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## Towards a foundation model for jet physics

A rising paradigm in AI in recent years is the foundation model, which refers to a model trained on broad data and adaptable to a wide range of downstream tasks. In this work, we present a new approach to learning powerful jet representations directly from unlabelled data. The method employs a Particle Transformer to predict masked particle representations in a latent space, overcoming the need for discrete tokenization and enabling it to extend to arbitrary input features beyond the Lorentz four-vectors. We demonstrate the effectiveness and flexibility of this method in several downstream tasks, including jet tagging and anomaly detection. Our approach provides a new possible path towards a foundation model for jet physics.

## Secondary track

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