

BIT OF THIS, BIT OF THAT: REVISITING SEARCH & DISCOVERY

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ABSTRACT

Genre-based categorization forms a vital part of music discovery. What started several decades ago as just a way to market and segment artists into well-defined categories today forms the core of the user experience in music apps in the form of genre-browse section. However, popular music over the past two decades has become more genre-fluid than ever. Despite the emergence of mood-based, theme-based, and contextual playlists over the strictly single-genre-based ones, the search interfaces have mostly remained the same. To accommodate this ever-growing genre fluidity, we need to revisit the currently existing search interfaces. To this aim, we propose *Bit Of This, Bit Of That*, a search-and-discovery system that facilitates genre-fluid search, with its novel interface being our primary contribution. Finally, we conclude with a discussion of the first impressions of this work.

1. INTRODUCTION

From having a thousand songs in the pocket to having a million and more [1], we have come a long way in how we consume music over the last two decades. With this much information available, search and discovery have become extremely important to make it all accessible. Recommendation algorithms and search interfaces work in tandem to facilitate music discovery. Unlike the recommendation algorithms, the search-and-discovery interfaces (at their core) have remained the same over the last few years. The current search interfaces primarily consist of two main components: 1) **Text Search**, which is meant for keyword-based searches and can be used to search anything and everything, be it artists, songs, albums, playlists, or genres, and 2) **Browse Section**, which is a navigational-style discovery interface made up of a grid (or a list) of genres and can be used to explore any specific genre.

When the query is known beforehand (focused search), text search is the more suitable option. On the other hand, the browse section works better for exploratory searches meant for exploring a new artist or genre [2]. There is also a third category of search, known as open search, where only the basic idea of search is known beforehand. Since

query articulation for these searches is not straightforward, it often requires multiple revised text queries.

One specific type of open search is the genre-fluid search. Genre fluidity means any musical piece belonging to multiple genres (or sub-genres) at once. It's usually the result of having various musical influences in a song. It matters because the music over the past few decades has become more genre-fluid than ever. Billboard Top Ten charts [3] show strong evidence of this trend, with a significant jump in genre fluidity over the last few years. Another evidence of this is the massive popularity of mood-based, theme-based, and contextual playlists, which do not have to confine themselves to a single genre as long as the comprising songs fit well in the said theme or context.

We consider simplicity and familiarity the two primary requirements in designing for cross-genre search. Novel search interfaces have often been proposed from time to time, but the fact that rarely does a design get adopted in a mainstream platform, as noted in [4], speaks volumes about how underrated simplicity is. Another overlooked factor is familiarity. A single look at most music platforms today, and it becomes apparent how homogenized the interfaces are [5], with all of them adopting the card-based design and the principle of *Complexion Reduction* [6]. This similarity provides for consistency in the user experience, thus reducing the cognitive load on users.

Looking at the existing interfaces, we can see that cross-genre search doesn't fit into their design. The browse section does not lend itself well to the cross-genre¹ scenarios, and the text search falls short because of its high cognitive load and specificity-and-revision requirements.

In this work, we propose a novel search interface that facilitates cross-genre search while focusing on simplicity and familiarity as well. Our objective is to ease genre fluidity into users' search behavior instead of forcing it upon them with yet another new user experience.

2. PROPOSED DESIGN

We propose a dual-mode search experience with the following search modes: **1) Keyword-based search** **2) Genre-based search**. Keyword-based (the conventional text search) lets the user search for artists, tracks, playlists, or genres based on the text query entered, the same way it works in the existing music platforms. Genre-mode search, our proposed search mode, enables cross-genre search. One can toggle between the search modes by clicking on

¹ We will be using the terms genre-fluid and cross-genre interchangeably in this work



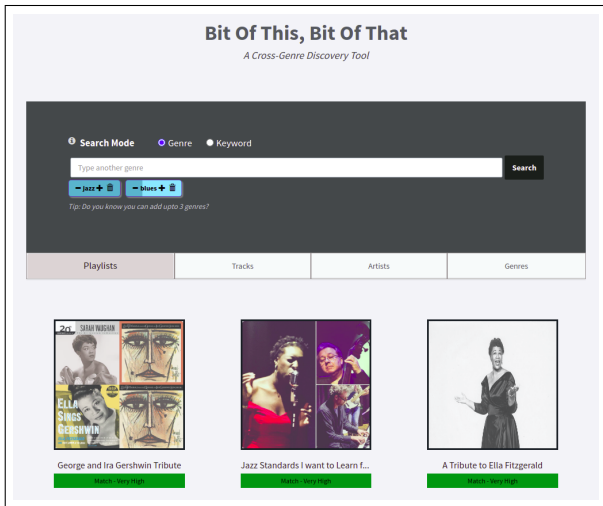


Figure 1. *Bit Of This, Bit Of That*. Displayed genre selection: *Jazz*: 3, *Blues*: 1. For additional images, please refer the supplementary material attached.

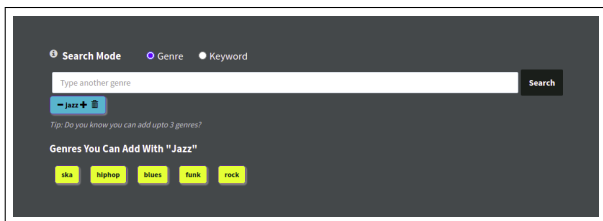


Figure 2. Genres (*Ska, Hiphop, Blues, Funk, Rock*) that can be combined with *Jazz* to create cross-genre search are displayed as yellow colored tiles.

their corresponding radio buttons (See Figure 1). The purpose of providing a dual-mode search is to keep the existing search experience intact and enable the cross-genre search to seamlessly integrate into the current search experience.

Figure 1 shows the Genre-search mode. For query specification, there is a text search box where the user can type in the genres they want to search. Up to three genres can be added at a time. Once the user types in a genre, and triggers the search by either pressing the Enter key or clicking the Search button, a tile corresponding to that genre gets created underneath the search box, denoting that it has been added to the search.

To revise the query, each genre's weight or its contribution to the overall query can either be increased or decreased using the plus(+), minus(-) controls present on the corresponding genre tile. The user can remove a genre altogether by clicking on the Trash icon on the tile. The range of genre weight is [1-3], with 1 denoting least contribution, and 3, the most. Changes in genre weight are conveyed to the user using the tile color gradient changes.

The sheer ease of query revision, configuration, and fine-tuning using genre tile controls is one of the ways our proposed interface distinguishes itself from the currently existing interfaces when it comes to cross-genre search.



Figure 3. Genres (*Jazz, Country, Soul*) which are related to the genre being searched i.e. *Blues*, are displayed.

3. ASSISTIVE DESIGN FEATURES

Considering that most people are not used to doing cross-genre searches because of the limiting design of the music platforms in this aspect, they may need some assistance and suggestions to nudge them towards cross-genre search behavior. Taking inspiration from the design of search engines such as Google, Duck Duck Go, we provide the following types of search suggestions: **1) Genres You Can Add With** (Figure 2), where we suggest the genres which would combine well with the currently searched genre, and **2) Searches Related To Genre** (Figure 3), which shows a list of three genres most similar to the currently searched genre, displayed underneath the last row of results.

Additional design features include: 1) search box placeholders for each of the search modes with the wording "*Please Type a Genre*" for Genre-search mode and "*Search for artists, tracks, genres, or playlists*" for keyword-based one, 2) Info icons and tool tips explaining the search modes, and 3) Match relevance information of the search results in the form of a colored strip underneath the search result name, with the relevancy description text coming from a five-point Likert scale: *Very Low, Low, Medium, High, and Very High*.

4. DISCUSSION

We did not conduct a formal user study but shared the platform with a few people, and the first impressions were promising. Most participants appreciated the simplicity of the user experience. They also seemed to be far more interested in exploring the periphery of their familiar genres, highlighted by the significantly more number of searches involving a combination of their familiar genres with other genres. It means that one of the applications of our platform can be introducing someone to a new genre by having their familiar genres in the mix, which is known to improve the acceptability of the recommendations [7].

5. CONCLUSION AND FUTURE WORK

In this work, we proposed *Bit Of This, Bit Of That*, a search and discovery platform with a novel interface to facilitate cross-genre search. To the best of our knowledge, no such platform exists that accommodates cross-genre search into the existing music platforms design. We plan to conduct a user study to evaluate the utility of our interface.

6. REFERENCES

- [1] Spotify. (2021) Company info. [Online]. Available: <https://newsroom.spotify.com/company-info/>
- [2] C. Hosey, L. Vujović, B. St. Thomas, J. Garcia-Gathright, and J. Thom, “Just give me what i want: How people use and evaluate music search,” in *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*, 2019, pp. 1–12.
- [3] Water and Music. (2021) Tracking genre diversity and fluidity in the billboard charts. [Online]. Available: <https://bit.ly/waterandmusic-tackling-genre-diversity>
- [4] P. Knees, M. Schedl, and M. Goto, “Intelligent user interfaces for music discovery,” *Transactions of the International Society for Music Information Retrieval*, vol. 3, no. 1, 2020.
- [5] Water and Music. (2021) Music-streaming services are losing their brand identity. here’s the visual evidence. [Online]. Available: <https://bit.ly/waterandmusic-streaming-brand-identity>
- [6] F. Company. (2016) App uis are all starting to look the same. that’s not a bad thing. [Online]. Available: <https://tinyurl.com/v3tuvkka>
- [7] Y. Liang and M. C. Willemsen, “Personalized recommendations for music genre exploration,” in *Proceedings of the 27th ACM Conference on User Modeling, Adaptation and Personalization*, 2019, pp. 276–284.