Abstract Submitted
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Track Selection In Drift Chambers Using Convolutional Neural Networks[1] JOSE CRUZ, Central Piedmont Community College, ANDREW HOYLE, Davidson College, GAGIK GAVLIAN, Jefferson Labs, MICHELLE KUCHERA, RAGHU RAMANUJAN, Davidson College — Particle tracks of interest were selected from Hall B data at Jefferson Lab using machine learning methods. This research uses convolutional neural networks (CNNs) to classify which signals within an event belongs to the particle of interest. Using CNN architectures common in image analysis, we trained our model using data where the track are known. We tested VGG16, VGG9, Xception , InceptionV3, MobileNetV2 and InceptionResNetv2, the CNN architectures starting with pre trained weights to determine which model will provide the best results. The goal is to find the model and setting that provides the most efficient and accurate results with analyzing images at a speed of 3 milliseconds per image or lower. Results will be presented with comparisons between different models in terms of speed,loss, and accuracy.

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