



AI Music Recommendation

Evan Griswold

Earlham College

December 6, 2023

TABLE OF CONTENTS

1

Introduction

2

Dataset

3

Methods

4

Extra Goals

5

Recap

1 Introduction

What am I building?

- I'm building an AI Music Recommendation System for users to use and to enjoy listening to their favorite songs.

How?

- I will collect data from the MSD (Million Song Dataset) and use certain methods (content based filtering and deep learning) to create a system for users.

2 Dataset

- MSD is a freely available collection full of audio features and metadata for a million contemporary popular music tracks.
- Purposes:
 - To encourage research on algorithms that scale to commercial sizes
 - To provide a reference dataset for evaluating research
 - As a shortcut, alternative to creating a large dataset with APIs (e.g. The Echo Nest's)
 - To help new researchers get started in the MIR field (Music Information Retrieval)

2.1 Dataset - (Sub-Datasets)

- The sub-datasets I will use to improve my recommender system:
 - SecondHandSongs dataset -> cover songs
 - Last.fm dataset -> song-level tags and similarity
 - Taste Profile subset -> user data
 - tagtraum genre annotations -> genre labels

3 Methods

Content Based Filtering

- Recommends music based on the content of songs and the user's history preferences. It focuses on matching user profiles with music features like genre, tempo, and lyrics.

Deep Learning

- An algorithm (branch of machine learning) that attempts to perform high-level abstraction of data using multiple processing layers that contain complex structures.

3.1 Methods (Plan)

- I will use content based filtering and deep learning together to perform the desired tasks within the recommender system. The way these will be evaluated will be through trial and error and from the feedback collection system that the user will provide. Necessary changes will be accounted for and improved in the system.

3.2 Methods (Pros & Cons)

Content Based Filtering

Pros:

- Personalizable, transparency, and no cold start issues.

Cons:

- Profile narrowness, over-specialization, and staleness.

Deep Learning

Pros:

- Highly effective, scalable, and continuous improvement.

Cons:

- Data dependency, complex, and limited data efficiency.

4 Extra Goals

- Creating a user-friendly platform complete with an intuitive interface.
 - Users interact with the system, fostering an engaging and efficient music discovery experience.
- Feedback collection system
 - Ensuring continuous improvement and adaptability to evolving user preferences.

5 Recap

- AI Music Recommendation System
- The Dataset and Sub-Datasets I am using
- The Methods and their Pros & Cons
- The Extra Goals I have planned for the future

The floor is open for questions :)