# Bonn-Cologne Computational Neuroscience Seminar

## On the neural substrates of planning, changing motivation and sequential goal

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**Talk Abstract**

Deciding between apples and oranges has been an age-old question not just for hungry shoppers but within the field of decision-making research. However, very rarely have researchers considered the possibility to reject either and move on to the next shelf. I have previously argued that such a sequential decision making framework is not just essential for understanding foraging animals, but also ecological, real life, behaviour in humans[1,2]. While it is intuitive that real life decision strategies require temporally extended coherent behaviours[2] and rely on prospection, maintained motivation and sequential adaptation, those cognitive and neural processes remain poorly understand.

In the first part of my talk I will present our recent cognitive model for sequential search decisions and its underlying neural dynamics[3]. In the second part I will further expand into another important element of sustained and sequential behaviours, i.e. intrinsic motivation. In particular, I will focus on the circuits fluctuating with motivation to continue pursuing the current task instead of disengaging, showing task general as well as causal evidence. Lastly, I will talk about ongoing work on sequential incremental goal pursuit and how the nature of decision-making changes with goal progress neurally and behaviourally as participants assess whether to give into temptation or frustration.

**References**

1. Kolling N, Akam T. (Reinforcement?) Learning to forage optimally. Curr Opin Neurobiol. 2017;46:162-169. doi:10.1016/j.conb.2017.08.008
2. Kolling N, O'Reilly JX. State-change decisions and dorsomedial prefrontal cortex: the importance of time. *Curr Opin Behav Sci*. 2018;22:152-160. doi:10.1016/j.cobeha.2018.06.017
3. Kolling N, Scholl J, Chekroud A, Trier HA, Rushworth MFS. Prospection, Perseverance, and Insight in Sequential Behavior. Neuron. 2018;99(5):1069-1082.e7. doi:10.1016/j.neuron.2018.08.018

**Friday, 31 March 2023, 12 am**
In-Person**:**
University of Bonn Medical Center
Epileptology/ Building 83
Seminar room (room 266), Ground Floor

**Online**:
https://uni-bonn.zoom.us/j/62321512510?pwd=ZC9SMDdBRGoxQ1ZLamwvYjZBc0pXUT09

Meeting-ID: 623 2151 2510
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**Host**

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