

AFRL FY16 Research Topic Template – DAGSI – AFIT - USAFA

1. **Research Title:** Event/Activity Based Representation for Increased Analytic Insight

2. **Individual Sponsor:**

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3. **Academic Area/Field and Education Level:** Cognitive Systems Engineering, Human Factors, Cognitive/Experimental Psychology, Visual Analytics, Information Science (BS/BA acceptable, MS or PhD preferred)

4. **Objectives:** Explore the potential for event/activity-based representation techniques to improve analytic reasoning and inference about an observed/sensed world of interest.

5. **Description:** The motivating problem domain for this research effort is Full Motion Video (FMV) Processing, Dissemination, and Exploitation (PED) as practiced by intelligence analysts across the U.S. Air Force. Current FMV PED operations are performed by teams of analysts who share responsibility for viewing and interpreting live FMV data streams, identifying activities of interest, capturing those observations in a persistent digital form, and disseminating their findings to intelligence customers. A key analytic need in this environment is the generation of accurate and detailed descriptions of observed activities that can be communicated in real time. Key challenges that inhibit analysts from achieving success include noticing when something meaningful has occurred (detection), maintaining focus on the task (vigilance), simultaneously monitoring multiple areas of interest (attention), and organizing observations into coherent narratives (sensemaking). Techniques that integrate and then visualize data in terms of operationally meaningful events/activities have been proposed as a means to respond to these challenges, but additional research is needed to justify the expected performance benefits and, ultimately, to enable these techniques to transition to analyst tools. Candidate projects should therefore strive to extend the research base supporting the performance impacts of event/activity based visualization and representation aiding.

6. **Research Classification/Restrictions:** Unlimited public release.

7. **Eligible Research Institutions:** Indicate to what organizations this topic should be provided. Check all that apply.

DAGSI

AFIT (only)

USAFA (only)

If you are submitting a topic for the USAFA, please indicate if you are also interested in sponsoring a USAF Cadet in summer of 2014 (Avg Cost for USAF Cadet for 33 days was \$5000)

Yes No