



**Laboratório de Instrumentação e
Física Experimental de Partículas**

LIP Seminar

Thursday, 17 of February 2022, 11h30

Training deep neural density estimators to identify mechanistic models in science

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Mechanistic modeling aims to explain observed phenomena in terms of underlying causes. However, determining which model parameters agree with complex and stochastic data presents a significant challenge. We address this challenge with a machine learning tool which uses deep neural density estimators — trained using model simulations — to carry out Bayesian inference and retrieve the full space of parameters compatible with empirical measurements.

I will explain how our approach can be used to perform parameter estimation in general simulation-based models, and demonstrate its power on several challenging neuroscience problems, from the retrieval of complex input-output functions of biophysically-detailed single neurons to the characterisation of mechanisms of compensation for perturbations in neural circuits.

Location: Videoconference - Zoom

Connection details

<https://indico.lip.pt/event/1180/>

URL: <https://videoconf-colibri.zoom.us/j/82855815555>

PIN: LIPSeminar

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