RUB

SFB 874 - COLLOQUIUM

Thursday, May 17th, 10.30 - 12.00

Location: NB 3/57

What do sensory neurons 'do'? Unifying theories of neural coding with the information bottleneck.

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Abstract:

Sensory neural circuits are thought to efficiently encode incoming signals. Several mathematical theories of neural coding formalize this notion, but it is unclear how they relate to each other and whether they are even fully consistent. I will present a unified framework, based on the 'Information bottleneck', that encompasses and extends previous proposals. With this framework, we can highlight key tradeoffs faced by sensory neurons. For example trading off future prediction versus efficiently encoding past inputs leads to qualitatively different predictions for neural responses to natural visual stimulation. Finally I will discuss how this approach could be used as a first step to theoretically explaining the observed diversity of neural responses.

Host: Dirk Jancke (Optical Imaging Lab, RUB)

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