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Machine Learning Techniques for Space Calorimeter Experiments

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Space-based experiments for direct detection of high-energy cosmic rays often employ optimized calorimeters, designed to achieve high energy resolution and broad acceptance capabilities. However, the significant volume of data collected demands innovative approaches for analysis and interpretation.
In this study, we introduce our efforts to develop an AI algorithm dedicated to classifying electromagnetic and hadronic showers. By leveraging machine learning techniques, our algorithm aims to accurately discern and categorize these fundamental particle interactions. The implementation of our AI model is expected to enhance the efficiency and precision of data analysis within experiments, thereby advancing our understanding of high-energy cosmic ray phenomena.

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