Object Identification and Cognitive Fatigue during Visual Target Search

S&T Campaign: Human Sciences
Human Behavior

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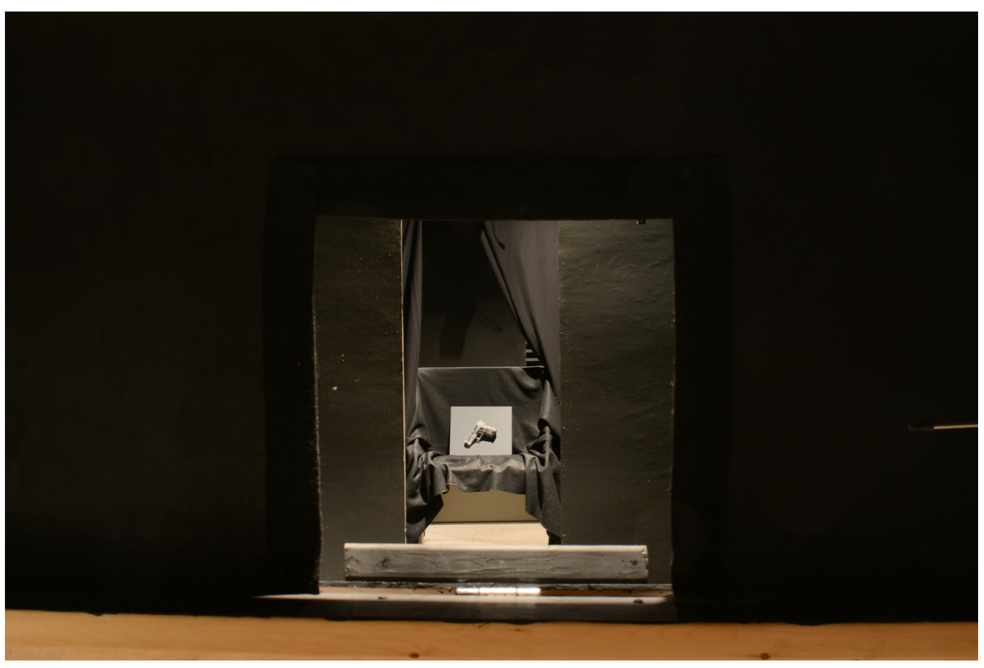
Research Objective

- **To determine how target identification ability affects target detection.**
- **To examine how real-world factors, such as time-on-task and low target prevalence, affect cognitive fatigue and target detection in self-terminating search tasks.**



Object recognition trial from recent study using night vision goggles

Challenges

- **Creating operationally realistic stimuli and data collection techniques that enable ecologically valid testing.**
- **Capturing sufficient data in experiments with long time-on-task durations and low target prevalence.**

Example of a highly cluttered carry-on bag containing a target threat (lower right corner)

ARL Facilities and Capabilities Available to Support Collaborative Research

- **Perceptual Sciences Branch, APG, MD**
  - **Environment for Auditory Research (EAR)**
  - **Video and IED Training Development Facility**
  - **Spatial Vision Perception Lab**
  - **Visual Quantification Lab**
  - **Visual Acuity and Target Acquisition Lab**
- **Dismounted Warrior Branch , APG, MD**
  - **Hostile Environment Simulator (HES)**
  - **Tactical Environmental Simulation Facility (TESF)**

- **Relevant Expertise**
  - **Night vision goggle technology and performance**
  - **Optics**
  - **IED detection training material development**
  - **Visual search R&D**
  - **Aviation security visual search research on X-ray systems and whole-body imagers**
  - **Visual search computational modeling**

Complementary Expertise/ Facilities/ Capabilities Sought in Collaboration

- **Hi-fidelity simulation programming to be used in data collection**
- **Experience in object recognition and/or visual search research**
- **Expertise in research measures of cognitive fatigue**
- **Access to reliable participant pool for long-term time-on-task studies and/or sleep deprivation studies**
- **Facilities to conduct physical fatigue (e.g., sleep deprivation) research**

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