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A NEW ALGORITHM FOR OPTIMIZING THE PARAMETERS OF A HIGH-PERFORMANCE NEURAL NETWORK

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This study explores the potential of using artificial neural networks to identify the rare process $pp \to tHbq$ at the Large Hadron Collider, aiming to improve the separation of the signal and background. A neural network-based mathematical tool was developed to improve signal cleaning. This approach was validated using Monte Carlo simulation of signal and background events. We find that neural networks suggest a promising technique for increasing the significance of the signal, facilitating the detection of the process $pp \to tHbq$.

Это исследование посвящено использованию нейронных сетей для идентификации редкого процесса $pp \to tHbq$ на Большом адронном коллайдере с целью улучшения разделения сигнала и фона. Эффективность разработанного на основе нейронных сетей инструмента была подтверждена с помощью моделирования методом Монте-Карло.

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