

## **INTERNSHIP PROPOSAL**

Laboratory name: LPENS

CNRS identification code: UMR8023

Name of internship director: Vincent HAKIM

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Internship location: 24, rue Lhomond, Paris 75005

Thesis possibility after internship: YES

Funding: NO

### **Title : Dynamics of recurrent neural networks**

Artificial neural networks underly current progress in machine learning. However, currently used networks are mostly feed-forward and have very limited intrinsic dynamics, in contrast to real biological network. In this internship, we propose to study the transition between steady and chaotic dynamics in recurrent artificial random networks, as well as learning, which is supposed to be easier in this parameter regime. It is expected that both numerical simulations and advanced analytical computations will be performed during the internship.

Please, indicate which speciality(ies) seem(s) to be more adapted to the subject:

Condensed Matter Physics: YES/NO	Soft Matter and Biological Physics: YES/NO
Quantum Physics: YES/NO	Theoretical Physics: YES/NO