Connections between our modeling work on space-time geometries and the brain

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TO CITE

Flash, T. (2023). Connections between our modeling work on space-time geometries and the brain. In *Proceedings of the Paris Institute for Advanced Study* (Vol. 1). https://paris.pias.science/article/connections-between-our-modeling-work-on-space-time-geometries-and-the-brain

PUBLICATION DATE

06/10/2023

ABSTRACT

Quatrième séance du cycle de conférences "Paris IAS Ideas", avec la participation de Tamar Flash, Weizmann Institute of Science, Israel

Our research focuses on brain planning and control of movement in humans and on robotics. Our studies combine theoretical and computational approaches with behavioral studies aimed at characterizing goal directed motor behavior. We have also conducted brain imaging studies aimed at unraveling the nature of brain representations of movement in action production and perception and social interactions. Given the significant roles movement plays in different artistic fields, e.g., fine arts, dance, and music, I will apply some of the insights gained from our research on brain representations of movement, space and time, to address several fundamental questions. These include whether humans' neuroesthetic and emotional responses to form and motion result from the particular nature of such brain representations; whether different artistic modalities use movement, space and time in different ways, or whether there exist common principles, shared by various artistic modalities. This includes collaborations with artists from different artistic domains. I also wish to collaborate and develop these ideas jointly with motor neuroscientists and with mathematicians and roboticists.

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2023/1 - paris-ias-ideas - Article No.6. Freely available at https://paris.pias.science/article/connections-between-our-modeling-work-on-space-time-geometries-and-the-brain - ISSN 2826-2832/© 2024 Flash T.
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2023/1 - paris-ias-ideas - Article No.6. Freely available at https://paris.pias.science/article/connections-between-our-modeling-work-on-space-time-geometries-and-the-brain - ISSN 2826-2832/© 2024 Flash T.
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