

# The Ethics of AI in Playlist Algorithms: Harmony or Homogeny?

## Why?

This lesson focuses on the intersection of AI and music, exploring how algorithms curate personalized playlists and the implications for musical diversity and artist exposure. It raises critical discussions on the challenges of algorithmic bias and echo chambers, alongside ethical considerations like privacy and copyright in the digital music landscape. By engaging in simulations and reflective discussions, students will understand the complexities of AI-driven music recommendations and consider how technology can better serve both listeners and artists in a diverse musical ecosystem.

## Materials Needed

- Printouts of the simulation sheet for each group:
  - 1 Playlist Rules Group sheet
  - Enough copies of the Song Suggest sheet for all other groups
- Document camera (optional) to display suggested song characteristics

## Time needed

- Approximately 45 - 60 minutes
- Longer if songs are played in class

## Objectives

- Students will be able to explain how AI algorithms influence music playlist recommendations and the concept of an "echo chamber."
- Students will be able to identify the challenges and limitations of AI in promoting musical diversity and supporting emerging artists.
- Students will be able to discuss ethical considerations in AI-driven music recommendations, including privacy concerns and copyright issues.
- Students will be able to propose potential improvements or solutions to enhance the fairness and diversity of AI-driven music recommendations.

## Key Concepts & Vocabulary

- **Echo Chamber:** A situation where AI repeatedly recommends music similar to what a listener has previously enjoyed, potentially limiting exposure to new genres or artists.
- **Algorithmic Bias:** The tendency of AI algorithms to reflect or amplify biases present in their training data or design, possibly favoring certain types of music over others.
- **Playlist Curation:** The process of selecting and organizing songs into a playlist, which, in the context of streaming services, is often influenced by AI to match listeners' preferences.

## Lesson Components

1. **Before You Watch:** Connect lesson to background knowledge of AI algorithms in music playlists and get students' attention.
2. **Video:** Show the pedagogy.cloud video explaining the ethical considerations in the topic of algorithmic recommendations.
3. **Case Study:** Detail a real-world scenario that relates to the issue of AI in playlist algorithms.
4. **Simulation:** Lead students through an interactive activity exploring the possible ethical considerations.
5. **Discussion:** Ask whole-class questions to reflect on experience and consider perspectives.
6. **Assessment:** Verify student understanding with an exit ticket.

### 1. Before You Watch

**Option A: Music Genre Brainstorm:** Have students quickly list as many music genres as they can in two minutes, highlighting the diversity in music and setting the stage for discussing how AI manages this diversity.

**Option B: Personal Playlist Sharing:** Invite students to share one song from their favorite playlist and explain why it's there, introducing the concept of personalized recommendations.

**While You Watch:** Mention these topics and questions for students to look out for as they watch the video:

- What does “echo chamber” mean in the context of music streaming services?
- Why might AI have difficulty recommending music from artists who create new styles?
- Find an example in the video that shows how AI recommendations can limit musical diversity.
- Why is privacy a significant concern?

### 2. Video Summary

Artificial Intelligence (AI) acts as a personal DJ on music streaming platforms, tailoring playlists to our tastes but potentially creating "echo chambers" that limit musical diversity. Unique artists might remain undiscovered by AI due to their genre-bending styles, highlighting the challenges in music recommendation systems. Ethical considerations, including copyright respect and privacy, are pivotal in ensuring AI enriches our music experience without compromising artistic diversity or listener autonomy.

### 3. Case Study

**Distribute or read Case Study handout.**

Summary: Leon Harmonia, a musician blending jazz and electronic music, receives local acclaim but struggles to gain global recognition on streaming platforms due to AI algorithms favoring mainstream genres, creating an “echo chamber” effect. This

challenge is compounded by concerns over privacy and copyright with AI's use of song snippets for recommendations. Addressing these issues requires enhancing AI for greater musical diversity, introducing user-driven discovery features, ensuring transparent data practices, and providing artist support programs to balance personalization with creative diversity.

#### 4. Simulation

The classroom is transformed into a music curation lab, where students are divided into small groups, tasked with either suggesting songs for a playlist or setting the rules for song inclusion based on various characteristics.

Divide the class into small groups of about 3-4.

##### Roles

- **Playlist Rules Group:** One group randomly chosen to set the criteria for songs to be included in the playlist. They decide on desired characteristics like tempo, mood, genre, and vocalist gender.
- **Song Suggest Groups:** Remaining groups work as music curators, suggesting 5-6 existing songs each, and listing their characteristics based on the provided criteria.

##### Tasks:

- **Setting Up:** Distribute a characteristic sheet to all groups, outlining categories like tempo, mood, genre, and vocalist gender.
- **Rule Creation:** The Playlist Rules Group discusses and decides on specific characteristics they seek in playlist songs.
- **Song Suggestion:** Song Suggest Groups brainstorm and list 5-6 songs with their corresponding characteristics, ensuring a mix of genres and styles.
- **Presentation:** Teacher displays the characteristics of suggested songs without revealing titles, maintaining anonymity.
  - If you have a document camera, you can put each group's list on the screen one at a time, making sure to fold the left side of the page over to cover the song titles.
  - If not, you can have each group read the song characteristics, and have the Rules group pick by letter after listening to the lists.
- **Selection Process:** The Playlist Rules Group reviews the song characteristics and selects one song from each Song Suggest Group that best fits their criteria, noting the group number and song letter.
- **Reveal and Reflection:** Once selections are made, song titles are revealed, and the class reviews the playlist to discuss the diversity and similarity of the chosen songs.
- **(Optional) Listening Time:** songs could be played in class to see how closely they fit the playlist. (Remembering, of course, that not all suggested songs will be appropriate for school.)
- Bring the class back together for whole-class discussion on questions listed in the next section.

## 5. Discussion

These questions are designed to be used in whole-class discussion. Ask questions that relate most effectively to the lesson.

1. How did the role you played in the simulation affect your perspective on how music playlists are curated?
2. In what ways did the activity challenge your understanding of AI's impact on music discovery?
3. Did this simulation change your thoughts on the diversity of music available on streaming platforms? How so?
4. How did the criteria set by the Playlist Rules group influence the variety of songs selected by the Song Select groups?
5. Were there any surprises in the songs, or types of songs, that were selected or overlooked? What does this reveal about AI-driven recommendations?
6. How might the limitations of AI in recognizing diverse musical genres and styles impact emerging artists?
7. How do you think AI algorithms could be improved to better support musical diversity and discovery?
8. Considering the simulation, what role do you think listener feedback should play in shaping AI music recommendations?

## 6. Assessment

**Exit Ticket:** Provide a prompt for students to reflect on their learning, such as:

- What is one new insight you gained about AI and music playlist curation from today's lesson?
- How do you think AI-driven music recommendations can be improved to support a wider range of artists and genres?
- Reflecting on the simulation, what is one challenge you think AI faces in accurately reflecting musical diversity?

## Sources to Learn More

- Is Spotify's algorithm helping or hurting musicians? - <https://amt-lab.org/blog/2022/4/spotify-s-algorithm-helping-or-hurting>
- Background of Spotify's "Daily Mix" algorithmic playlists - <https://medium.com/systems-ai/spotify-s-machine-learning-algorithms-and-your-daily-mix-f49d97db4b16>
- What role do humans play in AI algorithms? <https://www.complex.com/pigeons-and-planes/a/eda-yu/youtube-spotify-editorial-playlists-algorithm-human-connection>
- A picture of how Spotify's algorithm works - <https://www.makeuseof.com/decoding-how-spotify-recommends-music-to-users/>
- Article about why Spotify seems to play the same songs over and over - <https://apps.uk/why-does-spotify-play-the-same-songs/>

## Case Study: The Frustrated Musician

A talented musician, known as Leon Harmonia, with his unique blend of jazz and electronic music, gets rave reviews at local venues whenever he plays. But he has remained virtually unknown on the global stage, despite being available on all major streaming services.

Leon Harmonia is celebrated in his local community for his captivating live performances that seamlessly merge jazz with electronic beats, creating a sound that's both nostalgic and futuristic. Eager to share his music with the world, Leon uploaded his tracks to various streaming platforms, expecting new listeners to discover his innovative tunes.

However, Leon encountered a perplexing challenge: his music wasn't reaching new audiences as he had hoped. AI playlist algorithms, designed to suggest songs based on users' previous listening habits, tended to favor more mainstream genres, leaving niche and genre-blending artists like Leon in the shadows. This “echo chamber” effect limited the diversity of recommendations, stifling the discovery of fresh, unconventional sounds.

Furthermore, Leon and other artists in similar situations voiced concerns about privacy, as AI collected intricate details about listeners' preferences, and about copyright, given the platform's use of song snippets for generating recommendations, sometimes without clear artist authorization.

### Possible Solutions

**Algorithmic Diversity:** Enhancing AI to value a broader spectrum of music, ensuring that innovative and less conventional genres are also recommended to listeners.

**User-Driven Discovery:** Introducing features that allow users to explore music outside their usual preferences, such as a “Discovery Mode,” which could spotlight underrepresented artists and genres.

**Transparent Practices:** Streaming services could adopt data practices that clearly explain how data is used and ensure all recommendations comply with copyright.

**Artist Support Programs:** Establishing initiatives to support artists like Leon in navigating the digital landscape, offering guidance on how to increase their visibility on streaming platforms.

### Conclusion

The tale of Leon Harmonia sheds light on the double-edged sword of AI in music streaming: while offering unprecedented personalization, it also risks overshadowing the rich variety of diverse musical expressions. Addressing this dilemma requires a concerted effort to balance technological innovation with the nurturing of creative diversity, ensuring every artist has the chance to be heard on the global stage.

### Reflective Questions:

- How would you feel if your music or a genre you're passionate about was overlooked by streaming platforms' recommendation systems?
- What other strategies could help ensure that artists like Leon Harmonia find their audience in the digital music ecosystem?

## Simulation Activity: Playlist Curation Challenge

**Playlist Rules group:** In the top row, list the characteristics you want to be a part of this playlist. Do not share those characteristics with other groups. When the other groups have listed their songs, your role is to pick the one song from each group that best fits your rules, and add its letter to your playlist. Titles will be revealed later.

### The Rules

<b>Tempo</b> (Slow, Medium, Fast)	<b>Mood</b> (Upbeat, Sad, Relaxing, Aggressive, etc.)	<b>Genre</b> (Pop, Rock, Hip Hop, Folk, Country, etc.)	<b>Vocalist</b> (Male, Female, Group, Instrumental)

### The Playlist

<b>Group #</b>	<b>Song Letter</b>	<b>Title</b>
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

When song titles are revealed and discussions ensue, respect your peers' choices and opinions, fostering a constructive and inclusive environment.

## Simulation Activity: Playlist Curation Challenge

**Song Select groups:** Come up with a list of 5-6 songs to suggest for the playlist. Your goal is to create a diverse and engaging selection that showcases a wide range of musical expressions, aiming to challenge and expand the playlist criteria set by the Playlist Rules group.

**Group #:** \_\_\_\_\_

### The Songs

<b>Song</b>	<b>Song Title</b>	<b>Tempo</b> (Slow, Medium, Fast)	<b>Mood</b> (Upbeat, Sad, Relaxing, Aggressive, etc.)	<b>Genre</b> (Pop, Rock, Hip Hop, Folk, Country, etc.)	<b>Vocalist</b> (Male, Female, Group, Instrumental)
<b>A</b>					
<b>B</b>					
<b>C</b>					
<b>D</b>					
<b>E</b>					
<b>F</b>					

When song titles are revealed and discussions ensue, respect your peers' choices and opinions, fostering a constructive and inclusive environment.

## Video Script for Animator

Hello Young Innovators! Today we're discussing the ethics of AI in playlist algorithms.

Title screen

In the digital age, artificial intelligence, or AI, is a new element of the music industry, playing a big role not just in creating tunes but in deciding what music we get to hear. Imagine having a friend who knows your music taste so well that they always know what song you're in the mood for. That's what AI does on platforms like Spotify. It can introduce us to songs we might never have found on our own, keeping our playlists fresh and exciting.

[Socrat narrating throughout, facing viewers.]

Visual Cue: Show an animated character putting on headphones, surrounded by music notes. Each note transforms into different musical symbols, representing various genres.

Example Image: <https://i.imgur.com/hTTdk66.jpeg>

How does AI get so smart about our music choices? It learns from what we listen to, picking up on patterns in our favorite songs and suggesting new ones it thinks we'll like. This is great for music lovers, providing a never-ending stream of tunes tailored just for us.

[Visual Cue: Display an AI character looking through a magnifying glass at a music note, then putting together a puzzle made of various music icons. Example Image:

<https://i.imgur.com/Bxy3vet.jpeg>

When AI learns from our patterns, it can develop what's known as an "echo chamber." An echo chamber happens when AI keeps recommending the same type of music over and over, based on what we've listened to before. It's like being in a musical bubble where everything sounds familiar, but we might be missing out on a whole world of different tunes.

[Visual Cue: Show a character inside a bubble with the same type of music notes bouncing around. Outside the bubble, a colorful mix of different music genres awaits.

Example Image: <https://i.imgur.com/po7FS4f.jpeg>

Here's Miles Takahashi, a musician who mixes sounds from distant corners of the world, blending beats from the bustling streets of New York with the serene harmonies of a Japanese koto, crafting a sound that's truly unique. Because this fresh, genre-bending music doesn't align with the usual styles we listen to, AI algorithms might not pick it up for our playlists. This means that even though it could be our next favorite tune, we might never get the chance to hear it.



[Visual Cue: Show a young Japanese musician surrounded by a variety of traditional and modern instruments, blending sounds into a colorful musical note that travels toward an AI character. The AI character, puzzled, lets the note drift away, unable to place it into any playlist. Example Image: <https://i.imgur.com/xVLhCi5.jpeg>]

Now, let's tune into another tricky issue: copyright in the age of AI recommendations. It's one thing to enjoy a playlist curated just for us, but what about the musicians behind the music? Every song is a piece of someone's heart and hard work, and they have rights to their creations. When AI uses these songs to make playlists, it must respect those rights, ensuring artists are recognized and rewarded for their work.

[Visual Cue: A teen girl listening to headphones in the middle of the screen. On the left is an AI robot, and on the right is the Japanese musician mentioned earlier. Coins come up out of the girl's headphones and keep going to the AI robot rather than the musician. Example Image: <https://i.imgur.com/gyPWlqf.jpeg>]

Privacy strikes another chord in the symphony of ethical considerations. When AI fine-tunes our music playlists, it learns a lot about us. This means collecting data on what we listen to, when, and how often. Keeping this information secure is crucial because our music preferences are personal, almost like a diary written in songs.

[Visual Cue: The musician walks away. The girl is still listening to music, and icons of music notes and user avatars come out of her headphones and go into a treasure chest that the AI character has open, then closes and locks up, representing safeguarding data privacy. Example Image: <https://i.imgur.com/36zFRz8.jpeg>]

As we groove through the digital music landscape, it's clear that AI brings a mix of exciting opportunities and challenges. It's like having a personal DJ who knows exactly what we want to hear but also needs to respect the rules and make sure everyone's music is played fairly.

[Visual Cue: A large, animated jukebox with AI at the DJ booth, juggling different music notes, ensuring a balanced mix of tunes. Example Image: <https://i.imgur.com/SyzkRbH.jpeg>]

In conclusion, AI in music can really amp up our listening experience. But it's important to keep the balance, ensuring that this technology enriches our music world without skipping a beat on privacy, fairness, and creativity. As we march to the beat of the digital drum, let's stay tuned to how AI will continue to transform the tunes we love.

[Visual Cue: Zoom out to show a diverse group of animated characters, each enjoying music from their headphones, speakers, and instruments, symbolizing the harmony of technology and creativity in music. Example Image: <https://i.imgur.com/Hkj0rxl.jpeg>]

Socrat pulls out his own headphones and puts them on as well.]

Let's discuss: How might AI impact your musical taste and diversity of your playlists?  
[Question to put on screen: How might AI impact your musical taste and diversity of your playlists?]

## Video Script for Narrations

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Let's discuss: How might AI impact your musical taste and diversity of your playlists?