

## KM3NeT: Machine Learning

The KM3NeT Collaboration is building a network of underwater Cherenkov telescopes at two sites in the Mediterranean sea, with the main goal of investigating astrophysical sources of high-energy neutrinos (ARCA) and of determining the neutrino mass hierarchy (ORCA).

Various Machine Learning techniques, such as Random Forests, BDTs, Shallow and Deep Networks are being used for diverse tasks, such as event-type and particle identification, energy/direction estimation, signal/background discrimination, source identification and data analysis, with sound results as well as promising research paths.

The main focus of this presentation is the application of Convolutional Neural Networks to the tasks of neutrino interaction classification, as well as the estimation of energy and direction of the propagating particles. The performances are also compared to those of the standard reconstruction algorithms used in the Collaboration. There is a plan to incorporate the software tools created into the ASTERICS (H2020) products and possibly continue in future projects.

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