

# Melodize: Lyric-based Crowd Composing Platform

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## ABSTRACT

Accessing and listening to music has become easier than ever thanks to numerous music streaming platforms available nowadays. However, composing music remains to be challenging and inaccessible to most people due to the musical expertise required to do so. We propose Melodize, a crowd-sourced melody composition platform where people can submit lyrics to receive a suitable melody “crowd-composed” by other users. We enable users with no musical expertise to take part in composition by segmenting the submitted lyrics into suitable sizes and allowing workers to compose them sequentially. To improve worker quality while ensuring freedom of expression, we introduce the Aggregate Display method, which lets users reflect on the input of other users to accommodate the creation of a musical consensus. Although Melodize did not generate musical masterpieces, we show that it has the potential to produce melodies that could provide inspiration or the basis of more complex and meaningful remixes and adaptations. We conclude the paper by discussing the potentials and challenges of crowdsourced music composition, and, more generally, other forms of creative works.

## INTRODUCTION

Accessing music has become easier than ever and the public’s enthusiasm and interest in the music industry remains high. Despite the buzz, most people are passive in the scene and choose to be on the receiving end rather than being active and creating music due to the lack of musical expertise. As a result, the music industry is dominated by expert artists and producers. We aim to change this dynamic through Melodize, and make music composition a task available to anyone who is interested.

The music industry is already shifting towards a more decentralized structure [2] where emerging new artists are gaining traction through increased exposure on platforms like SoundCloud where they can share their works and connect with enthusiastic

listeners and other artists. New *Connect* features on streaming services like Apple Music allow artists to interact with fans more easily. Social media platforms such as Facebook and Twitter have been instrumental in assisting new independent artists propagate their works. Evidently, the varied services and platforms are enabling a broader and more diverse representation of independent artists in the music production scene. So our question is, how do we enable regular people with no musical background to compose music?

We thought a crowdsourcing approach was applicable because it is fair to say that everyone has a sense of what sounds good or not. Despite variations in personal tastes and preferences, most of us will be able to reach a consensus on whether a melody could be appealing. By harnessing the musical intuition of many users, we hope to create a melody through collaboration that would have otherwise been very difficult to do alone.

Inspired by the collaboration between Elton John and Bernie Taupin as lyricist and composer [1], we decided to first simplify the composition process by supporting two distinct main tasks on the platform: posting lyrics and composing the melody. lets users see the distribution of popular notes chosen by other users.

## BACKGROUND AND RELATED WORKS

We found that crowdsourcing solutions have already been tried-and-tested in the music industry, but most platforms worked by connecting experts(music artists). Ones that supported non-experts were limiting and didn’t allow enough room for musical experimentation.

Kompoz is a platform that connects musicians in an effort to support online collaboration. Musicians can sort ongoing projects and join them if the project’s

needs matches their skill set. Non-experts would not have a place on the platform.

ExpressInMusic is a competitive crowdsourcing platform that connects businessmen with musicians. Businessmen post requests for specific songs and choose their favorite out of the numerous submissions by musicians.

Crowdsound is a platform that started off as an experiment. It crowdsources the melody composition process note-by-note. Users vote on which note sounds the best for every note until the entire song is completed. Despite their project being a success in creating decent melodies by recruiting non-experts, because Crowdsound only allows incremental changes, it remains restrictive in musical expression. Their sequential workflow provided the incentive for our sequential workflow.

**SYSTEM**

**Core tasks**

Our platform supports three core tasks: 1) submission of lyrics 2) composition of melodies and 3) community-wide interactions. In order to promote continuous traffic within our platform via better usability, we implemented certain features common in other sites; features such as profile pages, commenting, and flagging. We also take measures to accommodate our core tasks. There are many options for customization within the lyric submission stage, giving the user freedom to describe his ideal song. The distribution feature aims to help users get a sense of what other users think is the best set of notes. The comment feature and the private room feature encourages development of communities, and motivating them to work via explicit coordination to compose a song.

**Workflow**

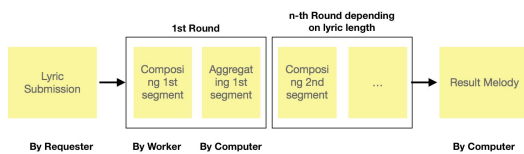


Figure 1. Workflow of Melodize

The workflow is straightforward. Requesters submit their lyrics, and workers compose song sequentially from the beginning. The song is divided into segments and users work on the segment at a time. After enough users composed the segment, they work on the next segment and so on. Computer aggregates user inputs for previously-done segments and users can check previous melodies while working on current segment. Completed songs are open for viewing for all users in the gallery page. Users can listen to, and even try altering the notes of the completed songs. By displaying the finalized song, we hope to reward users with a sense of accomplishment, and since our current aggregation model doesn't guarantee that each user's idea for the song is reflected in the final result, we hope this feature will satisfy their need to see their ideal song realized.

**Aggregation**

The song is divided into 8 note segments which will be composed from start to finish. In order for a segment to begin composition, the previous one must be finalized. This allows for users to get a sense of continuity between the segments when composing. In order to prevent a single person from finalizing a segment by repeatedly inputting for the same segment, each user can only submit for a single segment once. A user can only return to a song he contributed after the segment he submitted to is finished. Such a system model may be counterintuitive to users, which is why we implemented a tutorial and an about page.

**Aggregate Display**

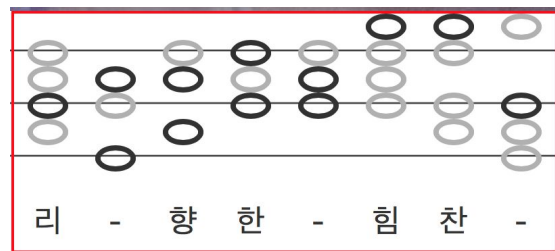


Figure 2. Aggregate Display

Due to the subjective and open nature of music composition, we found the designing of an aggregation method quite challenging. An issue is that since the notes being submitted by users are not influenced by each other, that a cohesive song will be outputted is not guaranteed. This is why we decided to promote implicitly coordinated inputs by allowing users to see what other users inputted. Within the compose page is the ‘distribution’ button, which shows users previous submission for that segment. The frequency of the chosen notes are shown by gray-scale, the more popular the note, the darker it is. This would ensure a certain amount of convergence between the inputs.

## EVALUATION

### User Study

Our platform, Melodize, was launched on November 27th. The platform was advertised on facebook and on the university social network platform, Ara. Over 3 weeks, we gathered 102 users mainly from KAIST, with 16 total song requests and 3 completed songs. Our platform is focused more on the user experience, and given that music is subjective to the listener, we found it difficult to ‘judge’ the crowd composed music. Therefore, we decided to focus on the heuristic aspect of our platform instead. We carried out a survey to this effect by giving the users a pop-up to the survey after they complete a composing task. Among the 102 users, 21 participated in the survey. The survey was largely divided into two parts: convenience of the UI, and the usability of the workflow. UI evaluation was carried out by users deciding whether each feature was useful, not useful, or unnoticeable, while in workflow evaluation, users were ask to grade how easy it was to carry out the given workflow with a scale of 1 to 5, where 5 was easiest.

### Results

Question	Useful	Needless	Didn't notice
Was aggregate display useful for your composition?	33.3%	28.6%	38.1%
Was tutorial useful for understanding the overall UI?	47.6%	14.3%	38.1%

**Table 1. Survey results regarding the effectiveness of UI features**

Table 1 shows that majority of the users found the respective UI features either useful or did not notice them. This suggests a possible improvement in making these features more noticeable for the user.

Question	Negative			Positive	
	1	2	3	4	5
Was range button intuitive and easy to use?	9.5%	14.3%	23.8%	23.8%	28.6%
Was the platform easy to explore and finish tasks?	4.8%	14.3%	19%	28.6%	33.3%
Was it easy to participate to other songs after you submit a melody?	4.8%	9.5%	38.1%	23.8%	23.8%

**Table 2. Survey results regarding the effectiveness of the workflow design and range button**

From the results of table 2, we can see that while users were generally satisfied with our composition workflow, they found it hard to re-participate in songs. This explains one of the key problems we found with our platform, in that most users did not come back to compose again when the next section of the song was opened.

## DISCUSSION

### Incentive

Our platform was built around users with intrinsic motives, with no additional incentives from our design, where we assumed the users would be interested in crowd sourced music or in having fun for a while.

While we were correct in assuming this, and did see a large number of users than expected (over 100), we failed in retaining a majority of them, and in having the site run smoothly on its own without further support from us. We attribute this to the fact that the needs that our users had and the platform was designed around (having fun, learning more about crowd-sourcing, experiencing composition) was mostly satisfied after one use of our platform. Without any further steps taken to further engage the user, they felt no need to re-use the platform.

This brings us to the point that while intrinsic motives might be enough for short-term deployment, for a crowd-sourcing platform to be able to retain its users, careful, thought out incentive design is essential.

### **Trade-offs**

Another major challenge we faced was in judging something that was subjective: art. How would we judge music? Would acquiring similar tunes over and over again be something we find in our findings? Unfortunately, the number of completed songs we acquired on our platform was not enough for us to make any conclusions, for the aforementioned reasons. However, from our experience in designing a workflow, we found out some tradeoffs that occur in the process; freedom of the user in composing vs quality control, variety of the crowd vs experience of the crowd, and so on. And the hardest part about setting these tradeoffs was that there was no clear cutoff point, or simulations we could make on ‘art’, to see what values result in the most ‘artistic’ result. These points are something that not only apply to music, but other forms of crowdsourced art forms.

The main method chosen in our development was to focus our platform on one aspect of this, and fit other conditions around this. For us, this was the user experience. One of the hurdles in non-monetary crowdsourcing is acquiring enough crowds, and we believed that focusing on the user experience was the way to go about it. While our platform had its share of flaws, we believe that this approach is in the right direction, and Melodize has potential once it is improved further.

### **Possible Improvements**

In order to improve our platforms in terms of incentive design, some suggestions that were made. One was to send an email notification to remind the participants that the next section of the song is open, or that the song they participated in is completed. This would remind them and also give them sense of belonging. We also thought of implementing a stronger community features by establishing a community blog of sorts, where users can communicate with one another regarding song composition and so on. This, we hope, will create a proving a strong incentive for users to come back. [3] Another feature we could implement to add a sense of competition and gamify the platform is to provide a score system, and a leaderboard, where users can compare their progress. We could further provide special features for the high rankers, such as giving them more freedom in choosing notes and so on.

### **VIDEO LINK**

This is the YouTube video introducing our platform.  
<https://youtu.be/uPAJnaShwPM>

### **REFERENCES**

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- [3] Z. Qiuyan, “Empirical research on continued participation behaviors of users in crowdsourcing community,” Journal of Dalian University of Technology, no. 3, pp. 1–6, 2011.