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Advanced Machine Learning techniques at the service of identifying boosted Higgs-boson decays to heavy-flavours

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The search for boosted Higgs-boson decays to heavy-flavoured quarks constitutes a central aspect of the physics programme of the ATLAS experiment at the Large Hadron Collider (LHC). A high-performance algorithm for tagging such Higgs boson decays can play a crucial role in improving the sensitivity of searches for new resonances in Beyond the Standard Model scenarios or in the precise measurement of the Higgs boson properties. In this context, the ATLAS experiment has recently harnessed cutting-edge machine learning technique based on Transformer networks to significantly enhance the identification performance of such decays. This presentation will shed light on these latest developments, demonstrating how advanced machine learning techniques are pushing the boundaries of our ability to unravel the secrets of the Higgs-boson at the LHC.

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