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# Using Machine Learning to Improve our Understanding of the Jet Background in Nucleus-Nucleus Collisions.

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Jets in heavy ion collisions contain contributions from a background of soft-particles. The kinematic reach into low jet momentum is largely driven by the precision of the method used to subtract this background. This precision is also a significant contribution to uncertainties of jet measurements. Previous studies have suggested that deep neural networks can improve momentum resolution at LHC energies when compared to the traditional area-based subtraction method. Applying deep neural networks to subtract background in Au+Au collisions at 200 GeV yields similar performance in low momentum jet resolution. This talk presents investigations into the relationship between corrected jet momentum and input jet feature-space which provide insight into the improved performance achieved by a deep neural network. These insights are used to develop a simplified neural network architecture and a background subtraction method based on jet track multiplicity. Both achieve similar performance to the deep neural network.

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