



**University of  
Zurich** <sup>UZH</sup>

## Department of Economics – Neuroeconomics Seminar

**March 28, 2019 - 17:00 - 18:00**

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### **SERIA: A novel model for response inhibition and action selection**

Higher-order cognitive control often requires the interplay of different, competitive decision processes. For example, when confronted with situations that demand a rapid but thoughtful change of plans, it is not enough to stop our initial course of action; it is also imperative to select a secondary plan that copes with changing circumstances. An experimental paradigm that has been extensively used to investigate the interplay of these mechanisms is the antisaccade task, in which subjects are instructed to saccade in the direction opposite to a cued location. Because the most common reaction to a suddenly presented stimulus is a ballistic eye movement towards it (a prosaccade), the execution of a saccade in the opposite direction (an antisaccade) requires both the inhibition of an automatic, reflexive response, and the start of a secondary, voluntary action. In this talk, I will present the SERIA model, a novel race-to-threshold model that integrates response inhibition and a two-choice decision process. According to it, reflexive responses are vetoed by an unobservable inhibitory process, which allows voluntary actions to take place. I will illustrate that this model accurately fits reaction time distributions and predicts the latency of 'changes of mind' with striking accuracy. In addition, the effects of a pro-dopaminergic and a pro-cholinergic compound on these two decision processes will be discussed. Finally, I will showcase possible implications for schizophrenia research.