



Laboratoire LEPRINCE-RINGUET
Ecole polytechnique IN2P3/CNRS

Séminaire

Brain-wide functional ultrasound imaging of a vocal communication circuit

Vocal communication is a quintessential form of social interaction. Humans and other animals coordinate their behaviors at a distance by producing and perceiving distinct vocalizations at different timings. Therefore, brain networks related to vocal communication should include areas at the intersection of social behavior and vocal production-perception networks. Nevertheless, little is known about the interaction of these networks. In this talk, I will describe our attempt to fill this knowledge gap. We use marmoset, a highly vocal New World monkey to study vocal communication. We use functional ultrasound imaging of the brain to achieve large spatial coverage (16x20mm²) and high spatial (~125x130x400μm³) and temporal (500ms) resolution in a behaving animal. Furthermore, we built a stochastic dynamical systems model of vocal behavior that interacts with the marmoset in a closed-loop to fully control the vocal interaction and make quantitative predictions about the brain dynamics of this interaction. We first show the existence of a medial brain system where the activities are related to social context - the social-vocal network (SVN). Second, we use the behaviorally validated computational model to predict that the activity in marmoset SVN entrains to the activity in the model SVN.

Daniel

TAKAHASHI

Princeton Neuroscience
Institute & Instituto do
Cérebro, Universidade
Federal do Rio Grande do
Norte

Salle conférence du
LLR 05-2021

**Lundi 8 avril
14h00**

seminaires@llr.in2p3.fr



Responsables séminaires

Rémi Adam
Jean-Baptiste Sauvan