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InForm: A Mobile App to Teach Untrained Listeners of Classical Music About Fugue, Sonata, and Rondo Form Through Interactive Information Graphics

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Abstract

This thesis introduces adult non-musicians to large-scale structural components of three fundamental musical forms (fugue, sonata, and rondo) through a mobile application containing interactive information graphics and audio examples. This provides the knowledge and vocabulary necessary to discuss and listen critically to classical music, as well as enhance the overall listening experience. The written component of this project describes the content of the app and how it is presented, as well as the reasoning behind creative decisions such as color palette, page design, and development of the information graphics. Also reviewed are the programs used in the creation of the project, such as prototyping websites and applications from the Adobe Creative Cloud Suite. Included in this document is a link to a functional prototype of the app, hosted on the website MarvelApp, as well as a link to a Box folder where each page from the application can be viewed individually.

Key Words: Graphic Design, App Design, Music, Musical Form
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Introduction

The purpose of this creative project is to explore methods of introducing fundamental forms of classical music to adults who have had little to no formal musical training. The following outlines the steps taken when creating a mobile application as a means of providing an approachable and portable experience to enhance audience experience when listening to classical music.

The app—called InForm—presents information relating to three basic musical forms: fugue, sonata, and rondo. This is intended to be a broad overview of the topic, and as a result, it does not contain detailed information pertaining to functional harmony (chord analysis). InForm does, however, provide a brief summary of major and minor keys, as well as authentic cadences and half cadences, for users who are not familiar with those concepts. It is essential to have a basic comprehension of what these terms mean in order to understand the explanations found in other sections of the app. The goal is for users to enrich their classical music listening experience by being able to recognize general structural patterns and melodic repetition associated with these forms.

The name “InForm” is a play on words. It references both the app’s intention to educate as well as the primary subject of the content. While the name doesn’t completely describe the context of the app, it is fitting and provides enough intrigue to draw in potential users.
Within InForm, users are able to read a brief description of each type of key and cadence before listening to 2-5 examples of each. Audio examples for major and minor keys include scales, block chords, arpeggios, and short progressions or phrases. Examples of authentic and half cadences contain phrases of varying lengths.

Once a form has been selected, users have the opportunity to read a description of its standard structure. After being introduced to the form in a theoretical context, users may explore up to three example pieces shown through information graphics, which show the theories at work. Each graphic is interactive; tapping on a section of the graphic pulls up a new page that explains the section in more detail and relates it to the usual structure of its respective form, noting especially any unusual characteristics. Also found on this page is an audio clip of the section; the full piece can be heard on the main information graphic page. This process allows users to learn to discern separate themes and sections in the music, as well as build the proper vocabulary for discussing musical form.

The information itself is presented in brief, bulleted lists throughout the app. This decision was made in an effort to hold the user’s attention. An issue that many people experience with independent learning is allocating time for it. InForm outlines everything as efficiently as possible while providing enough information for real learning to take place.

Teaching the Material

One of the most interesting aspects of this project was establishing the best method of teaching a comprehensive overview of musical form, while remaining concise
enough for an audience of non-musicians. Explaining musical form is difficult without referencing functional harmony, as it is an integral part of each form’s defining characteristics. The process involved imagining what it would be like to learn about fugues, sonatas, and rondos without knowing anything about music. First, the pieces were analyzed normally, including overarching harmonic structure, to foster a more in-depth understanding, before selecting relevant components to discuss in the application. After becoming familiar with the music, the following goals for the audience were established: 1) be able to recognize and name large-scale structural components of each form (ex: exposition, development, and recapitulation of a sonata), 2) be able to recognize individual themes in a work, and 3) be able to recognize when themes reappear throughout a piece and notice how they are developed.

To reach these goals, brief explanations of the differences between major and minor keys, as well as half cadences and authentic cadences, were needed. The ability to hear general key changes and cadences can be a useful tool when listening for different sections in a piece. The purpose of InForm is not to replace formal aural training, and users should not expect it to do so, but it provides a starting point for those who have not previously learned such concepts.

**Design Decisions**

A digital medium was chosen to support not only visual learning, but audio as well. Explaining theory is one part of the experience, but it is vital that learners gain experience hearing those characteristics when they are presented in a real musical
composition. Providing this information in an interactive digital tool allows for greater flexibility and portability by the users as well.

In terms of aesthetics, this project diverged from common app designs. Print and publication design such as Juan Bautista Espíndola’s “Animalia” in particular were referenced (Figure 1). The design was kept relatively minimal, with simple typography. The purpose of InForm is to promote learning; a complex visual design has the potential to cause distraction or intimidation. Users are learning this material for the first time and may be overwhelmed by theories that are new to them; it is best to have a straightforward design that they can navigate with ease.

Fig. 1: Spread from “Animalia” by Juan Bautista Espíndola.

Much of the early designs contained flat colors, so photographic backgrounds were added to create depth (Figure 2). The color palette, consisting of shades of red, teal, and pink, was chosen in an effort to push the boundaries of what is normally expected within application design (Figure 3). The colors are unconventional, and they challenge
both the visual language and audience expectations. The typefaces used, Lora and Roboto, can both be found on the Google Fonts database (Figure 4). They are web safe fonts without copyright restrictions, which means they could be used in a coded version of this project if desired.

**Fig. 2:** Use of photographic background.

**Fig. 3:** Color palette.

**Fig. 4:** Fonts used.

**Roboto Bold - Information Graphic Labels**

**Roboto Black Italic - Header**

Lora Regular - Body Copy

**Lora Italic - Subheads**

**Lora Bold - Notable Terms**

Fig. 4: Fonts used.
Though photos were added throughout many areas of the app, the information graphic pages were kept simple and flat—again in an effort to present an accessible, unintimidating experience. The only photographic element found here is a slight texture in the background at the top of the page that quickly fades into flat color. The sections of each information graphic are color-coded and labeled (Figure 5). The same color is used for the same type of section between graphics (for example, all of the sonata primary themes are red). This is less confusing for users when referencing multiple graphics on the same topic. Additionally, all of the graphics are “to scale.” They were designed using grids, where each box on the grid represents two measures of the music, depending on the length of the piece (Figure 6). Once a working system was developed for each of the forms, it was used consistently for the
example works. The original plan was to make each of the nine graphics unique in their designs, as each piece contains its own individual qualities, but in the end, this was deemed unnecessary.

The fugues are organized as a vertical timeline; because each line is equally important in a fugue, it is essential for users to be able to see how they align and interact with one another (Figure 7). Blank spaces on the diagrams indicate rests. Out of all the information graphics, the fugue graphics have changed the least; the design process was straightforward from the beginning. The primary issue with these graphics happened during the prototyping process; they were too tall for the prototyping website, and unfortunately, they had to be compressed by about 25%. In this document, they are presented in the correct dimensions.

The sonatas are divided by section and each rectangle is decorated with a simple line that conveys a feature of that section, such as the shape of the melodic line (Figure
This is intended to emphasize the distinct rhythms and melodic themes of each section. Because the development sections in two of the examples are so lengthy, they were divided in half to fit them on the page, but otherwise, there were no problems with this format.

The rondos are also divided by section, and the reason they are presented with more variety is because the design system evolved over time (Figure 9). The initial idea was to use circles to represent each section, and each circle would contain a slightly varied design to differentiate contrasting themes (this can be seen in the graphic for Haydn’s Piano Sonata No. 37 in D Major). However, the size of the circles needed to be relative to the number of measures in each section. While this works well for the Haydn rondo—each section is about the same length—the remaining two rondos did not conform to that system as easily. The Beethoven and Mozart rondos each have sections of varied length, which makes it difficult to fit a graphic using the circle system onto the small screen of a phone. Some sections would have been far too small as a result. The design system for the rondos took a turn to graphics reminiscent of bar graphs instead, and the progression through that idea can be seen between the three graphics (Haydn → Beethoven → Mozart). The variety was kept between the rondo graphics as a way to show their development, as well as reference the original intent for the information graphics as a whole: that each one would have an individual system and design.
Fig. 7: Fugue information graphics.
Fig. 8: Sonata information graphics.

Fig. 9: Rondo information graphics.
An app icon was designed in addition to the application itself (Figure 10). The challenge was to generate a single image that would represent the entire content of InForm. The objective was to represent the information graphics in some way and design an image that would work well at multiple sizes. It provided an opportunity to work with visual language in a way that would not resort to clichés commonly used in other music-related applications. Eventually, an icon reminiscent of the sonata graphics was created to highlight design elements from within the application. As this current icon is intended to be a preliminary concept, further exploration may be necessary to find the best representation of the application’s subject matter.

Fig. 10: InForm icon.
Programs Used

The experience of working with multiple applications, as well as the process of prototyping a comprehensive UX program has assisted in a personal goal of becoming a more versatile designer. The pages for InForm were created primarily in Adobe Illustrator and Photoshop, but several other programs were used throughout the process as well, such as Adobe Audition and Adobe XD. Audition is an audio editing tool that was used to divide all of the sound files into the short excerpts heard on the information graphic pop-up pages. Previous knowledge of timelines from video editing software allowed for quick work in Audition to split audio clips for the pop-up windows. XD, Adobe’s prototyping app, makes it easy to link pages together and it preserves layers when transferring files from other Adobe programs. This was the first choice for prototyping as it was immediately accessible and very user-friendly. Unfortunately, XD did not support audio at the time of this project’s creation, so it could not be used.

Several websites exist for prototyping purposes, and after some research, the options were narrowed to InVision and MarvelApp. Ultimately, MarvelApp was chosen because it allowed testers to leave comments on app pages without having to make an account. It was later discovered that this feature is no longer supported; however, this did not cause another change in platform because MarvelApp still allows testers to view the app without an account.

Reflection and Conclusion

Along with improving the app icon (as mentioned previously), there are a few other components of InForm that require additional development. The biggest issue with
the InForm prototype at the moment is the audio. Due to the options offered by MarvelApp, the sound was not embedded as intended. Ideally, a user would tap on a hotspot and the sound would play immediately, directly from the app. Currently, in order to provide audio, a separate folder is linked to the hotspots and opens the sound files in a web browser. This provides an idea of how the app works, but this is an inconvenient way to use InForm since it causes users to constantly move back-and-forth between the app and the Internet. Future iterations will explore how best to embed files directly into the application, making interactivity seamless.

Page navigation will be examined as well, to determine the best practices for users. This may find that the current functions diverge from intuitive navigation in a way that is detrimental. Currently, users must scroll to the bottom of each page and tap an arrow button that will take them to the next or previous page, it may be that more people are accustomed to swiping the page left or right.

At the moment, the information graphics function well, and the consistency within each form may be beneficial to learning the material. However, each of the nine works has its own individual nuances, and the graphics would certainly be more informative if those unique features had more presence. It is unclear whether this would be necessary specifically for InForm; this may be a project best saved for a more in-depth portrayal of the works or a medium that is not confined to a tiny screen. If this concept were to come to fruition, the color-coded sections would be kept consistent between graphics for some element of uniformity.
Furthermore, the prototyping website does not support horizontally oriented pages, which is particularly detrimental to the fugue graphics, as they were originally intended to be read left to right—the same way one would read music. Additional testing may be needed in order to determine if they are more comprehensible when oriented horizontally or vertically.

As stated previously, each section of the information graphics is interactive. Tapping a section will cause a pop-up window to appear. There was an attempt to make the key terms on these pages interactive as well, so users could re-read the definitions without having to backtrack all the way to the form introduction (Figure 11), but issues with layering multiple pages in MarvelApp caused this to be abandoned for the prototype. An example of this may be viewed within the prototype on the pop-up page for the first subject of J.S. Bach’s Fugue No. 2 in C Minor.

InForm is still largely conceptual at this point in time, but it offers an idea of what music education could look like for a non-musical audience. It introduces basic forms to casual listeners of classical music without expecting them to become experts and opens the door to a
world of active listening. In addition to independent learning for adults, InForm could be a useful tool for performing arts groups such as symphonies or for concert venues to further connect their audiences to performances, especially if the available repertoire within the app were to be expanded. A simple advertisement or a QR code printed in a program would be enough to direct interested attendees to the App Store or Google Play Store to download InForm. Audience members would then be able to familiarize themselves with the music ahead of a concert or review what they heard following a performance. InForm has abundant potential in terms of its use, but its mission remains constant: to provide adult non-musicians with an approachable introduction to basic musical form so they can learn to listen critically to classical music.

The prototype can be viewed at: https://marvelapp.com/30f8956

Individual page images can be viewed at: https://app.box.com/v/finn-thesis
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