Laboratory of the Physics of Biological Systems

We would like a PhD student to join us to study two questions:

Project 1 is in systems neuroscience: What underlies individuality? After excluding genetic differences, large variability in animal behavior remains. We want to understand what the neural source of this individual-to-individual diversity is by studying brain activity and behavior.

Project 2 is at the intersection of neuroscience and cell biology: In collaboration with a large Swiss company, we want to collect massive amounts of behavioral data of animals modeling different human diseases and exposed to a large library of chemicals. Can you read out the health status of animals from their behavior? Can you dissect behavioral data in health-relevant categories?

All experiments will be performed with the nematode *C. elegans*, which is currently the only tractable model for these questions.

Your research would involve:

1) experiments, using and developing further a 3D-printed high-throughput imaging system that we have developed and recording animal behavior, and

2) computation, developing novel machine learning methods to extract meaning from your data.

Please reach out if you have any questions: Prof. Sahand Rahi (sahand.rahi@epfl.ch)