Research Objective

- Expand understanding of dynamic human-machine relationships with the military’s fleet of unmanned and optionally piloted vehicles
- Identify and model factors that determine effective teams, decision making, and performance, specifically for manned/unmanned teams

Challenges

- Determining approaches to maximize human performance and decrease workload given that mission requirements dictate system interoperability levels beyond the traditional human-machine interface paradigms
- Higher order system-of-system interactions add complexity to the way technology is designed, constructed, measured, and evaluated

ARL Facilities and Capabilities Available to Support Collaborative Research

- Immersive System Integration Center, which includes:
  - Collaborative Unmanned Systems Integration Laboratory
    - Networked Virtual Battlespace 3 environment
    - 8 participant workstations
    - 1 coordinator workstation
    - Audio communication network
- Human Interface Innovation Laboratory
  - HCI for touchscreen and virtual reality
  - Multi-sensory interfaces
  - Cognitively tailored interfaces
  - Data visualization

Complementary Expertise/ Facilities/ Capabilities Sought in Collaboration

- Deep learning approaches for computer vision algorithms and target detection
- Deep learning approaches for improving voice recognition
- Cognitive training for attentional control and regulation over long periods of time
- Expanded Virtual Battlespace 3 networks for larger scale experiments