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# Machine learning based background rejection for Baikal-GVD neutrino telescope

Baikal-GVD is a large scale underwater neutrino telescope currently under construction in Lake Baikal. The experiment is aimed at the study of the high-energy cosmic neutrinos and the search for their sources. The principal component of the telescope is the three-dimensional array of optical modules (OMs) which register Cherenkov light associated with the neutrino-induced particles. The OMs are organized in 8 clusters, each containing 8 vertical strings. There are 36 OMs per string located at depths from 750 m to 1275 m with 15 m spacing. Using a natural reservoir as a working substance, the telescope is exposed to the luminescence of the Baikal water. One of the main challenges is the efficient rejection of OM hits caused by natural noise. In this talk we present the noise rejection algorithm based on the convolutional neural networks with the architecture resembling the geometry of the array. The motivation for choice of a specific neural network architecture is presented. We compare the results of the novel technique with the alternative algorithms in terms of the signal purity and the survival efficiency for signal hits.

## Significance

The algorithms will be presented at ACAT for the first time.

## References

## Speaker time zone

Compatible with Europe

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