

Team Metrics: Monitoring team performance during multi-human multi-UAV control

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ABSTRACT

The modern military landscape is undergoing a significant transformation, driven by technological advancements and the evolving nature of warfare. The traditional OODA loop, a cornerstone of military strategy, is being updated to emphasize the need for coordinated action across diverse platforms. This shift is particularly relevant in the context of mosaic warfare, where a combination of systems is leveraged to create a dynamic and adaptable force. Similarly, the linear kill chain concept is evolving into nonlinear kill webs (Cantrell, 2023; Eckstein, 2016; Pavlak, 2023), highlighting the need for interwoven, optimized, and multiplied sensors and effects to counter sophisticated threats. Central to these transformations is the integration of Hybrid Intelligence (Dellermann et al., 2019), a synergistic approach that combines human and machine cognition to enhance decision-making. These changes necessitate a re-evaluation of how we assess and maintain meaningful human control over these increasingly complex and autonomous systems (Johnson, 2022, 2023). In particular, it calls into focus the need for distributed metrics of teaming, coordination, and readiness so that the entire mosaic, human and machine, can be orchestrated effectively, allowing centralized and decentralized decision making that makes optimal use of resources and to ensure that teams are operating efficiently and in ways that ensure adequate oversight and control of the autonomy that will serve as the backbone in future warfare.