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Utilization of Machine Learning to Enhance Background Subtraction at E906/SeaQuest MARSHALL SCOTT, Univ of Michigan - Ann Arbor, E906/SEAQUEST COLLABORATION — The SeaQuest experiment utilized the 120 GeV Main Injector beam at Fermilab in p+p and p+d fixed target collisions to study the flavor asymmetry of the proton through the Drell-Yan process. Though the Drell-Yan process is clean, its cross section is tiny compared to the nuclear cross section. This coupled with the high intensity beam yields significant random background that must be removed. Monte Carlo simulations of Drell-Yan events from the beam dump and targets have been used to develop sets of analysis cuts. Machine learning, specifically Boosted Decision Trees and Probability Density Foams, have been used to augment these cuts and provide additional sets of cuts. A discussion of the merits of using these algorithms and a comparison with previous analysis cuts will be presented.

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