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Reconstructing parton collisions with machine learning techniques

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Having access to the parton-level kinematics is important for understanding the internal dynamics of particle collisions. In this talk, we present new results aiming to an efficient reconstruction of parton kinematics using machine-learning techniques. By simulating the collisions, we related experimentally-accessible quantities with the momentum fractions of the colliding partons. We used photon-hadron production to exploit the cleanliness of the photon signal, including up to NLO QCD-QED corrections. Neural networks led to an outstanding reconstruction efficiency, suggesting a powerful strategy for unveiling the behaviour of the fundamental bricks of matter in high-energy collisions.

In-person participation

Yes

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