Prediction of Music Track Popularity: A Machine Learning Approach

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Abstract : Hit song science is a field of investigation wherein machine learning techniques are applied to music tracks in order to extract such features from audio signals which can capture information that could explain the popularity of respective tracks. Record companies invest huge amounts of money into recruiting fresh talents and churning out new music each year. Gaining insight into the basis of why a song becomes popular will result in tremendous benefits for the music industry. This paper aims to extract basic musical and more advanced, acoustic features from songs while also taking into account external factors that play a role in making a particular song popular. We use a dataset derived from popular Spotify playlists divided by genre. We use ten genres (blues, classical, country, disco, hip-hop, jazz, metal, pop, reggae, rock), chosen on the basis of clear to ambiguous delineation in the typical sound of their genres. We feed these features into three different classifiers, namely, SVM with RBF kernel, a deep neural network, and a recurring neural network, to build separate predictive models and choosing the best performing model at the end. Predicting song popularity is particularly important for the music industry as it would allow record companies to produce better content for the masses resulting in a more competitive market.

Keywords : classifier, machine learning, music tracks, popularity, prediction

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