Danceability Trends for Ed Sheeran, G.E.M, and JJ Lin on Spotify (2010-2024)*

Consistent Danceability Patterns for Ed Sheeran and GEM, JJ Lin Shows Fluctuations

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This study explores the evolution of danceability in the music of Ed Sheeran, JJ Lin, and G.E.M. from 2010 to 2024. It reveals that Ed Sheeran consistently maintains a high level of danceability, while G.E.M. incorporates increasingly danceable elements over time. In contrast, JJ Lin exhibits significant fluctuations in his focus on danceability.

1 Introduction

In recent years, danceability has emerged as a vital metric for evaluating the musical characteristics of various artists and genres. Danceability reflects how suitable a track is for dancing, incorporating elements such as tempo, rhythm stability, beat strength, and overall musical energy. A score of 0.0 indicates the least danceable track, while a score of 1.0 signifies the most danceable, as defined by Spotify Howlin and Rooney (2021). This metric has not only become a standard in understanding music's physical appeal but also serves as a tool for analyzing broader trends in the evolution of an artist's sound.

This paper investigates the evolution of danceability in the music of three prominent artists—Ed Sheeran, JJ Lin, and G.E.M.—across their respective discographies from 2010 to 2024. Ed Sheeran, known for his wide-ranging appeal and pop-folk roots, consistently produces tracks with strong rhythmic and melodic elements. JJ Lin, a celebrated figure in the Mandopop industry, has experimented extensively with different musical styles over the years, incorporating varying levels of rhythmic energy. G.E.M., a versatile artist in the Chinese music scene, has

*Code and data are available at: https://github.com/Cassieliu77/Spotify_Trend_Analysis.git

successfully integrated danceable elements into her repertoire while maintaining her unique musical identity.

Through an analysis of the danceability scores of these artists' albums over time, this study identifies distinct patterns and trends. Ed Sheeran demonstrates a stable and consistently high level of danceability, suggesting his focus on creating universally appealing, rhythmically engaging tracks. In contrast, G.E.M. shows moderate variability, progressively incorporating more danceable elements as her career evolves. JJ Lin, however, exhibits the most fluctuation in danceability, reflecting phases of experimentation and a recent shift back toward producing rhythmically engaging music.

Section 2 visualizes the danceability trends for the three artists over time, capturing changes across their discographies from 2010 to 2024. Section A provides data summary table for Ed Sheeran, G.E.M., and JJ Lin, including key metrics such as:

- Danceability: Highlighting the rhythmic appeal of their tracks.
- Duration (in min): Providing investigation into the typical lengths of their songs.

2 Data

Figure 1 shows the trend of danceability over time for each of the three artists Ed Sheeran, JJ Lin, and G.E.M. Ed Sheeran's music shows a relatively stable trend, with danceability consistently above 0.5. The data points are closely clustered, which suggests that Ed Sheeran remains consistent and prioritizes danceable elements, which may attract a mainstream audience that enjoys upbeat, rhythm-driven music.

G.E.M. also shows a relatively steady trend towards danceability but more variability than Ed Sheeran's music. G.E.M.'s trend line initially drops but then rises, which shows a gradual adaptation to incorporate more danceable elements in recent years. This trend suggests that G.E.M. has achieved a balance between maintaining her core musical style and skillfully evolving to meet audience expectations. Her danceability values vary between 0.4 and 0.75, indicating moderate musical exploration.

JJ Lin had the most variation in danceability, with fluctuations ranging from 0.3 to 0.7. His trend line shows a gradually decreasing trend before a slight increase in recent years, and this indicates a period of less focus on danceability and then a re-focus on creating danceable music.

In contrast, Ed Sheeran tends to be in a stable mode, keeping his music highly danceable throughout his career. G.E.M. strikes a balance, showing some flexibility and moderate variation in danceability. JJ Lin has seen the most change, with a significant shift in the extent to which he emphasizes danceable elements in his songs. This comparison shows how each artist shapes the danceability of their music in different ways.

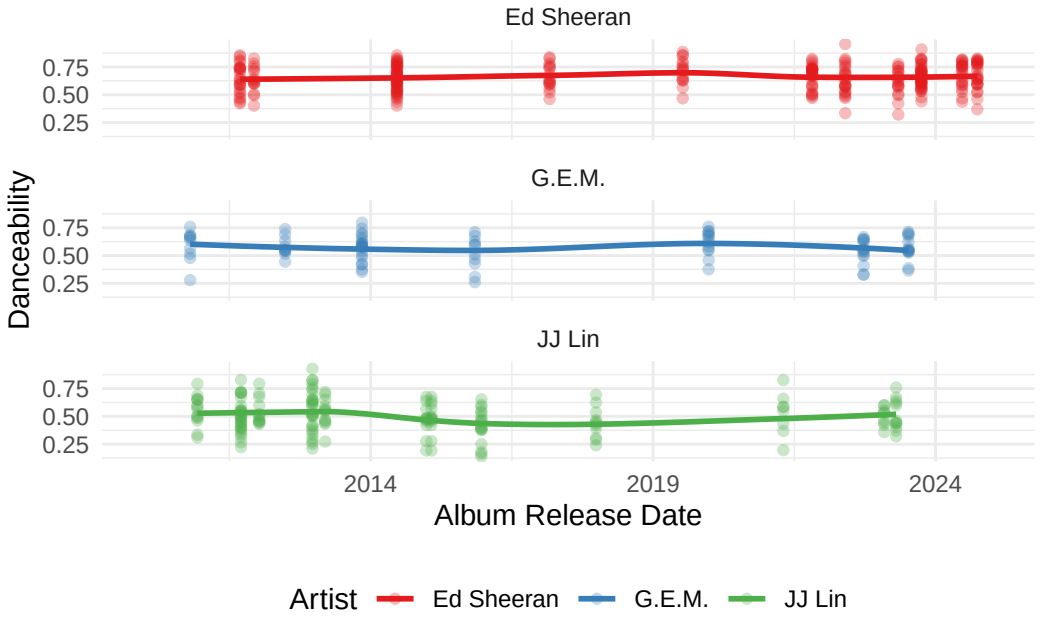

Figure 1: Danceability of Ed sheeran, G.E.M, JJ Lin artisits from 2010 to 2024

A Appendix

Table 1: Summary Table for Ed Sheeran

Artist Name	Danceability	Duration (in min)
Ed Sheeran	0.642	4.306200
Ed Sheeran	0.749	3.673550
Ed Sheeran	0.592	3.084883
Ed Sheeran	0.370	5.396783
Ed Sheeran	0.818	3.923033
Ed Sheeran	0.807	3.664000

Table 2: Summary Table for GEM

Artist Name	Danceability	Duration (in min)
G.E.M.	0.542	3.730150
G.E.M.	0.552	4.126017
G.E.M.	0.691	3.279683

Table 2: Summary Table for GEM

Artist Name	Danceability	Duration (in min)
G.E.M.	0.547	3.338117
G.E.M.	0.676	4.183650
G.E.M.	0.625	3.493133

Table 3: Summary Table for JJ Lin

Artist Name	Danceability	Duration (in min)
JJ Lin	0.459	3.859767
JJ Lin	0.599	3.414683
JJ Lin	0.437	3.997750
JJ Lin	0.402	3.837550
JJ Lin	0.321	3.776183
JJ Lin	0.641	4.064467

B Acknowledgement

The data used in this paper comes from Thompson et al. (2022). This study uses R (R Core Team 2023) to clean and analyze the dataset, which includes using packages from spotifyr (Thompson et al. 2022), tidyverse (Wickham et al. 2019), usethis (Wickham et al. 2024), devtools (Wickham et al. 2022), ggplot2(Wickham 2016) and knitr (Xie 2024). The data we used was from Spotify (Thompson et al. 2022). Thanks to OpenAI, some written parts of the paper are conducted under the help of ChatGPT.

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