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(CEU) Pile-up Detection in Silicon Detector Signals via Machine Learning for the Nab Experiment[1] DAVID PERRYMAN, University of Tennessee, NAB EXPERIMENT COLLABORATION — Pixelated Silicon detectors and shaping electronics in the Nab Experiment will produce digitized waveforms from which energy and timing information can be extracted. Electrons that escape and return to the same pixel, or particles that accidentally arrive in the same waveform can distort results if not detected and accounted for. This talk will present a machine learning approach to detecting these events using feedforward dense, convolutional, recurrent, recurrent convolutional, and residual convolution networks. 1-dimensional variations of the popular ResNet50 and ResNet152 have been implemented. This talk will also discuss a Generative Adversarial Networks (GANs) and dimensionality reduction approach to investigating weaknesses in pile-up detection.

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