This case study highlights strong and weak points in human-automation collaboration - in managing conflicts in an air traffic control refresher training situation, by a fully licensed and experienced controller.

The focus of this study was on how the ATCO in a planner position uses ATC tools, especially the conflict and risk display, to resolve two specific conflicts shown on the risk and conflict display.

An episode analysis technique was used to analyze the data. Each conflict episode was analyzed quantitatively and qualitatively, through examining the gaze patterns and emergent areas of ATCO visual attention.

The results show how the air traffic management tools, especially the conflict and risk display, were used to detect and solve conflicts, as the event unfolds.

The planner used the conflict and risk display to detect the aircrafts which were in conflict, used FLEG to double check the information about the conflict and finally the planner highlighted the aircrafts to keep them in mind.

Our analysis indicate that this process, although successful, is indicative of safety and efficiency issues in human-automation collaboration.

Despite the mode error, the ATC could still see the conflict on CARD.

With a 45 second duration of not finding the conflict / detecting the mode error, the human-automation collaboration between human and CARD tool is clearly sub-optimal. Further, data entry appears to be quite slow/inefficient.

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