

Overview of Machine Learning applications in JUNO

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Jiangmen Underground Neutrino Observatory (JUNO), located in the southern part of China, will be the world's largest liquid scintillator (LS) detector upon completion. Equipped with 20 kton LS, about 17612 20-inch PMTs and 25600 3-inch PMTs in the central detector (CD), JUNO will provide a unique apparatus to probe the mysteries of neutrinos, particularly the neutrino mass ordering puzzle. In recent decades Machine Learning has been more and more widely used in various neutrino experiments. If each PMT is viewed as a pixel, the JUNO CD can be regarded as a large spherical camera, providing a perfect scenario for the application of Machine Learning. This talk will present an overview of Machine Learning applications in JUNO, including reconstruction, particle identification and event classification, etc. These Machine Learning based methods not only provide alternative approaches complementary to the traditional ones, but also demonstrate huge potential on enhancing the performance of the JUNO detector.

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