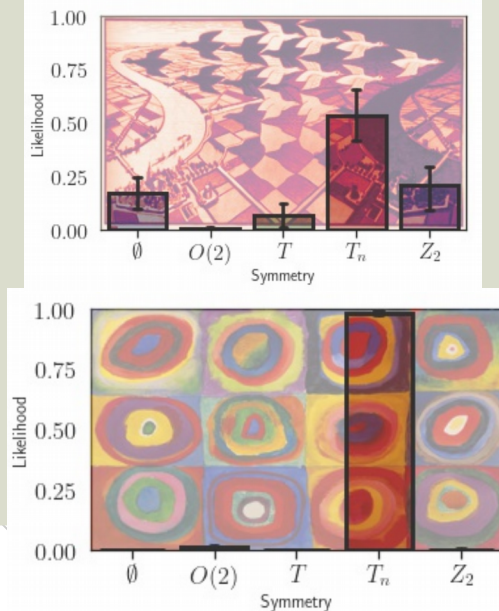


Symmetry meets AI

Johannes Hirn (IFIC/UV)

21.4.2021 12h Seminario Física Teórica (II Floor)

Please [sign up for in-person attendance](#)
alternatively, follow it online via this [Google meet link](#)



We explore whether Neural Networks (NNs) can *discover* the presence of symmetries as they learn to perform a task. For this, we train hundreds of NNs on a *decoy task* based on well-controlled Physics templates, where no information on symmetry is provided. We use the output from the last hidden layer of all these NNs, projected to fewer dimensions, as the input for a symmetry classification task, and show that information on symmetry had indeed been identified by the original NN without guidance. As an interdisciplinary application of this procedure, we identify the presence and level of symmetry in artistic paintings from different styles such as those of Picasso, Pollock and Van Gogh.

Based on e-Print: 2103.06115 [cs.LG]

Attendants should adhere to all university health requirements

