MUSIC RECOMMENDATION BASED ON ARTIST NOVELTY AND SIMILARITY

Ping-Chia Tsai,[1] Ning Lin,[1] Yu-An Chen,[1] and Homer H. Chen[1]

[1]National Taiwan University

MOTIVATION

- Propose a music recommendation to meet the following three requirements:
  - Be able to deal with a small amount of ratings given by the user
  - Achieve high user acceptance
  - The artists of the recommended songs should be new to the user

TERMINOLOGY

- Artist classification
  - Like/dislike
  - New/known
- Artist attribute
  - Similarity
  - Popularity

EXPERIMENTS

1. Dataset

- 106 subjects recruited from campus
- Music preference ranges from pop, electronic, metal, jazz, rock, hip hop, country, to vocal music

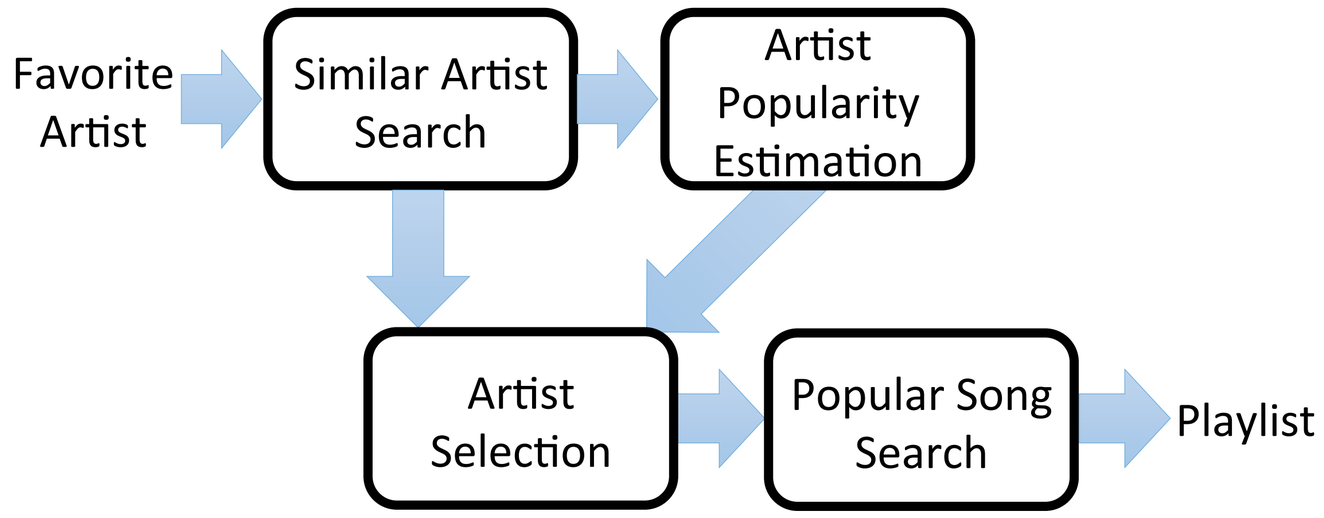
2. Compare with Spotify Radio

- Questionnaire

Preference score	Description
5	The song is awesome. I will listen to it again.
4	Nice. I might listen to it again.
3	The song is okay, but I may not listen to it again.
2	Nothing special. No comment.
1	The song is terrible.

Novelty score	Description
5	I've neither heard of the artist nor the song.
4	I know the song, but I haven't heard of the singer.
3	I know the singer, but I haven't heard of this song.
2	I know both the singer and the song.
1	I am quite familiar with the singer and this song.

PROPOSED SYSTEM

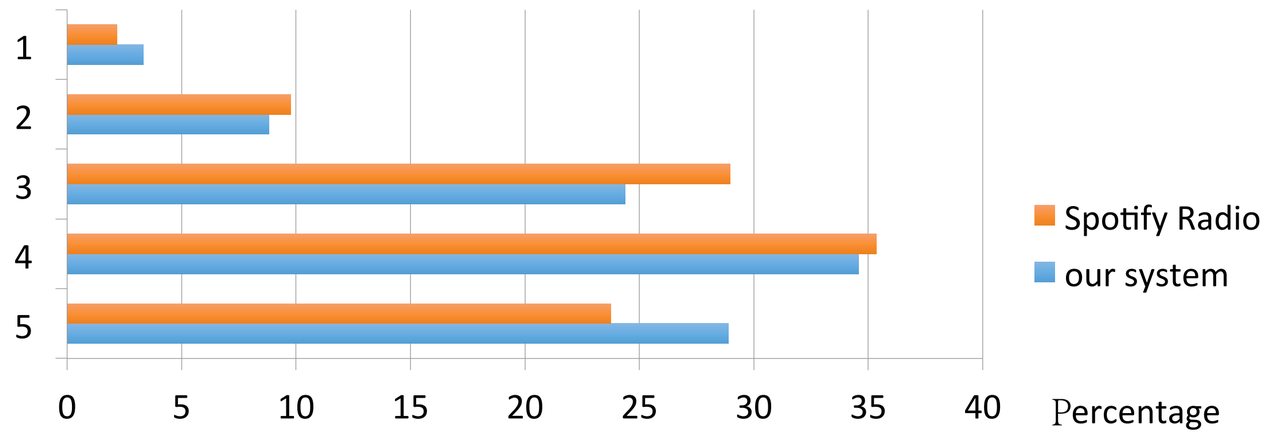


ALGORITHM

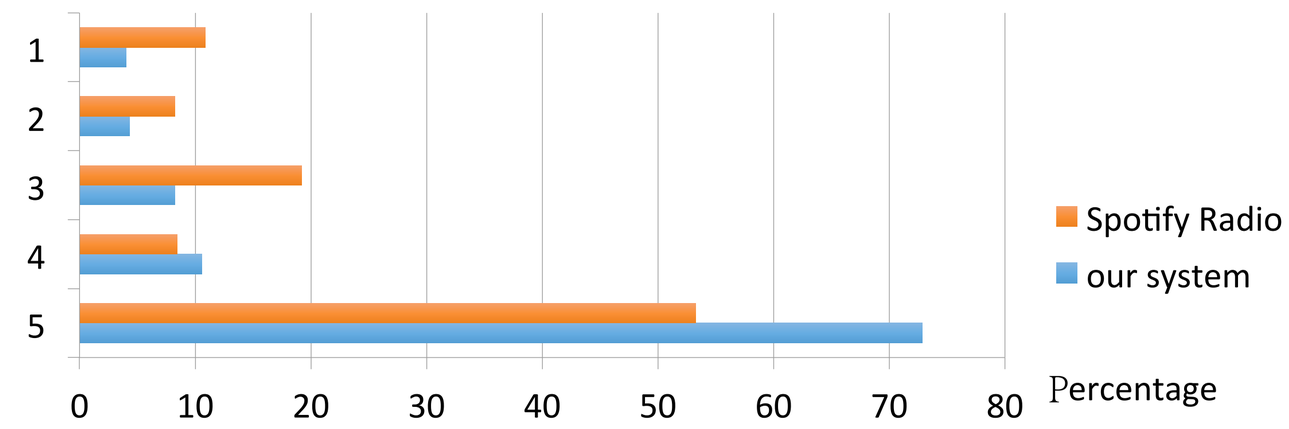
- **Similar Artist Search**
  - $P(like|\ a,b) \propto sim(a,b)$
  - $sim(\cdot,\cdot)$: similarity
- **Artist Popularity Estimation**
  - $P(known|u,b_{i,j}) \propto pop(b_{i,j}|u)$
  - $pop(b_{i,j}|u)$: the popularity of $b_{i,j}$ viewed by user u
  - $pop(b_{i,j}|u) = \frac{log\ pop(b_{i,j})}{log\ pop(a_i)}$
- **Artist Selection**
  - $Score(b_{i,j}) = Sim(a_i, b_{i,j}) \times Novelty(b_{i,j})$

RESULTS

Preference Score



Novelty Score



New Liked Song