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Proceedings of the Annual Meeting of the Cognitive Science Society

Title

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Permalink

<https://escholarship.org/uc/item/3303h2fs>

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 44(44)

Authors

Halgas, Elwira A.
Gevers, Josette M.P.
van Eijndhoven, Kyana
[et al.](#)

Publication Date

2022

Peer reviewed

Comparative Evaluation of Multivariate Coordination Methods to Assess Team Cognition in Multi-Modal Team Interactions.

Elwira Halgas

Eindhoven University of Technology, Eindhoven, Netherlands

Josette Gevers

Eindhoven University of Technology, Eindhoven, Netherlands

Kyana van Eijndhoven

Tilburg University, TILBURG, Netherlands

Travis Wiltshire

Tilburg University, Tilburg, North Brabant, Netherlands

Sonja Rispens

Eindhoven University of Technology, Eindhoven, Netherlands

Joyce Westerink

Philips Research, Eindhoven, Netherlands

Abstract

Team cognition is an essential component of team functioning. Although traditionally assessed through (retrospective) questionnaires or ratings, there is increasing interest in using real-time data (e.g., skin conductance, movement) to assess team cognition through team coordination dynamics (TCD). TCD involve two or more processes or elements of the team that covary across time and conditions (e.g. synchrony or alignment). Various methods and modalities have been used to calculate TCD that show connections with team outcomes and cognition. Yet, it is unclear which ones are the most functional. In our research, we use data from four-persons teams engaging in a collaborative game to calculate various TCD indices (entropy, MdRQA, coherence, synchrony coefficient) for several modalities (skin conductance, heart rate, movement) and compare them to metrics of team cognition obtained through questionnaires. We aim for our research to facilitate the use of (multimodal) TCD for monitoring and managing team functioning.