

Open PhD Position

Closed-loop processing with calcium imaging in an auditory virtual environment

Project description

The SNSF AMBIZIONE junior group of **Dr. Peter Rupprecht** (<https://gcamp6f.com/about/>) at the Brain Research Institute, University of Zurich, Switzerland (starting 1.3.2023), is offering a PhD position to study neuronal circuits in the living mouse brain. The goal of the project is to understand how a single neuron learns about the effect of its action potentials on the environment of the animal. The project therefore addresses the problem of “credit assignment” in the brain experimentally.

The project will be conducted in the lab of and officially supervised by **Prof. Fritjof Helmchen** (<https://www.hifo.uzh.ch/en/research/helmchen.html>). Working on this project will therefore provide ample opportunity to collaborate with and learn from some of the best neuroscientists.

The methods to drive this project will be, among others, *in vivo* calcium imaging of neuronal activity, *in vivo* cell-attached recordings, closed-loop virtual realities, and advanced data analysis methods. You will be able to select your favorite sub-projects and techniques from this spectrum, and you will receive direct guidance from Peter Rupprecht to learn anything that is required.

Requirements

You have studied neuroscience, physics, biology, informatics or a related field. You are familiar with or eager to learn the techniques required for this project, including elements of microscopy, mouse handling, electrophysiology, programming and data analysis in Python and/or Matlab. Ideally, you enjoy solving problems, even if it takes long and the problems are difficult. Some programming skills or the strong desire to acquire such are important for any kind of project in this lab.

Application guideline

Please send your application including a CV and your transcript of records to Peter Rupprecht (rupprecht@hifo.uzh.ch). Please include a letter of motivation that covers the following aspects: What talents or previous experience of yours are possibly relevant to this project? What would you like to learn and achieve during your PhD? Do you enjoy writing in English? If you have coding or experimental experience, describe your most challenging previous program or project.

Starting date

The PhD position is available starting March 2023.