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Project Title:

The Power of Suggestion: Do Recommender Systems Change Our Musical Preferences?

I. Introduction
   a. Describe "recommender systems" and context for their expansion
   b. Overview recommender system methods and technologies
      i. Content-based recommendations
      ii. Collective filtering
      iii. Hybrid systems
   c. Introduce Music Recommender Systems (MRS) examples and its mass adoption
      i. List platforms, number of users, and technologies used

II. Research Problem and Significance
   a. Restate question: do MRS affect users' musical preferences?
   b. Explain significance
      i. Millions – potentially billions – of humans use MRS, yet our field has yet to fully grasp the impact of MRS
      ii. Influencing music preferences may serve as a proxy for other types of sentiment and behavioural change, beyond existing observations in social media, politics, and retail "filter bubbles"
      iii. Users should be aware of unintended consequences of MRS usage

III. Existing Literature
   a. Recap literary review sources
      i. Discuss studies on MRS-related preference changes
      ii. Discuss studies on MRS recommendation diversity/homogeneity
   b. Discuss foundational research
      i. Adomavicius et al.'s 2013 study, Do Recommender Systems Manipulate Consumer Preferences?
         1. Insightful and logical findings, based on commercial and retail data
      ii. Adomavicius et al.'s 2021 study, Effects of Personalized and Aggregate Top-N Recommendation Lists on User Preference Ratings
         1. Relies on a ratings system that may not correlate with true user preferences
         2. Relies heavily on previous research, yet that literature is about non-music information
         3. References findings based on commercial and retail data (Adomavicius et al., 2013)
      iii. Porcaro et al.'s 2021 review, Diversity by Design in Music Recommender Systems

1. Cites lack of literature on key topic areas
2. Posits that MRS influence preference by diversity exclusion

iv. Schedl et al.'s 2018 study, Current challenges and visions in music recommender systems research
1. Well-rounded review on MRS diversity results
2. Alternate method of calculating and potentially implementing diversity

c. Review gaps identified
i. Foundational literature focusses on non-music recommender systems
1. Solution: replicate experiments with MRS
ii. Subsequent experiments rely on rating systems prone to bias
1. Solution: measure results in multiple, non-intrusive forms

IV. Research Design and Methodology
a. Overview: use a control group and experiment group to compare MRS performance, and passive collection and analysis techniques to mitigate result bias or interference
b. Process:

i. Establish a music platform that does not use MRS

ii. Recruit two groups of users – experiment and control – to use the non-MRS system for twelve months (long enough to account for seasonal variables and trends)

iii. Establish user-by-user baselines of listening patterns according to genres, artists, and songs

iv. Enable MRS for experiment group for six months, whilst control continues to use non-MRS system

v. Remove MRS for experiment group, have control and experiment groups use non-MRS system for twelve months

vi. Establish user-by-user baselines, compare to initial baseline

V. Ethical Considerations and Risk Assessment
a. Information collection / user data rights (GDPR compliance)
b. Notification and acceptance of research terms
c. Risk assessment

VI. Description of Artefact
a. Report
b. Substantiating Data

VII. Timeline
- a. Pilot experiment
  - i. Phase 1: 90 days
  - ii. Phase 2: 90 days
  - iii. Phase 3: 90 days
- b. Full experiment
  - i. Phase 1: 12 months
  - ii. Phase 2: 6 months
  - iii. Phase 3: 12 months