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**Effect of Machine Learning Techniques on SeaQuest Physics Analyses** DANIEL MORTON, University of Michigan Ann Arbor for SeaQuest, UNIVERSITY OF MICHIGAN ANN ARBOR FOR SEAQUEST COLLABORATION — Fermilab E906, SeaQuest, implements a 120 GeV proton beam from the Main Injector incident on liquid Deuterium and Hydrogen targets and solid Tungsten, Carbon and Iron targets to produce leptons through the Drell-Yan process. Produced particles impinge on an iron beam dump, which absorbs all but muons and neutrinos. Muon pairs are divided and refocused with two dipole magnets. The primary objective is the extraction of the $\bar{d}/\bar{u}$ ratio from the muon production cross section ratio $\sigma(d+p)/\sigma(p+p)$. The SeaQuest spectrometer is optimized to search for coincident dimuons, utilizing four detector stations containing scintillators, drift chambers and proportional tubes. The experiment relies on hodoscope coincidence to determine whether to accept the event. The goal of implementing machine learning algorithms (MLAs) is to improve trigger purity and event classification accuracy on both trigger and reconstruction levels, and thus improve statistical precision in all physics analyses and provide insight into spectrometer acceptance bias as well as potentially providing essential trigger optimization for the search of a dark Higgs candidate. We will report on the present status and plans to implement MLAs into the various triggers and its effect on physics analyses.

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