

Behavioral Dynamics of Trajectory Formation in Human Locomotion

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How do people generate paths of locomotion through a complex changing environment? *Behavioral dynamics* studies how stable patterns of behavior emerge from the interaction between an agent and its environment, which is typically non-stationary and unfolds over time. In this talk, I will describe our effort to model the dynamics of visually-guided steering, obstacle avoidance, interception, pursuit-evasion, and shadowing, based on experiments in an ambulatory virtual environment. By combining these elementary behaviors, we seek to predict individual paths of locomotion in more complex situations, and ultimately to model the collective behavior of crowds. The results demonstrate that locomotor trajectories can be understood as emerging on-line from the agent-environment interaction, making explicit path planning unnecessary.