

## Particle identification with an electromagnetic calorimeter using a Convolutional Neural Network

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Based on the fact that showers in calorimeters depend on the type of particle, this note attempts to perform a particle classifier for electromagnetic and hadronic particles on an electromagnetic calorimeter, based on the energy deposit of individual cells. Using data from a Geant4 simulation of a proposal of a Crystal Fiber Calorimeter (SPACAL), foreseen for a future upgrade of the LHCb detector, a classifier is built using Convolutional Neural Networks. Results obtained demonstrate that the higher resolution of this ECAL allows to attain over 95% precision in some classifications such as photons against neutrons.

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