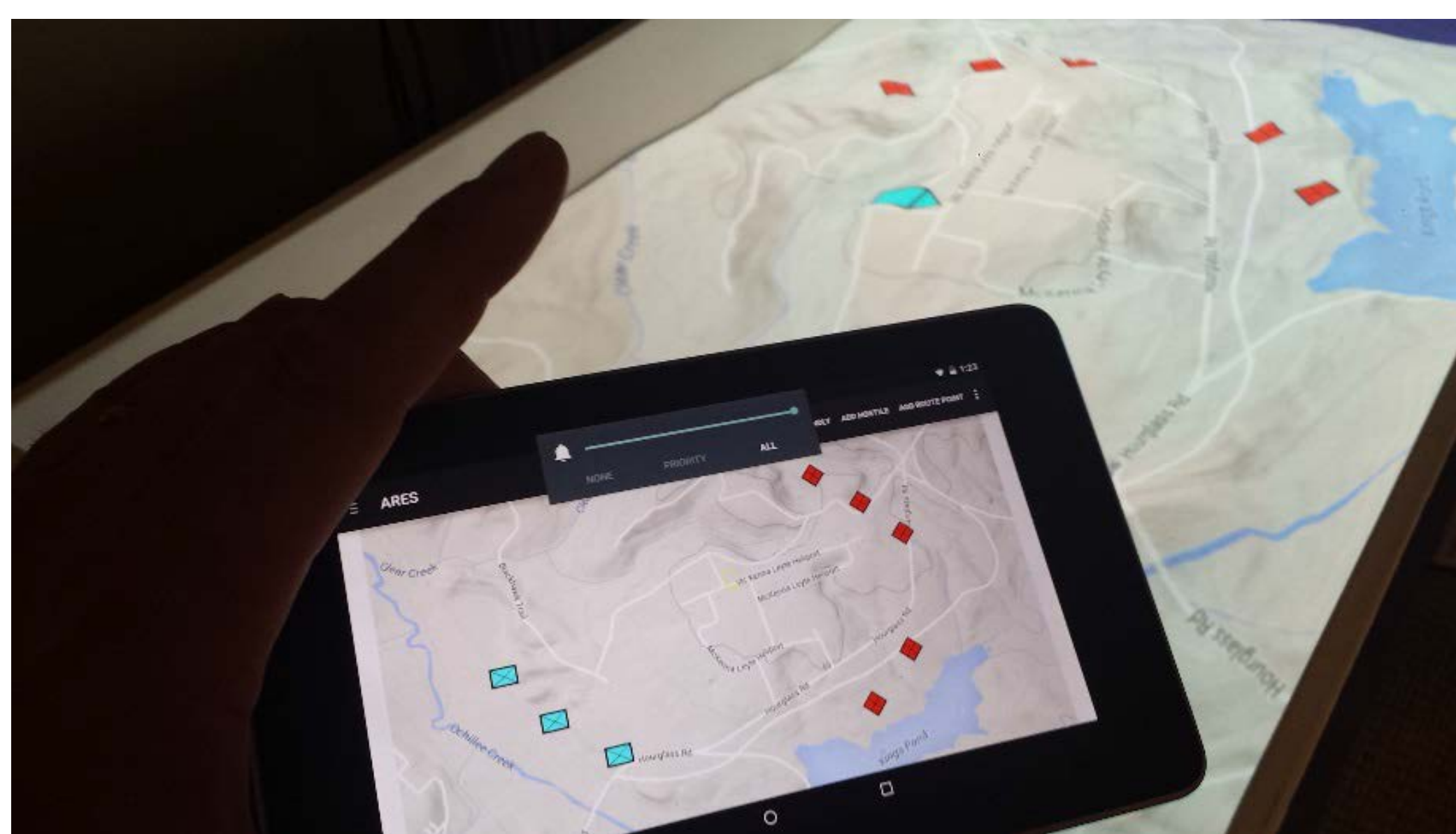


S&T Campaign: Human Sciences
Human Capability Enhancement
Training

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Research Objective

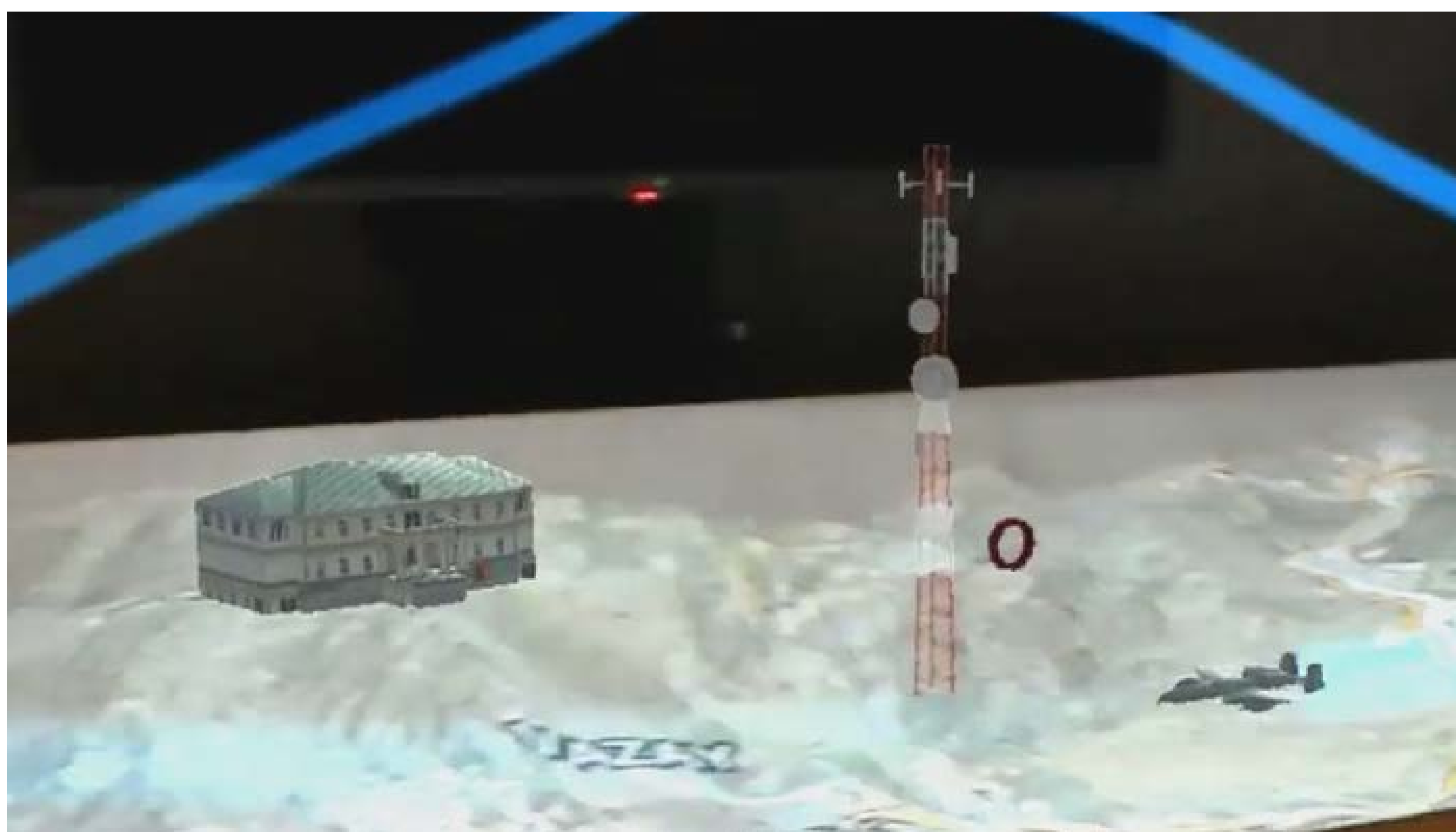
- To provide a common operating picture at the point of need that improves battlespace visualization & decision-making.
- Emphasis on interactive displays, human performance & information delivery. Focus on enabling Soldiers to effectively utilize information and make better decisions.



Augmented REality Sandtable (ARES) Prototype

Challenges

- How does interactive interface affect users' ability to visualize & fuse information coming from a multitude of sensors and data sources to efficiently make decisions?
- Can mixed reality be used to effectively instruct students through one-to-one or one-to-many methods (e.g., virtual avatars, intelligent tutors, video telecons, etc.)?
- What constraints exist on the complex content that can effectively be presented via mixed reality solutions?



Battlespace Visualization with Mixed Reality

ARL Facilities and Capabilities Available to Support Collaborative Research

- **Facilities:** ARL Orlando; ARL Aberdeen Proving Ground; and Reserve Officers' Training Corps (ROTC) Battlelab.
- **Specialized Modeling and Simulation tools:** ARES architecture.
- **Unique test sites:** US Military Academy (USMA); Natick Soldier Systems Center (NSRDEC) and the Center for Applied Brain and Cognitive Sciences (CABCS); Maneuver Center of Excellence (MCoE); Open Source Geospatial Foundation (OSGeo) Research and Education Lab.
- **Unique ARL expertise:** Instructional Systems; Industrial Engineering; Engineering Psychology; Mechanical Engineering; Operations Research; Science & Technology Management; Computer Science.
- **Findings to date:** improved spatial knowledge and perceived usefulness; increased arousal and dominance; reduced time on task and increased accuracy; faster & more accurate mission plans.
- **Soon:** reduced time and increased collaboration for authoring Joint / Coalition training scenarios; better performance by live operators.

Complementary Expertise / Facilities / Capabilities Sought in Collaboration

Collaborations sought:

- Relevant organizations to investigate innovative techniques and technologies to aid users & teams in their ability to understand and act on complex, multi-dimensional data.
- Collaborations are also sought to develop open, extensible architectures that can support the shared battlespace in all of its forms through the use of augmented, mixed, and virtual reality devices.
- Collaborators capable of conducting pertinent human factors research in perception, interaction, collaboration, and cognition.

For Videos and Publications Visit
<https://simulation.arl.army.mil/ares>