

# 28th ECSS Anniversary Congress, Paris/France, 4-7 July 2023

Identifying the advantages and limitations of sports performance when using augmented reality

Madeleine, P., Eisenhardt, D., Kristiansen, M.V.

Aalborg University

In all sports, sportsmen strive for the highest level of performance. The development of modern electronics and computer enable today to feed the sportsmen with metrics that inform about their current level of performance. Combining real environment with added sensory information using audio, tactile or visual feedback places the sportsmen in an augmented or extended reality. Such approaches are becoming used in both laboratory and real-life settings. In laboratory, goalkeepers can rehearse penalty sessions in virtual environment. Augmented reality has also entered real life as commercial products like running watches and swimming goggles provide visual information about running or swimming style, effort level and progress. For such applications, data from e.g., accelerometer and inclinometer are fused to feed algorithms that benefit from large datasets by means of machine learning approaches.

This offers a vast number of possibilities that can affect the performance level positively. However, feeding the sportsmen with additional sensory information can also have negative effect especially if the added information increases the cognitive load or changes the focus of the sportsmen. In this talk Pascal will review recent development related to augmented reality describing both pros and cons of the approaches in sports.

The target audience covers experts in performance assessments as well as sport engineers developing applications providing feedback on performance level to athletes and sportsmen.

**Topic:** Training and Testing

**Presentation:** Invited

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Supported by SporTools GmbH



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