University of Zurich[UZH]

Department of Economics – Neuroeconomics Seminar

April 11, 2019 - 17:00 - 18:00

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Model-Based Cognitive Neuroscience Approach to Understanding Visual Decision Making

Mathematical psychology and systems neuroscience have converged on stochastic accumulation of evidence models to explain decision making. I will describe research our collaborative group at Vanderbilt has conducted using accumulator models to account for response probabilities and distributions of response times for monkeys to make visual decisions via saccades, using these models to predict neurophysiology data, and constraining these models with neurophysiology data. Our work exemplifies a model-based cognitive neuroscience approach, which combines the rich history of formalizing and testing mechanistic hypotheses using cognitive models with the sophisticated techniques from systems and cognitive neuroscience to identify and understand neural mechanisms. In addition to describing the specifics of our research, I will discuss the benefits of a model-based cognitive neuroscience approach as well as some general questions and challenges we have faced in bridging cognitive modeling with systems neuroscience over our fifteen-year collaboration.