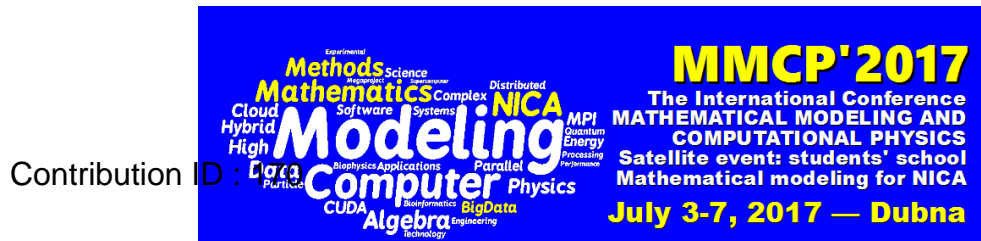


International Conference “Mathematical Modeling and Computational Physics, 2017” (MMCP2017)



Machine-learning algorithms for classification and separation of noisy signals

Thursday 06 Jul 2017 at 15:00 (00h15')

Content :

The main goal of this paper is to investigate the applicability of machine learning methods for processing and classifying experimental data obtained from the DEMON detector, as well as a comparative analysis of their effectiveness.

Detectors of the DEMON type are one of the basic measuring elements in the ATLAS and ALICE experiments and are usually used for detecting neutrons and gamma quanta.

The standard software package for this detector allows you to convert all events into energy diagrams that are recorded and saved for later statistical and mathematical analysis. The main problem of statistical processing of the obtained data is the separation and identification of events corresponding to neutrons and gamma / quanta. The double integration method used to solve it in the framework of standard software does not allow us to clearly identify and separate these events at certain energy intervals.

This fact motivated us to apply modern methods of machine learning to this problem.

Primary authors : Dr. STRELTSOVA, Oksana (JINR) ; Mr. BUTENKO, Yurii (JINR) ; Dr. STRELTSOV, Alexej (Institut für Physik und CINSaT, Universität Kassel)

Co-authors :

Presenter : Mr. BUTENKO, Yurii (JINR)

Session classification : Distributed and parallel computing and tools for scientific computing (II)

Track classification : --not yet classified--

Type : --not specified--