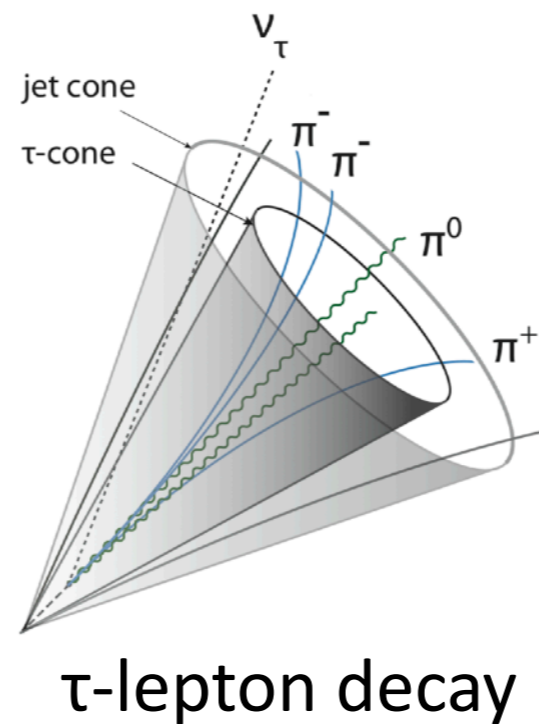


ML Tools in ATLAS/Bonn

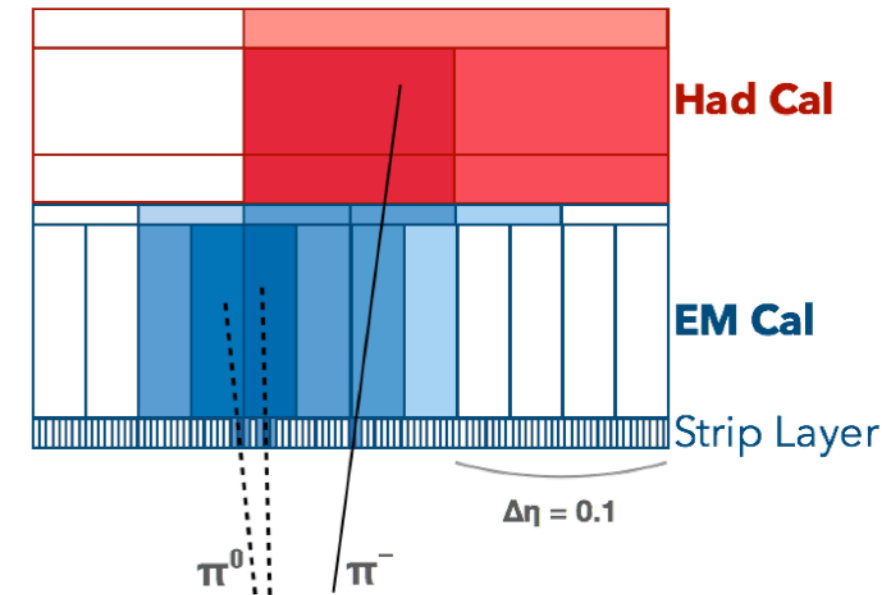
March 20, 2024

ML4Taus: Tau decay mode classification using CNNs

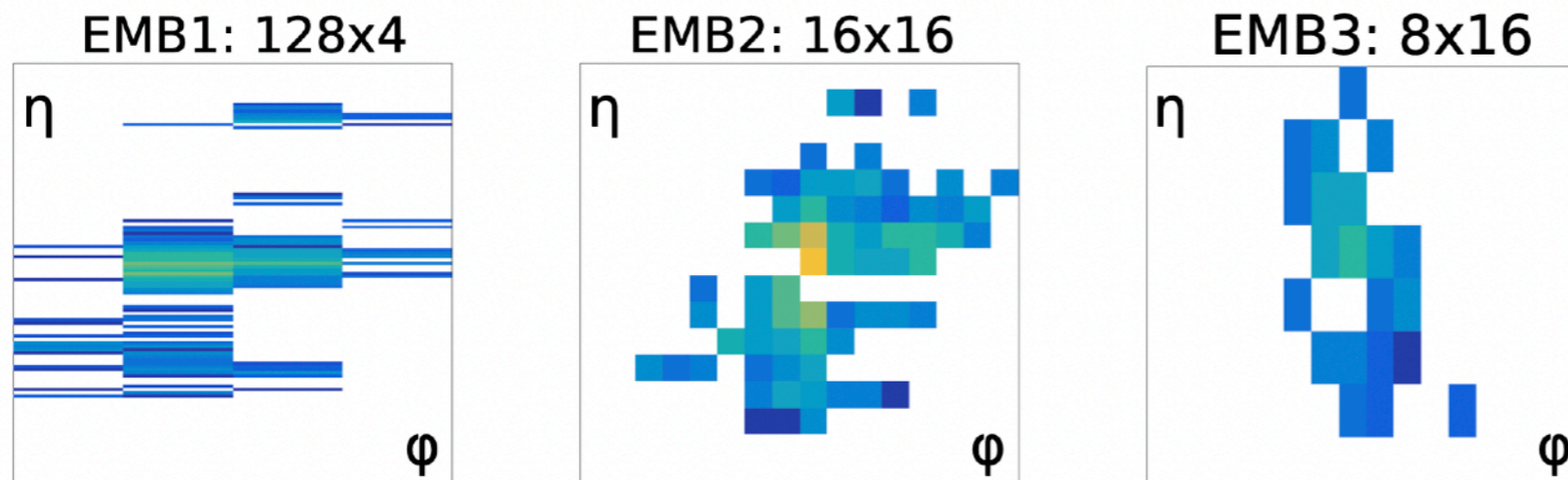
- Goal: classify Tau-Lepton decay mode
- Input: energy deposits in calorimeter
- Tool: image recognition with convolutional neural networks



τ -lepton signature in calorimeter:



calorimeter images:



- Next: add tracking information
- Issue: inputs with different granularities

ML4Higgs: Classification of $h \rightarrow bb$ decays

- Graph Neural Networks on large-R jets:
 - Input: jet kinematics, track parameters, hit information
 - Output: probabilities to be a Higgs jet, top-quark jet and QCD jet
- Next: reduce mass sculpting \rightarrow 125 GeV Higgs

