

Bites of FM4S: [1] Physics-inspired representations



bites of...
Foundation Models
for Science



Themes of discussion:

- Physics-inspired representations
- LLMs for operations
- Applications to Run 3
- Training methods
- Alignment, interpretability
- Datasets and benchmarks

...and more!

Contribution ID: 5

Type: **not specified**

You can observe a lot by just watching (new AI strategies for the LHC and beyond)

Wednesday 20 November 2024 15:50 (50 minutes)

With large amounts of data, a Higgs boson discovery, and world-leading constraints on an enormous amount of parameters and interactions, the Large Hadron Collider has been a phenomenal tool. We show new results built on contrastive learning and semi-supervised learning strategies where, through physics-motivated choices, we teach an AI to visualize many processes simultaneously, allowing it to solve a variety of downstream tasks in one algorithm. The implications are far-reaching. We discuss how this style of learning broadly allows us to simplify problems, and we point to new directions in representation learning that aim to further unite physics with ML.

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