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EveNet: Towards a Generalist Event Transformer for Unified Understanding and Generation of Collider Data

With the increasing size of the machine learning (ML) model and vast datasets, the foundation model has transformed how we apply ML to solve real-world problems. Multimodal language models like chatGPT and Llama have expanded their capability to specialized tasks with common pre-train. Similarly, in high-energy physics (HEP), common tasks in the analysis face recurring challenges that demand scalable, data-driven solutions. In this talk, we present a foundation model for high-energy physics. Our model leverages extensive simulated datasets in pre-training to address common tasks across analyses, offering a unified starting point for specialized applications. We demonstrate the benefit of using such a pre-train model in improving search sensitivity, anomaly detection, event reconstruction, feature generation, and beyond. By harnessing the power of pre-trained models, we could push the boundaries of discovery with greater efficiency and insight.

Would you like to be considered for an oral presentation?

Yes

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