



Contribution ID: 5

Type: **not specified**

Designing machine learning for industrial applications. From transfer learning to Physical Informed Machine Learning models.

Wednesday, 18 September 2024 15:05 (1 hour)

In recent years, significant progress has been made in setting up decision support systems based on machine learning exploiting very large databases. In many research or production environments, the available databases are not very large, and the question arises as to whether it makes sense to rely on machine learning models in this context.

Especially in the industrial sector, designing accurate machine learning models with an economy of data is nowadays a major challenge.

This talk presents Transfer Learning and Physical Informed Machine Learning models that leverage various knowledge to implement efficient models with an economy of data.

Several achievements will be presented that successfully use these learning approaches to develop powerful decision support tools for industrial applications, even in cases where the initial volume of data is limited.

References:

- From Theoretical to Practical Transfer Learning: The ADAPT Library. A de Mathelin, F Deheeger, M Mougeot, N Vayatis, Federated and Transfer Learning, Springer 2022.
- Fixed-budget online adaptive learning for physics-informed neural networks. Towards parameterized problem inference. TNK Nguyen, T Dairay, R Meunier, C Millet, M Mougeot. International Conference on Computational Science, 453-468

Type of presentation

Talk

Classification

Both methodology and application

Keywords

Transfer learning, PIML

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Session Classification: Closing keynote: Mathilde Mougeot

Track Classification: Keynote