The Genre Factor

Project Presentation - ML Seminar 2023

Henry Krämerkämper
Christopher Breitfeld
13.07.2023

Technische Universität Dortmund

- Genre classification of songs based on audio features
- Dataset: Thousands of songs with diverse genres
- Challenge: Developing an accurate classification model

tu

Dataset from Kaggle: Spotify and YouTube
- Contains statistics of songs on Spotify and YouTube
- including streams on Spotify and number of views on YouTube
- 20.7k entries by 2k artists
- Does NOT include the genre
- Licensed under CC0: Public Domain

Wikidata Query for the Top-Genre of the Artist
- Query artist's Wikidata page for genre names
- Choose a list of broader genres, so that the genres are not too specific
- Match artist to one of the genres on the list, based on the query
- Usage possible under CC-by-SA-3.0

Target of the resulting Dataset
- Target: genre

tu

- Neural network model for genre classification
- Layers, activation functions, and number of parameters
- Training process and optimization algorithm

tu

- Importance of hyperparameter tuning
- Methods used (e.g., grid search, random search)
- Results of optimization and best hyperparameters

- Preventing overfitting in the model
- Regularization techniques used (e.g., dropout, weight decay)
- Validation and test set performance

- Accuracy and performance metrics on the test set
- Comparison with baseline or previous methods
- Visualization of classification results (e.g., confusion matrix)

tu

- K-nearest neighbors (KNN) approach
- Support Vector Machines (SVM) approach
- Brief description and performance comparison

tu

- Summary of findings and key takeaways
- Comparison of the proposed method with alternative approaches
- Limitations and potential areas for improvement

Appendix: The features of our dataset

Features

- Track
- Artist
- Url_Spotify
- Album
- Album_type
- Uri
- Danceability
- Energy
- Key
- Loudness
- Speechiness
- Acousticness
- Instrumentalness
- Liveness
- Tempo
- Duration_ms
- Stream
- Url_youtube
- Title
- Channel
- Views
- Likes
- Comments
- Description
- Licensed
- official_video

tu