

Prototyping for Dragon Eye Program

Reason for the Dragon Eye Program

The U.S. and its allies increasingly rely on surveillance video from mobile assets such as Unmanned Autonomous Systems (UASs) to determine when objects and events of interest occur in a surveilled location. Video data from a variety of U.S. Department of Defense (DoD) platforms is proliferating in the modern battlespace, and expanded dissemination of this video makes it widely available for use.

The detection of artifacts of interest in streaming surveillance video is manually intensive. As the volume of video data from continues to increase, automated video summarization that highlights artifacts of interest is needed.

The Space and Naval Warfare (SPAWAR) Dragon Eye system is intended to provide the means to mine and automatically capture information from social media video simultaneously using multiple video analytics engines. This system will enable multiple users to extract more information in less time from increasingly large amounts of video.

The Reason SPAWAR Worked with the SEI: Rapid Development

SPAWAR SSC Atlantic¹ exists to rapidly deliver innovative intelligence, surveillance, and exploitation solutions to the Warfighter including shore, air, and space realms. Its support includes acquiring, designing, en-

gineering, fielding, and supporting Naval and Joint Intelligence systems to include providing solutions in identity management.

SEI expertise in modern software development practices (DevOps), user interface/user experience enhancement (UI/UX), software architecture, and analytics matches SPAWAR need to design, develop, – test and deploy a modular, open systems design for this project.

SEI's Role

In this 2017 work, the Carnegie Mellon University Software Engineering Institute (SEI) aims to

- create and build environment required to support continuous deployment of software as it is developed, supporting also creation of that same environment at the Joint Improvised-Threat Organization
- collaborate with SPAWAR and JIDO on prototype development
- evaluate the Dragon Eye system from the standpoint of UI/UX in order to deliver an improvement plan to SPAWAR
- enhance system architecture as necessary to allow for integration of new analytics, cybersecurity compliance, scalability, and resolution of identified issues
- architect and develop a set of prototype emulators (“truth” analytics) for each analytic category that the system supports. Their purpose is to support testing of the UI and other core components and provide support for integration of this

¹ SPAWAR Command, Systems Center Atlantic

system with third party analytics, including the CMU Biometrics Center Unconcluded and Occluded face detection and identification

- test the overall system business workflow with new analytics
- Automate build process on integration of new analytics, deployment into new platforms

SPAWAR Use: Provide Advanced Tools to Intelligence Analysts

When implemented, Dragon Eye will provide analysts with better tools to capture their overall knowledge by allowing the computer to shorten the time it takes for them to discover actionable intelligence.

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