

## Deep Learning based Approach for Multilabel Genre Prediction

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Multilabel classification is a type of classification task in which an instance can be assigned many labels at the same time. Multilabel data can be correctly classified using machine learning and deep learning models. Transfer learning is a machine learning method in which a model trained for specific task is used for different but similar task. In this study, we utilized the transfer learning to overcome the multilabel classification problem. As a case study movie poster image classification is selected because in general, movies have multiple labels/genres. For this purpose, movie images from The Internet Movie Database (IMDB) have been downloaded and used. The popular modern pretrained models have been employed for transfer learning. The iterative stratification technique has been utilized to partition the dataset. Each model has been trained and fine-tuned using this dataset. The performance of each model has been compared taking into account metrics such as AUC, f1-score, precision, loss, and hamming loss.

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