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Using Generative Neural Networks to Simulate IACT Images in Gamma Astronomy

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One of the important tasks of gamma-ray astronomy is the modeling of Extesnive Air Showers (EAS) generated by cosmic rays. Monte Carlo generators are commonly used. One of the most popular programs for generating events in gamma-ray astronomy is the CORSIKA package based on the GEANT4 program. The problem with such generators is the extrime consumption of computer resources. One alternative approach is to use artificial neural networks.

In this report, we present the results of a study of two types of generators for modelling of EAS images registrated by Cherenkov telescope. One of them is based on GAN network and the other one is based on variational autoencoder. We also compare the obtained results with the traditional approach.

Summary

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