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Machine Learning for event reconstruction in Super-Kamiokande

In this preliminary study I consider and explore the application of Machine Learning algorithms for reconstruction in Super-Kamiokande, the largest Water Cherenkov detector in the world. I simulated event samples to train a custom ResNet-18 based model whose perfomance is presented in this talk. The goal is the development of a Machine Learning based tool to be employed in proton decay analysis along with the official reconstruction software (fiTQun), which is based on Likelihood Maximization, to enhance reconstruction of faint rings in multi-ring events, ultimately improving signal selection efficiency.

Giorno preferito

Primary author: CALABRIA, Nicola Fulvio (Istituto Nazionale di Fisica Nucleare)

Presenter: CALABRIA, Nicola Fulvio (Istituto Nazionale di Fisica Nucleare)