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BDT for tau identification in the ATLAS Level-1 trigger

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BDTs are simple yet powerful ML algorithms with performance often at par with cutting-edge NN-based models. The structure of BDTs allows for a highly parallelized, low-latency implementation in FPGAs. I will describe the development and implementation of a BDT-based algorithm for tau lepton identification in the ATLAS Level-1 trigger system as part of the phase-I upgrade, designed to be integrated into existing firmware written in VHDL along with some practical lessons learned along the way.

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