

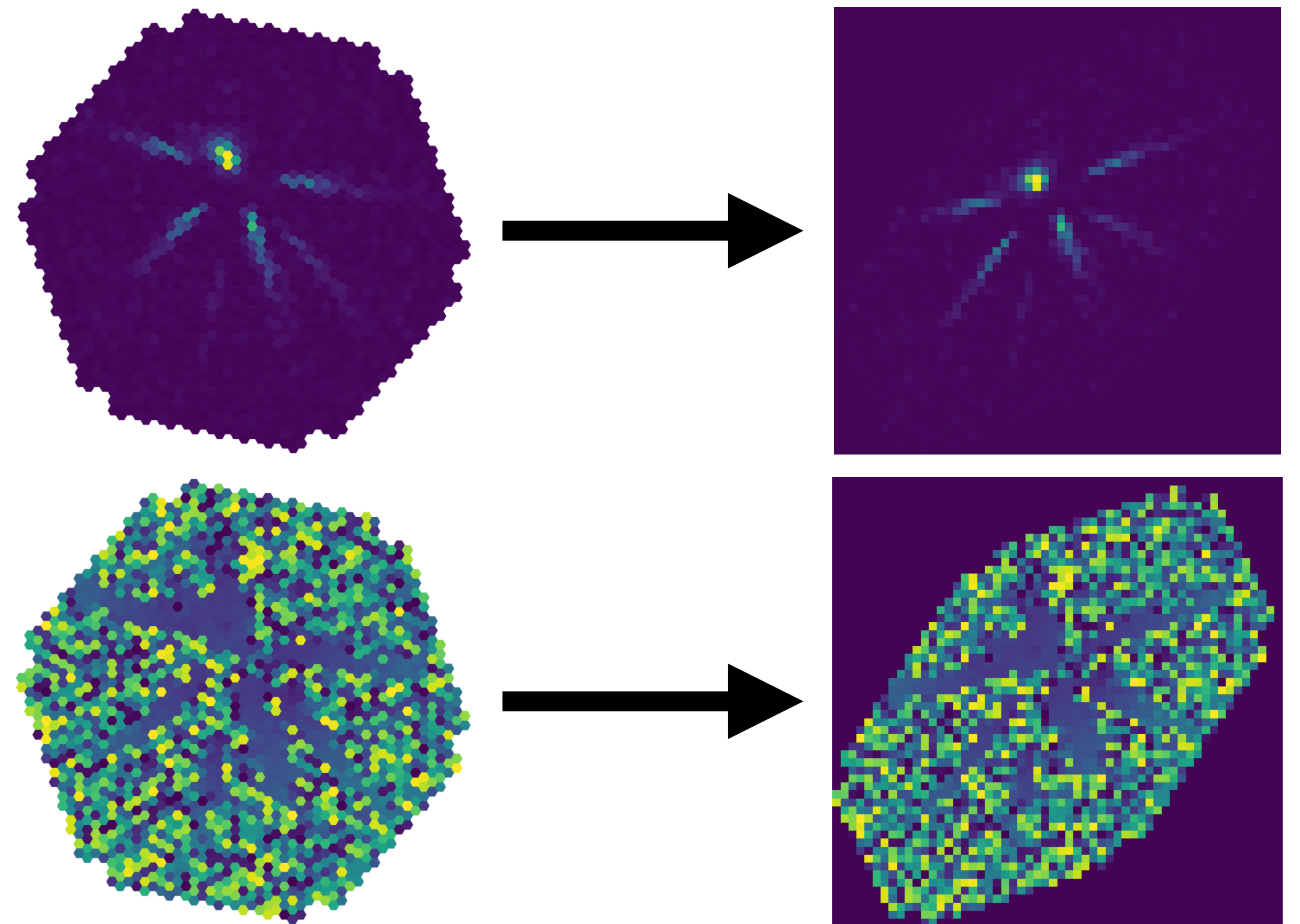
# **Neural networks for the Gamma/ Hadron separation of the Cherenkov Telescope Array**

**A comparison between convolutional neural networks and  
boosted decision trees**

# Data preparation

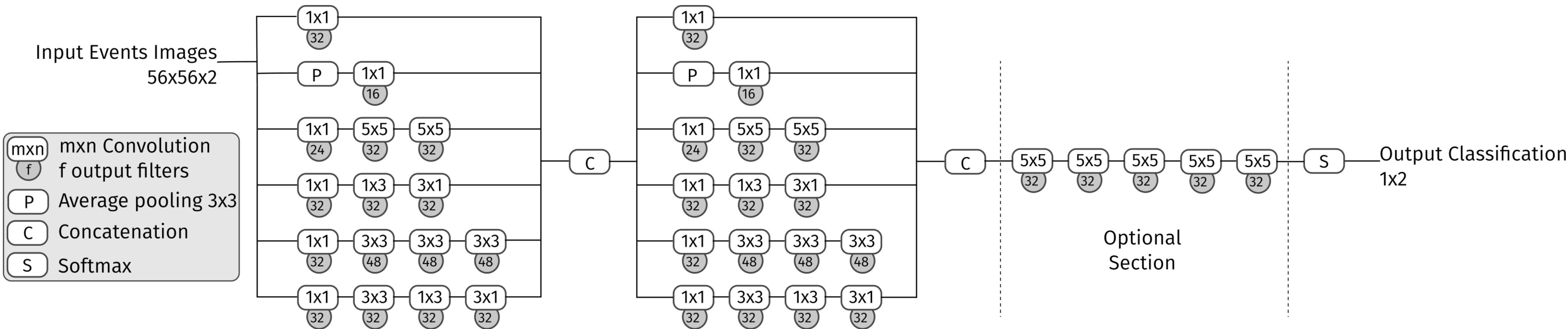
**Keras only knows about square images with multiple channels**

- Calibrate number of photo-electrons and arrival time of light from showers
- Turn hexagonal pixels into squares
- Pile-up data from several telescopes
- Amplitudes normalised per-event
- Events classified per energy bands



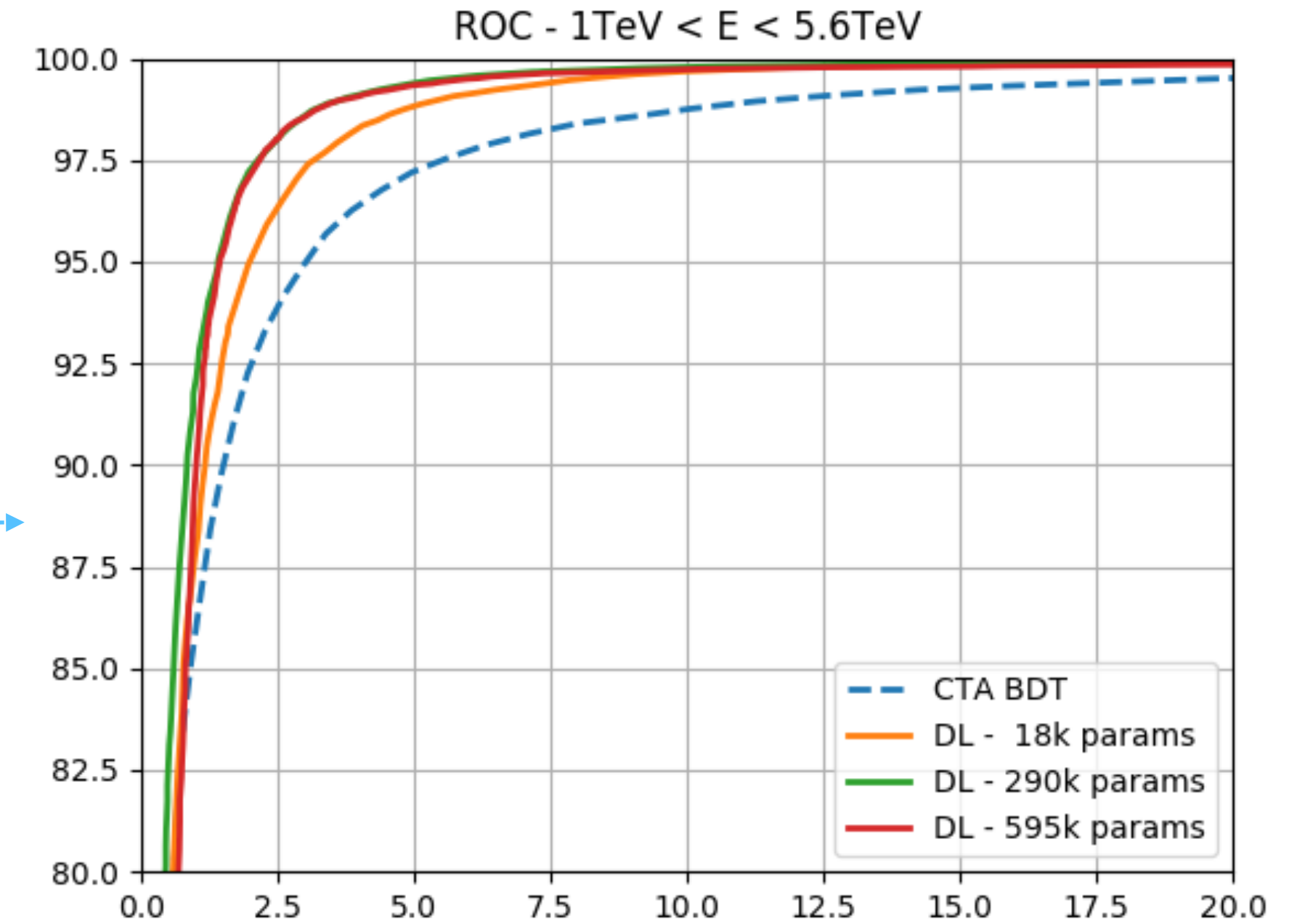
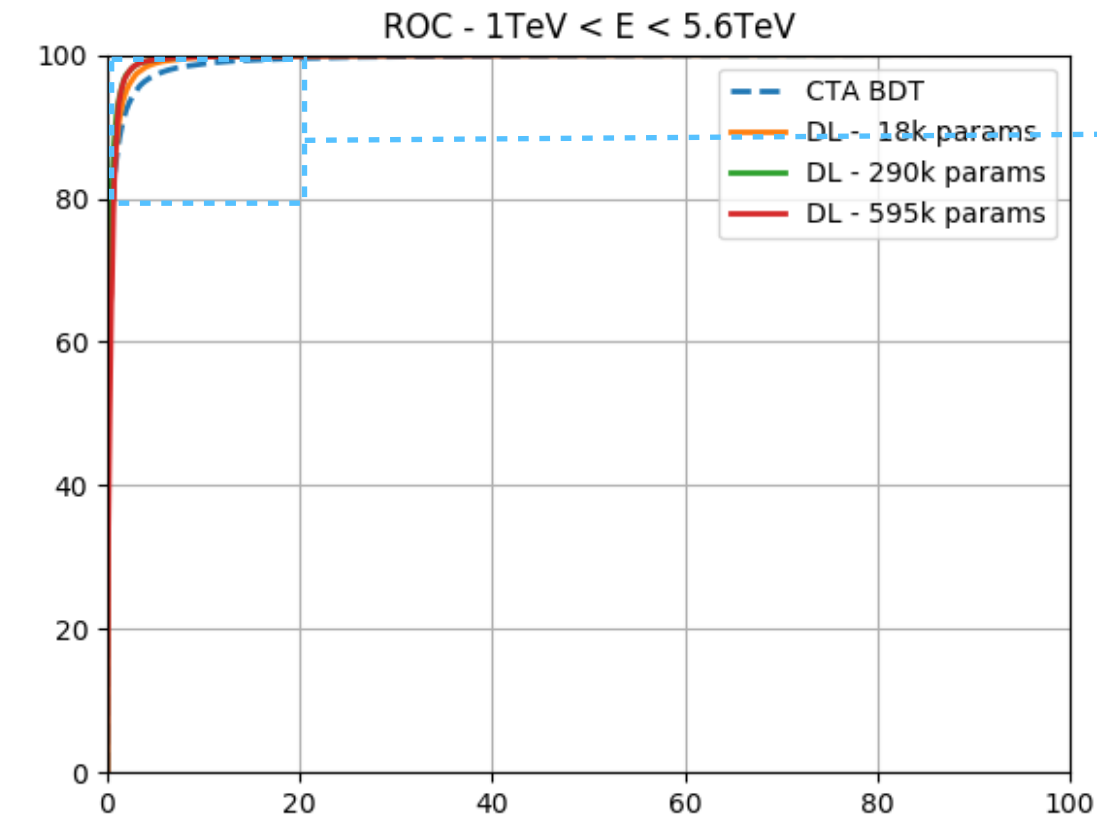
# Network Architecture

## Adapted from InceptionV3

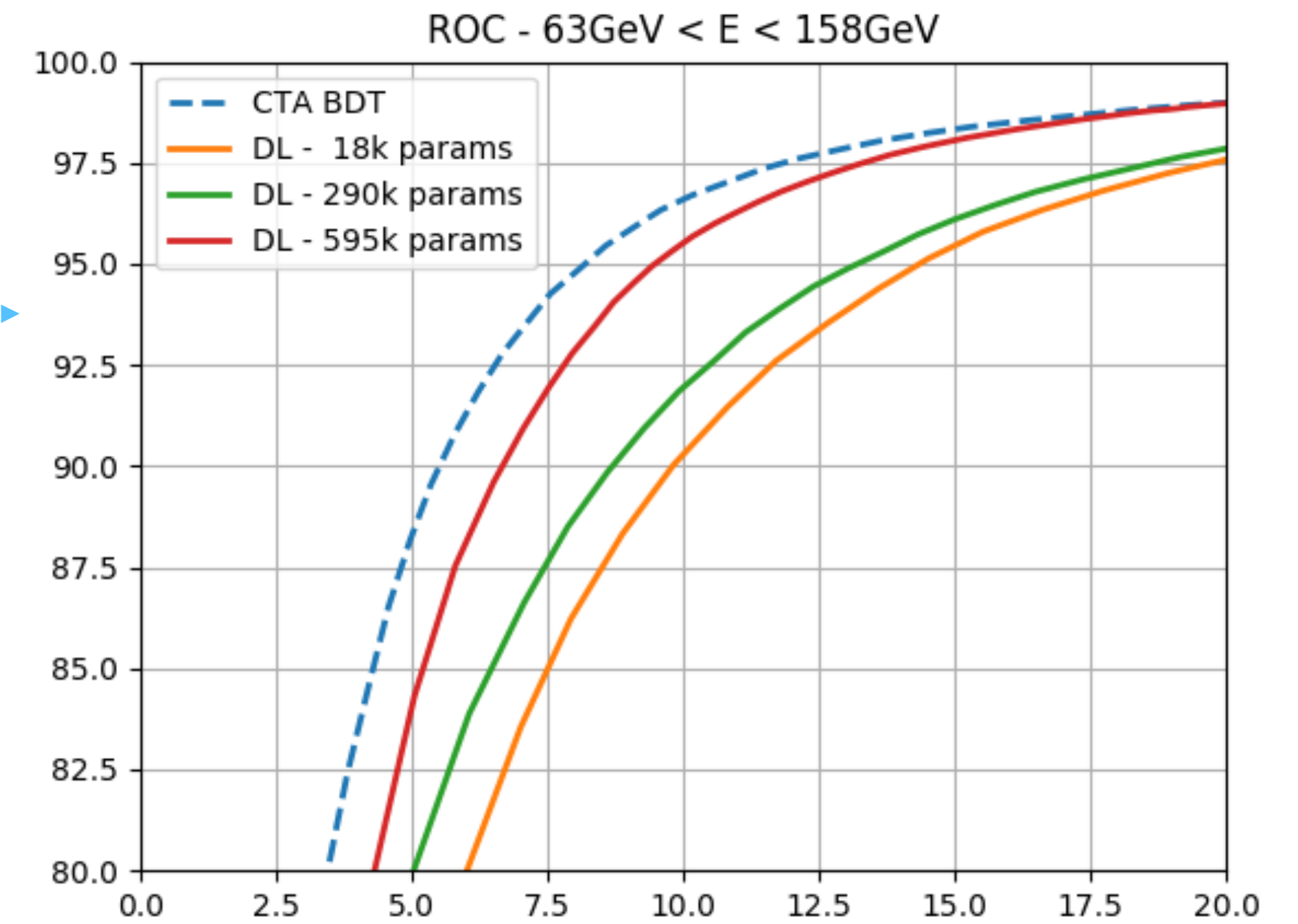
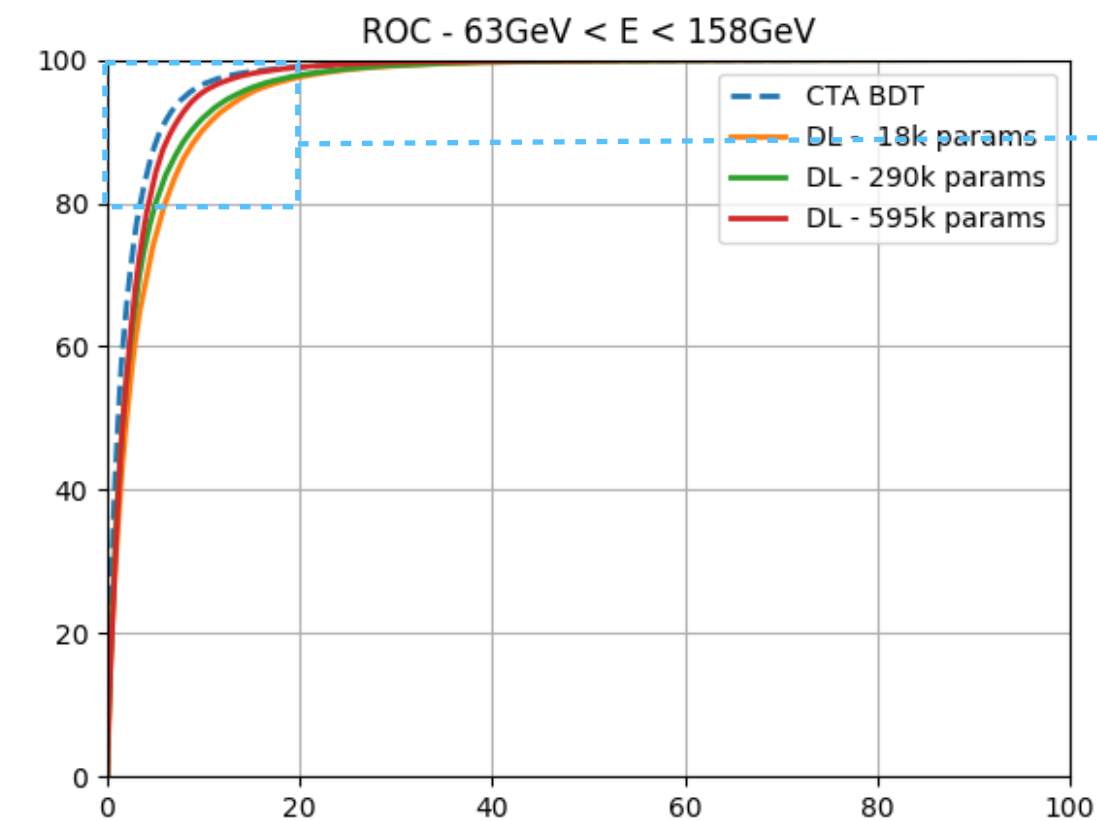


# Results

- CNNs outperform BDTs at high energies



- BDTs outperform CNNs at low energies



**Thank you for your attention !**