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Deep learning implementation for Dual-Readout calorimeter. YUNJAE LEE, JASON LEE, University of Seoul, HWIDONG YOO, Yonsei University, SEHWOOK LEE, Kyungpook National University, SANGHYUN KO, Seoul National University, SEUNGKYU HA, KYUYEONG HWANG, MINSOO KIM, YUN EO, JUNEWOO PARK, KYUNGHO KIM, SUNGWON KIM, Yonsei University, BOBAE KIM, JUNGHYUN LEE, Kyungpook National University, MINSANG RYU, IAN WATSON, JONGSUK PARK, DOYEONG KIM, University of Seoul — The dual-readout calorimeter consists of scintillating and Cerenkov fibers readout together. This design allows both electromagnetic and hadronic showers to be measured with high precision in a single detector. While it's under development for future colliders, deep learning implementations are studied to maximize the physics potential. Image based deep learning model analyzes pixelated energy deposit with convolutional neural networks. And raw energy deposit can be applied with a point cloud based deep learning method. Using these methods, jet reconstruction, particle identification, and fast simulation can be improved. We present demonstrations of jet variables regression, particle discrimination, and shower generator for the dual-readout calorimeter.

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