SCIENTIFIC MACHINE LEARNING
UNIVERSITY OF LEEDS

Hi <<Don't put your details here!>>,

On Friday bring your laptop to the hands-on ML session on SINDy (Sparse Identification of Nonlinear Dynamical Systems), run by Alasdair Roy and hosted by the SciML community! Alasdair will give a 45-minute introduction to SINDy. After a break for coffee and cake, we'll tackle the coding challenges that Alasdair has prepared for us.

(Note: This is an in-person event. Only the first 45 minutes will be streamed/ recorded.)

Come along in person to to our room in LIDA, Worsley Building Room 11.87!

Please see below for the full details and hope to see you there.

Colab notebook in advance of the workshop:

- Workbook: https://colab.research.google.com/drive/1NIY7xQP-W9rOlakYqhdw_fU3qO-8KNQN?usp=sharing

Any questions, please feel free to reply to this email.

We look forward to seeing you on Friday!

Alasdair Roy, University of Leeds

Friday 27th October - 2-4pm (Worsley Room 11.87)

Teams link if joining remotely.

Abstract:

In the presentation, Alasdair will talk about the SINDy method and the accompanying Python package (PySINDy). SINDy is a sparse regression package, which allows symbolic identification of dynamical systems from time series measurements. This makes SINDy different to black box methods, as finding underlying governing equations of motions allows for physical interpretation of the system, potentially allowing for greater generalisability of the resulting model. We will look at how the original method works along with several relevant extensions as well as some of their weaknesses. Some extensions will include: WeakSINDy for identification in noisy data and identification of PDEs, SINDy-PI for implicit model identification, choice of optimisers and including known constraints. In the coding session, we will cover some of the methods discussed above by looking at a case of ODE and PDE discovery using PySINDy.

Bio:

Alasdair Roy is a PhD student in the CDT for fluid dynamics working on reduced-order modelling methods using the sparse identification of nonlinear dynamics (SINDy). In my research, I use SINDy to identify dynamical systems from magnetoconvection simulation data by seeing what characteristics of the data we are trying to reproduce.

https://sciml-leeds.github.io