

Unearthing Air Traffic Control Officers Decision Instructional Patterns From Simulator Data for Application in Human Machine Teams

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Abstract : Despite the continuous advancements in automated conflict resolution tools, there is still a low rate of adoption of automation from Air Traffic Control Officers (ATCOs). Trust or acceptance in these tools and conformance to the individual ATCO preferences in strategy execution for conflict resolution are two key factors that impact their use. This paper proposes a methodology to unearth and classify ATCO conflict resolution strategies from simulator data of trained and qualified ATCOs. The methodology involves the extraction of ATCO executive control actions and the establishment of a system of strategy resolution classification based on ATCO radar commands and prevailing flight parameters in deconflicting a pair of aircraft. Six main strategies used to handle various categories of conflict were identified and discussed. It was found that ATCOs were about twice more likely to choose only vertical maneuvers in conflict resolution compared to horizontal maneuvers or a combination of both vertical and horizontal maneuvers.

Keywords : air traffic control strategies, conflict resolution, simulator data, strategy classification system

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