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Deep Learning for Pion Classification with the ATLAS Detector NICHOLAS LUONGO, University of Oregon, ATLAS COLLABORATION — Hadronic signatures, and pions specifically, are ubiquitous in events captured by the ATLAS detector. Their classification as electromagnetically showering neutral pions or hadronically showering charged pions is therefore extremely important for particle and eventual jet reconstruction. Various deep learning models are trained on the energy deposits of pions in the calorimeter system to predict their shower profile. The deposits for a pion are represented as a group of images each corresponding to a different layer of the calorimeter. These trained models achieve more accurate classification when compared to current baseline methods. See ATLAS PUB note here: https://atlas.web.cern.ch/Atlas/GROUPS/PHYSICS/PUBNOTES/ATL-PHYS-PUB-2020-018/

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