

# Multiple Coal Classification using Deep Learning Techniques

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**Abstract:** Coal is mainly energy in the world which play a very important role in the development of the national economy. But there are plenty of coal gangue in addition to coal in the process of mining. The traditional sorting is mainly used by manual selection and mechanical separation. This project explores a new coal classification model based on features extraction and deep learning. In view of the characteristics of high dimensionality, strong correlation, and high redundancy of spectral data, this project proposes to combine features extraction with Convolutional neural network to solve the problem of coal classification, and to further improve the classification accuracy. An improved classification algorithm is proposed, and the improved deep learning algorithm is used to improve and optimize the structure and training parameters of the model. Finally, analyse the results in terms of execution time and accuracy parameter.

**Keywords:** Artificial Intelligence (AI), Convolutional Neural Network (CNN), Edge Histogram Descriptor (EHD), Deep Learning (DL), Machine Learning (ML), Support Vector Machine (SVM), etc.

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