Gamma-Hadron seperation by Random Forrest classification in sklearn for CTAs real-time analysis

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Experimentelle Physik Vb
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Used MC data and attributes

- Used MC data: CTA Prod 3b - pointlike gamma and proton (around 5.500.000 events).
- Used attributes:
  - length
  - width
  - skewness
  - curtosis
  - intensity
  - telescope type
- Try different weights for multi-telescope prediction merging:
  - Simple, arithmetic mean.
  - Telescope based information: Focal length and mirror size.
  - Array based information: Distance to core.

Estimator performance befor merging.

- Used estimator: scikit learn RandomForrestClassifier.
- Used hyperparameters: Out-of-the-box estimator with maximal depth cap around 15 (evaluated by GridSearch).
- Estimation by 5 time CV.

Estimator performance after merging.

Conclusion