QUAK : Quasi Anomalous Knowledge for Anomaly Detection

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For many classes of new physics models, there is a broad set of underlying physics features we can assume about any new signal. With QUAK, we aim to embed these assumptions into our search while still preserving the model-independence of the search. The development of this approach would thus open an avenue of quasi-model dependent searches, which we believe can build a bridge between the conventional new physics searches at the LHC with fully model independent searches. We will present our idea in the context of an ongoing data challenge, the 2020 LHC Olympics. A toy study with the MNIST dataset that showcases QUAK will also be shown.

Summary

We present that we can perform model-independent searches while still using approximate signal priors. Analysis of three black box datasets, and a toy study with the MNIST dataset will be shown.

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