

A new evolutionary algorithm for optimizing the search of a rare Higgs boson production channel

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When analyzing the rare Higgs-top channel, there is a problem of isolating this channel from the background. The separation problem can be solved using machine learning. A neural network is one of the most modern methods of Machine Learning. But the result of such an analysis highly depends on the set of input kinematic variables, the network architecture and other network hyperparameters. Obviously, manually selecting hyperparameters is not time-optimal and does not guarantee good results. Using an evolutionary algorithm to optimize a neural network significantly improves the efficiency of the network.

Primary authors: DIDENKO, Alice; TROPINA, Anastasia (JINR); BOYKO, Igor (JINR); YELETSKIKH, Ivan (JINR); HUSEYNOV, Nazim

Presenter: DIDENKO, Alice

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