

# Selection, training and intervention strategies to improve warfighter situation awareness

## OVERARCHING GOAL

To increase cognitive preparedness and cognitive capabilities of warfighters in the face of fatigue, difficult operational conditions, and battlefield complexity

## SPECIFIC AIMS

1. Developing/validating a cognitive profile tool focused on assessing skills relevant to situation awareness (SA)
2. Developing training programs to augment SA-relevant skills
3. Using cognitive profile tool to match technology and automation to human cognitive skills

## Project Design

### 1 Hypotheses

- a. A cognitive profiling tool can be developed that will allow us to empirically link specific cognitive and perceptual abilities to SA across varied tasks
- b. Some cognitive and perceptual abilities linked to SA can be improved through cognitive training (e.g., multi-tasking)
- c. The cognitive profiling tool can be used to optimize match between automation and information displays and individual human operators

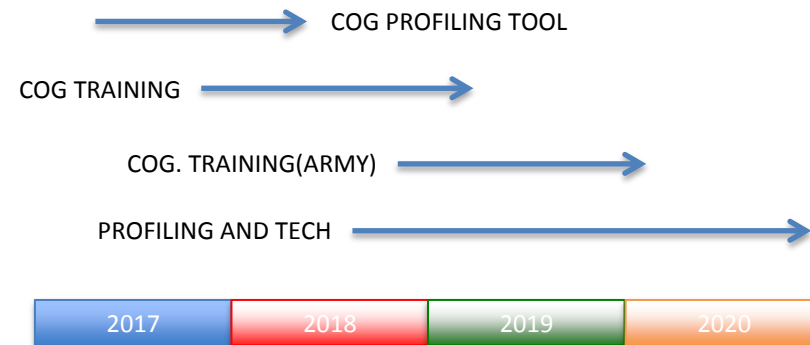
### 2 Experimental methodology

- a. computerised cognitive testing focusing on empirically-validated measures (e.g., ANT) with multiple measures assessing key latent factors (EF, multi-tasking, WM, VSTM); correlated with simulated command-and-control task performance and SA measures
- b. Computerised cognitive training to be developed using cross-platform software and focusing on best-practice experimental validation
- c. Initial validation on naïve participants, followed by confirmation with appropriate Army personnel

### 3 Deliverables

Research Element	Description	Due Date for Completion
1. Preparation for RP1	Progress report to include status of all the positions offered, start dates, and the ethics approval.	15 May 17
3. RP1 report	Report submitted. Creating/Validating a "Cognitive Profile" tool	30 Apr 18
4. Preparation for RP 2a	Progress report	15 Oct 18
6. RP2a report	Report submitted. Creating Training Programs to Augment Cognitive Skills	31 Mar 19
7. Preparation for RP 2b	Progress report	31 Oct 19
9. RP2b report	Report submitted. Validating Training Programs with Experts	28 Feb 20
12. Preparation for RP3	Progress Report	15 May 20

### 4 Timelines



## Progress, challenges & opportunities

### PROGRESS

- Achieved initial deliverables including ethics approval
- Hired research associate with cognitive training expertise; new Ph.D.(s) starting 2018
- Pilot testing of cognitive profiling tool, SA and simulation measures

### CHALLENGES

- Technical hurdles
- Simultaneous development of own plan and integration with others

### OPPORTUNITIES

- Development of army-relevant simulation for wider use
- Integration with existing initiatives (e.g. Cog Gym, HPRnet – decision making, resilience)
- Exploring match of research outputs across armed services