.

Technology Description: Automatic visual content extraction and scene understanding is a critical enabling technology for video surveillance, security and forensic analysis applications. Capabilities include: (1) classification of numerous scene elements, (2) meta-data generation allowing easy transmission and analysis improving data fusion with data from multiple cameras and other modalities, (3) complex events detection, (4) enhanced text report generation and forensic analysis

TECHNOLOGY DEVELOPMENT MILESTONES (SBIR/STTR)

Milestone	TRL	Risk	Measure of Success	TRL Date
Video to text generation	5	Low	Human and machine readable test	9/2008
Addition of contextual cues	5	Low	More intuitive searches	9/2008
Support for GIS database	5	Low	100x faster search times	7/2009
Model experimentation and testing	6	Low	Successful demonstration on NAVSEA Port Panama City video data	12/2009
Modifications to system from experiment feedback	7	Low	Incorporation of user feedback on Panama City test results	4/2010

Open contract: N00014-08-C-0639 ending 09/2009

N07-085 - ObjectVideo

Context-sensitive Content Extraction and Scene Understanding

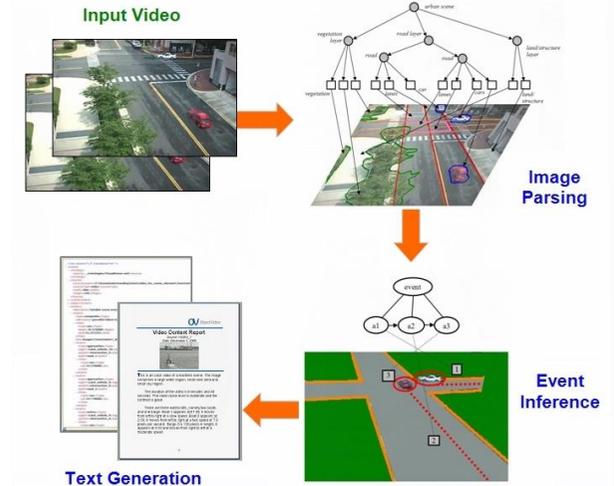
SPONSORSHIP of original SBIR/STTR Topic

SYSCOM: ONR - SBIR

Transition Target: Submarine Sensor Systems Program Office (PMS-435)

Original Sponsoring Program: PMA 281, PM-SOMPE (Special Operations Mission Planning Environment), PEO-C4I

TPOC Phone Number: 703-588-2439



TECHNOLOGY TRANSITION OPPORTUNITIES (PHASE III)

Other Potential Applications:

Additional applications for this video search and analysis technology include: 1) UAV surveillance video 2) site-wide threat level analysis and assessments of harbors, Naval bases, and large urban security operations.

Potential users include:

- UAVs with super-hi resolution cameras such as Angel Fire, Constant Hawk, Argus-IR, Gorgon Stare
- Air Force Electronic Systems Center - Integrated Base Defense Security System (IBDSS)
- Distributed Common Ground System (DCGS) and the Aegis Combat System (ACS)
- Pentagon Force Protection Agency (PFPA) and the Department of Homeland Security

Business Model:

ObjectVideo will continue to develop and increase the functionality of context-sensitive content extraction and scene understanding and then license the technology to interested firms/agencies that could benefit from our video search and alert technologies.

Objective:

ObjectVideo is seeking to develop relationships and funding opportunities with primes, such as Lockheed Martin, Boeing, and other government agencies involved in intelligence, surveillance, and reconnaissance applications, homeland security, and law enforcement that could benefit from enhanced video search and analysis capabilities.