

Adaptive HMD Display (HMDi)

2023 - Current

Project Leader: David Nelson



Background

Recently Marine Forces Special Operations Command specialists said if they could have just one piece of technology to overcome operational challenges it wouldn't be a shiny next-gen weapon or vehicle, but hardware or software that would allow them to fuse the deluge of data into a single system and display. In November 2021, Army officials acknowledged they were “struggling” with data integration and display in their Project Convergence experiments designed to support JADC2.

Objectives

This applied research project is developing a conceptual framework for investigating adaptive user interfaces, and to identify signals that will enable adaptive head mounted displays. This prototyping-focused effort will evaluate the potential benefits of capabilities that deliver information and decision making advantage in Army relevant use-cases.

The results may inform requirements for future head mounted displays and shed insight into the multi-modal user interfaces required to make these displays most effective for their intended users.

Results

Year 1 took valuable laboratory tests performed by ARL-W researchers and moved them into an applied use case, in order to begin explorations into the User Interface interactions between a performer and an intelligent system. Higher task performance and usability ratings for the adaptive condition would support our hypothesis that a well-designed adaptive interface will outperform a comparable non-adaptive version in complex decision making scenarios.

Subject matter expert, retired Colonel Jay Miseli, a 1995 graduate of the United States Military Academy, and career Armored Cavalry officer has joined the team as a consultant bringing extensive experience planning and executing military operations in combat, training, and exercises.

Next Steps

The MxR team plans to connect with Requirements and Capabilities organizations (MC-COE (Mission Command Center of Excellence) MC-CDID (Mission Command Capabilities Development) ACM-MC (Army Capability Manager - Mission Command) MCDID (Maneuver Capabilities Development and Integration Directorate) and will work closely with ARL-West's Mark Dennison, exploring multi-modal, adaptive user interfaces integrated into the developing XR COP platform.

Published academic research papers are available from <https://ict.usc.edu/research/publications>
(Search engine keyword: USC ICT Publications)

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