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Comparison of neural network methods based on the analysis of images or Hillas parameters for the selection of gamma events from IACT images.

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Imaging Atmospheric Cherenkov Telescopes (IACT) of gamma ray observatory TAIGA detect the Extensive Air Showers (EASs), originating from the cosmic or gamma rays interactions with the atmosphere. Thereby telescopes obtain images of the EASs. The ability to extract the gamma rays from hadronic cosmic ray background in images is one of the main features of this type of detectors. However, in actual IACT observations the background and the source of gamma ray simultaneous are observed.

In this work the results of the application of neural networks (NN) in image classification task on MC images of TAIGA-IACTs are presented. The Wobbling mode are considered together with the image adaptation for adequate analysis by the NN. At the same time, several neural network structures are considered that classify events both directly from images or through Hillas parameters extracted from images. Also taking into account all necessary image modifications the estimation of the quality selection by the NN for the rare gamma events selection in MC simulation are given.

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Summary

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