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Natural Human Exploration under Approach and Avoidance Motivation in a Real-Life Spatial Environment

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Abstract

Open-ended exploration and learning of novel environments is an activity of crucial evolutionary significance. Extant literature studying these behaviors in human subjects, however, remains sparse. Our study examined spontaneous human exploration (characterized using video) and subsequent memory of an art exhibit - a complex, real-life environment - as a function of approach vs. avoidance motivation contexts and individual differences. Building on our prior findings that motivational context and individual differences may interact to predict memory, but not exploration time, the present work uses computer vision approaches to extract more nuanced measures of exploration from video data, such as path length and curvilinearity. Preliminary analysis suggested that locomotor activity may be greater under approach vs. avoidance motivation, consistent with models linking approach motivation to dopaminergic function and associated motor activity. This and other results are discussed in the larger context of research characterizing exploration, locomotion, and memory encoding processes in motivated behavior.