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Calibrating Pions with Deep Learning at the Atlas Detector at the Lhc SYLVIA MASON, University of Oregon, ATLAS COLLABORATION — Pions are produced more than any other particle at the LHC, so it is important that their energy is accurately calibrated in order to measure essentially any physics process at the LHC. Charged and neutral pions deposit energy via different mechanisms in the ATLAS detector, so their energy may be incorrectly measured in some cases. This project focused on utilizing deep learning techniques to correct the measured energy deposit to the true value, using image recognition techniques. Several variants of this image-based regression technique are shown, and several significantly improve the energy reconstruction compared to baseline techniques.

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