iBehave Seminar Series 2024

Speaker

Ahmed El Hady

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Title: Functional ultrasound imaging during freely moving behavior

Abstract: The dream of a systems neuroscientist is to be able to unravel neural mechanisms that give rise to behavior. It is increasingly appreciated that behavior involves the concerted distributed activity of multiple brain regions so the focus on single or few brain areas might hinder our understanding. There have been quite a few technological advancements in this domain. Functional ultrasound imaging (fUSi) is an emerging technique that allows us to measure neural activity from medial frontal regions down to subcortical structures up to a depth of 20 mm. It is a method for imaging transient changes in cerebral blood volume (CBV), which are proportional to neural activity changes. It has excellent spatial resolution (~100 µm X 100 µm X 400 µm); its temporal resolution can go down to 100 milliseconds. In this talk, I will present its use in two model systems: marmoset monkeys and rats. In marmoset monkeys, we used it to delineate a social – vocal network involved in vocal communication while in rats, we used it to gain insights into brain wide networks involved in evidence accumulation based decision making. fUSi has the potential to provide an unprecedented access to brain wide dynamics in freely moving animals performing complex behavioral tasks.

On-site location: Lecture Hall C076.EG.612 in Life&Brain Building, Venusberg-Campus 1, Gebäude 76, 53127 Bonn

March 15, 2024
at 12 pm

Host: Tobias Rose
Institute for Experimental Epileptology and Cognition Research

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