

# Comparing Machine Learning Methods to Reduce Double-Charm Backgrounds for Measurement of $\mathcal{B}(B_c \rightarrow \ell^+ \ell^-)$ in LHCb

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Accurate machine learning models are a requirement in modern experimental particle physics. For many analyses, it is important to be able to accurately separate certain signals and backgrounds from each other. In this study, I perform an analysis using Boosted Decision Trees, Neural Networks, and a combination on simulated LHCb data and compare their effectiveness. This work is done in the context of Dr. S. Klaver's research into lepton flavour universality in  $B_s^0$  decays.

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