



**University of
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Department of Economics – Neuroeconomics Seminar

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Selective attention as a double-edged sword for human decision-making under uncertainty

Making decisions under uncertainty requires inferring the state of one's environment from imperfect data, whether it is the cause of ambiguous sensory signals or the value of a possible course of action. Beside sensory noise and exploration, recent research has identified the limited precision of inferences as a large contributor to the variability and suboptimality of human decisions made under uncertainty. In this talk, I will present recent work from my group which shows how selective attention provides benefits but also incurs significant costs for sensory- and reward-guided decision-making in the presence of this 'inference noise'. During perceptual decisions, humans use selective attention to compress multidimensional sensory signals in a way that mitigates the negative effects of inference noise. And during representation learning, humans use selective attention to accelerate credit assignment using a closed-loop regime, which can inadvertently reinforce spurious stimulus-outcome associations arising from inference noise. Taken together, these findings offer a nuanced view of the role of selective attention for human decision-making.