

S&T Campaign: Human Sciences
Integration of Humans and Systems
Humans in Multi-Agent Systems

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campus

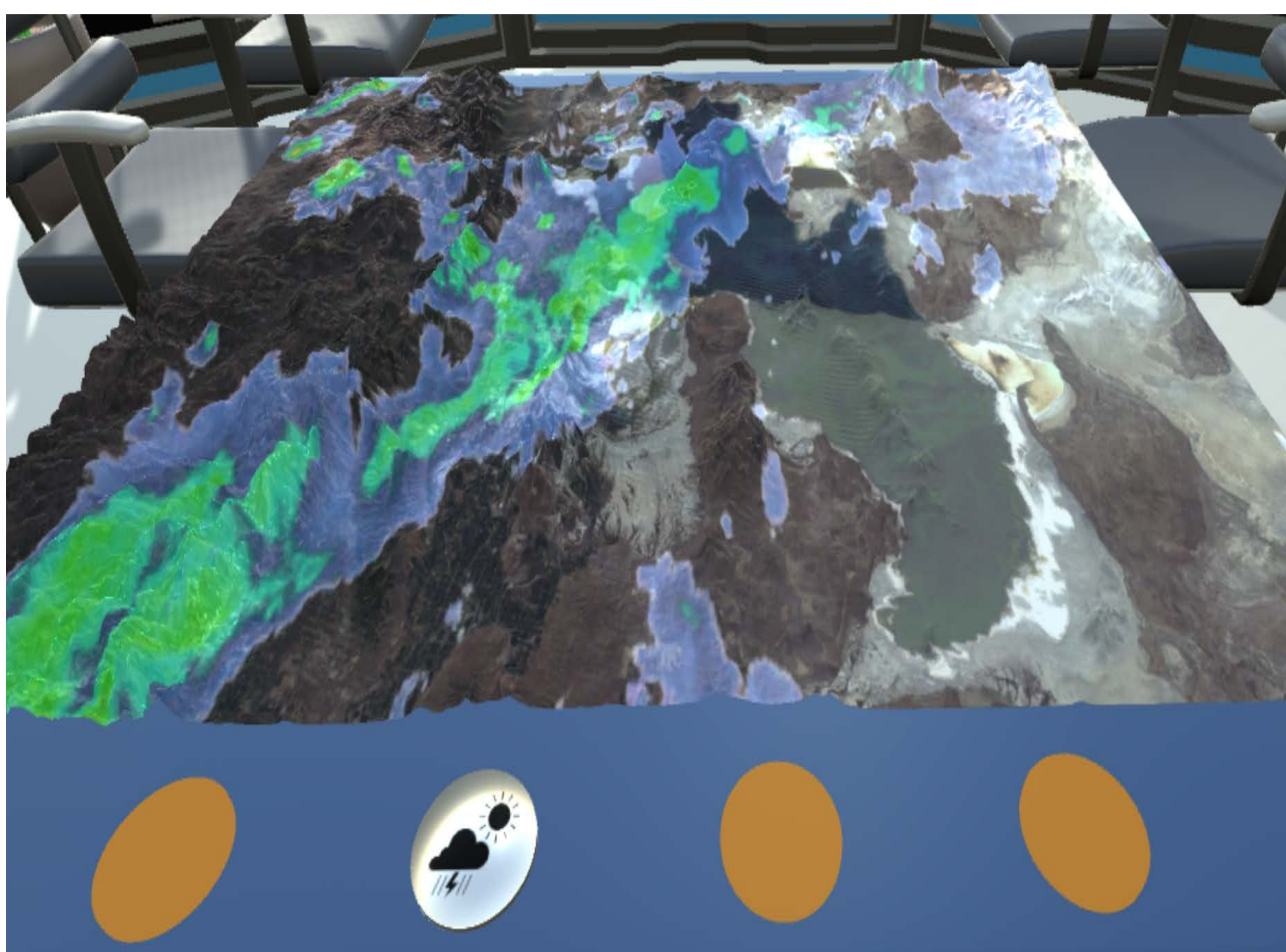
Research Objective

- The goal of the research is to increase situational understanding by developing and evaluating methods for visualizing complex social relationships in immersive virtual reality (VR).
- 3D data visualization is relatively new within the Army and many interactive capabilities of *immersive* VR systems are underexplored with respect to their ability to aid situational understanding and insight generation.



Challenges

- While 3D immersive VR allows users to view and interact with data in ecological ways, several issues arise including occlusion, scalability, and perspective.
- Lack of standardized guidelines for creating 3D immersive visualizations in VR that consider the user(s).
- Fielding 3D technology unlikely due to bandwidth, Soldier usability, and related issues.



ARL Facilities and Capabilities Available to Support Collaborative Research

- **Hardware:**
 - L-Shaped Projection System
 - VR headset, HTC VIVE
 - Oculus Rift Consumer Version 1
 - Precision Position Tracking (PPT) system
- **Software:**
 - Unity3D
 - Vizard
- **Personnel:**
 - Cognitive Psychologist with experience evaluating performance changes in virtual environments.
 - Sociologist and Social Psychologist with experience in decision making.
 - Computer Engineer with experience creating experimental protocol within VR.



Complementary Expertise / Facilities / Capabilities Sought in Collaboration

- Expertise in 3D data visualization
- Expertise in creating interactive capabilities in VR
- Expertise in Geographic Information System (GIS)
- Expertise in Big Data management/machine learning
- Expertise in Collaborative VR environments
- Access to diverse subject populations