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Pilot Performance with Advanced Sensor Technologies Considerations

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ABSTRACT

Research on human performance indicates people may discretely shift modes as the difficulty in tasks changes. These modes are referred to as “cognitive control modes.” Cognitive control modes are ways people operate and handle their process of thinking during a series of tasks. However, past work has been confined to subjective reports of these mode changes - objective markers in data of cognitive control modes, which should appear if these mode changes are truly discrete, have not be identified. This work will attempt to identify markers of cognitive control modes in data collected on pilots flying instrument approaches. Specifically, a simulated flight experiment is being conducted in which control movement, aircraft state, and eye movement data is being collected. If there are markers of discrete cognitive control mode changes, it should appear in one or more of these sources of data. Finding markers of cognitive control mode changes would provide future research with objective evidence rather than subjective reports on such changes. Being able to rely on objective evidence, rather than subjective evidence, is crucial due to reliability and experimental issues with subjective reports.

KEYWORDS

Human Integrated Systems, Modeling and Simulation, Data Trend and Analysis