

Tutorial "Compressed sensing meets symbolic regression: learning interpretable models"

Monday, 13 September 2021 18:00 (1 hour)

In this tutorial, we introduce the AI technique of symbolic regression, combined with compressed sensing for the identification of compact, interpretable models.

Specifically, we introduce the Sure-Independence Screening and Sparsifying Operator (SISSO), together with its recent variants.

The methodology starts from a set of candidate features, provided by the user, and it builds a tree of possible mathematical expression, involving linear and nonlinear operators, up to a given complexity. A compressed sensing solver finds, among billions or trillions of candidate expressions those that better explain the training data.

We will show demonstrative applications to materials science, including prediction of perovskite-materials stability and topological-insulators identification.

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