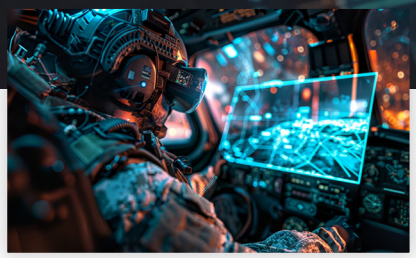
USC Institute for Creative Technologies

Sharing a Common Operating Picture Across Echelon [A2HMDI: SCOPxE]

2024 - Current
Project Leader: David Nelson



Background

The Advanced Adaptive HMD Interfaces (A2HMDI) Sharing a Common Operating Picture across Echelons (SCOPxE) project at ICT's Mixed Reality (MxR) Lab is a critical research effort supporting the Army's Next Generation Command and Control (NGC2) initiative. As the Army moves toward a clean-slate approach for overhauling C2, SCOPxE is investigating the future requirements for mixed-reality visualization systems that can effectively support commanders, staffs, and soldiers at all echelons. In alignment with the Army's goal of leveraging data-centricity and open architectures, SCOPxE focuses on how immersive technologies can portray the Common Operating Picture (COP) across distributed command nodes. SCOPxE takes an iterative, user-centered approach to identifying technology affordances and pain points, prototyping potential solutions, and assessing their impact on situational awareness and decision-making. By directly engaging with key Army stakeholders, including the Command and Control Cross Functional Team (C2 CFT), the Mission Command Center of Excellence (MCCoE), and the Mission Command Battle Lab (MCBL), MxR is ensuring that its research aligns with the broader vision of Next Gen C2, helping to develop innovative visualization solutions that will enable warfighters to make faster, better-informed decisions on the future battlefield.

Objectives

The A2HMDI SCOPxE project aims to develop advanced mixed-reality visualizations, interactions and user-interfaces that enable Commanders, Staffs and units at various levels, from Division to individual Soldiers, to achieve a holistic and shared common operating picture that adapts to their relevant role, scope of responsibility, security level, and specific mission objectives. The goal is to improve C2 operations and training in Large Scale Combat Operations by prototyping user-interactions in the context of specific WarFighting Functions to determine the requirements of mixed-reality technologies in visualizing critical data, between devices (like IVAS, 3D Displays, and others), and across echelons.

Results

The SCOPxE team is in the early phases of the project, conducting interviews with subject matter experts from the Mission Command Center of Excellence (MCCoE), Mission Command Battle Lab (MCBL), and Mission Command Capability Development Integration Directorate (MC CDID) to deepen their understanding of current and future C2

practices. These discussions are crucial for aligning the team's research with the evolving needs of Next Generation Command and Control (NGC2), ensuring that mixed-reality visualizations and interactions address real-world operational challenges.

Next Steps

The team is planning a visit to the National Training Center (NTC) to observe a pre-rotation Leadership Training Program (LTP).

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