# Effect of Cognitive Fatigue on Military-Relevant Performance

**S&T Campaign: Human Sciences**
***Human Behavior***

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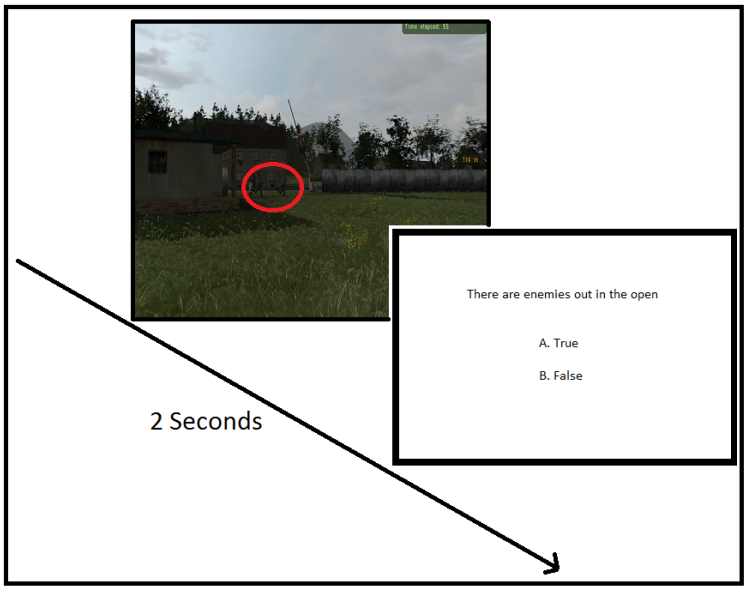
## Research Objective

- Better understand acute cognitive fatigue on risk-taking behavior in a combat simulation
- Compare competing theories related to cognitive fatigue

| **Resource Depletion Theory** | VS | **Mindlessness Theory** |
|---|---|---|
| Performance decrements when humans overloaded with information | | Performance decrements when humans underloaded with information (boredom) |

## Challenges

- Create a complex, military-relevant environment in the laboratory
- Effectively inducing different types of acute cognitive fatigue
- Develop a laboratory to measure and record this data
- Develop software to record other military relevant elements, such as situational awareness




Example of the military simulation and corresponding situational awareness probe. Enemy ambush circled in red

## ARL Facilities and Capabilities Available to Support Collaborative Research

- Newly designed C4ISR research facility at APG, MD
  - Contains eight sound attenuated “whisper rooms”
  - Stimuli presented on 55 inch monitors
  - Keyboard and mouse interface

C4ISR Lab

- Results have indicated that resource depletion relative to boredom related cognitive fatigue increases risk-taking behavior and limits situational awareness in our combat simulation

## Complementary Expertise/ Facilities/ Capabilities Sought in Collaboration

- Laboratory designed to run teams of individuals through team based combat simulations, requires
  - Programming our combat simulation to be used by teams instead of individual participants
  - Speech recognition software for team communication
  - Speech analysis software

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