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## Machine Learning Techniques to Probe Heavy Neutral Leptons in the electron channel at FCC-ee

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In place of traditional cut-and-count analyses, machine learning methods can provide powerful ways to analyse physics data. In this work, we present techniques involving boosted decision trees (BDT) and deep neural networks (DNN) to increase the existing projected 95% CL limits for the HNL discovery potential at the FCC-ee, specifically as the HNLs decay into the final state of an electron and two jets. Considering HNLs in the mass range of 10-80 GeV, with couplings  $10^{-3} < |U_{eN}|^2 < 10^{-10}$ , we report an increased sensitivity of up to two orders of magnitude in the couplings when compared to previous cut-and-count analyses.

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