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Using computer-vision inspired techniques for end-to-end event classification on ATLAS data

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The ATLAS detector is, in its most abstract form, a cylindrical camera. It captures the energy deposits left in the detector material from particles produced in high-energy particle collision events. Traditional methods of analysing this data rely on the reconstruction of the particle collision. This process transforms the high-dimensional, low-level data from the detector into lower-dimensional, high-level data. By treating the low-level energy deposit data as part of a panoramic (360 degrees) image, we aim to skip the reconstruction event and classify the event based on this "energy fingerprint"using machine learning algorithms specifically designed for image recognition.

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