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Faculty of Psychology

Colloquium lecture by DPhil Marco Wittmann

Basis functions for navigating social groups

Navigating social environments is a fundamental challenge for the brain. It is established that the brain solves this challenge, in part, by representing social information in an “agent-centric” manner; knowledge about others’ abilities or attitudes is “tagged” to individuals such as “oneself” or the “other” person with whom we are interacting. This intuitive approach has informed our understanding of dorsomedial prefrontal and anterior cingulate cortex (dmPFC and ACC), key nodes of the social brain. However, the patterns or combinations in which the individuals might interact with one another is as important as the identities of the individuals themselves. Using functional magnetic resonance imaging and a social group-decision making task, I show dmPFC and ACC represent the combinatorial possibilities for social interaction afforded by a given situation and that they do so in a compressed format resembling the basis functions employed in spatial, visual, and motor domains. I discuss the implications of these computations for social decision-making. One consequence are characteristic deviations of optimal choice that can manifest as failures of self-other-distinction (or self-other-mergence). I will end with showing some preliminary results suggesting specific and dissociable relationships between self-other-mergence and questionnaire-assessed indices of mental health in this task.

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This lecture takes place online

Thursday, January 19, 2023; 3pm