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## **fwXmachina part 3: Anomaly detection with decision tree autoencoder on FPGA for L1 trigger**

*Monday, 25 September 2023 17:00 (5 minutes)*

We describe an application of the deep decision trees, described in fwXmachina part 1 and 2 at this conference, in fwXmachina for anomaly detection in FPGA for implementation in real-time systems. A novel method to train the decision-tree-based autoencoder is presented. We give an example in which fwXmachina may be used to detect a variety of different BSM models via anomaly detection at the L1 triggers in LHC experiments. Comparisons are made to previous results, including comparisons to neural network approaches. This work is detailed in [2304.03836]

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