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ML4EFT: unbinned multivariate observables for global SMEFT analyses

We present ML4EFT, an open source framework for the integration of unbinned observables into global fits of particle physics data. Theoretical interpretations of particle physics data, such as the determination of the Wilson coefficients of the SMEFT, often involve the inference of multiple parameters from a global dataset. Optimizing such interpretations requires the identification of observables that exhibit the highest possible sensitivity to the underlying theory parameters. ML4EFT makes use of machine learning regression and classification techniques to parameterise high-dimensional likelihood ratios, and can be integrated into global analyses of, for example, the SMEFT.

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