

The Music Assistant

Milestone 6 • April 20, 2020

Overview

- No new features
- Extensive documentation
- Code cleanup
- Poster
- E-book page
- Video

A scenic view of the Florida Tech campus. In the foreground, there's a pond with a fountain in the center. To the right, a large, modern building with a white dome and brickwork is visible. The sky is clear and blue. The overall atmosphere is bright and sunny.

Milestone 6 Tasks

Website Documentation

- Used JSDoc
 - Using an extension to document React code
- JS Metrics
 - 94 files
 - 6,200 lines of code
 - 4,500 lines of comments
- CSS Metrics
 - 48 files
 - 1,900 lines of code
 - 300 lines of comments

Server Documentation

- Used JSDoc
- JS Metrics
 - 38 files
 - 8,874 lines of code
 - 1,844 lines of comments

End-User Manual

- We tried to keep the website simple
- No need for an extensive manual

A scenic view of Florida Tech's campus. In the foreground, a calm lake reflects the surrounding environment. On the right, a large, modern building with a prominent white dome and brickwork is visible. The sky is clear and blue. The overall atmosphere is bright and sunny.

User Testing

Background

- Our client is the Director of Choral and String Studies at Florida Tech
- Our website was given to the Florida Tech choir and EFSC choir
- Total Number of Users: ~40

Difficulties

- Our first release was buggy
- Very few users (~2/day)
- COVID-19
- Can't get in touch with our client (see above point)

Results

- Not enough data to show results
- Recent Daily Active Users: ~3
- Cleansing algorithm was not doing enough data smoothing
 - The ML library is very good at picking up all sounds
- Performance analysis algorithm still needs some tweaking

A scenic view of Florida Tech's campus. In the foreground, a calm lake reflects the surrounding buildings and trees. A fountain is visible in the center of the lake. On the right side, a large, modern brick building with a prominent white dome and circular windows is visible. The sky is clear and blue. The overall atmosphere is peaceful and academic.

Lessons Learned

Lessons

- A lot of the software exists, weaving it together is difficult
- Sometimes, people are not as excited about your project as you are.
- Keeping functionality separate from the tools themselves is important.
- Learning new tools and technologies takes time and combining multiple new technologies together at a time is difficult.

Documentation

The Music Assistant

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Summary

- The Music Assistant is a tool that assists students in practicing music for their choir outside of class time. The Music Assistant also helps instructors by identifying where the students need guidance.

Motivation

- Choir students need to practice their performances outside of class, but it can prove difficult to know whether or not they are improving

Accomplishments

- Created a complete experience that includes a website, server, and database
- Provide real-time feedback to students as they sing along with sheet music
- Present the user with a performance progress summary for each piece of sheet music

Future Improvements

- Detect similarities in sheet music to better identify problematic patterns for students
- An OCR that can digitally encode sheet music for a choir
- Create statistical summaries for students and instructors that show where improvements can be made

The screenshot shows a web-based application window for 'The Music Assistant'. The left sidebar has links for Home, Practice (which is selected), Progress, Chorus, and Sign Out. The main area displays a musical score for 'Tenor 2' at a tempo of 100 BPM. The score consists of two staves. The first staff has measures 1 through 5 highlighted with colored boxes: 1 is yellow, 2 is green, 3 is red, 4 is green, and 5 is yellow. The second staff has measures 1 through 5 highlighted with colored boxes: 1 is yellow, 2 is red, 3 is green, 4 is red, and 5 is yellow. Below the staffs are dynamics 'f' and 'Ah' repeated. The right side of the screen shows a 'Practice' button and a 'View Performance' button.

Real-Time Feedback

This screenshot shows the same web-based application window for 'The Music Assistant'. The sidebar and main score area are identical to the previous screenshot. However, the right side of the screen now shows a 'Performance' button and a 'Practice Music' button. The overall layout and score visualization are consistent with the first screenshot.

Progress Summary



NORTHROP GRUMMAN

Engineering & Science
Student Design Showcase
at Florida Institute of Technology



FLORIDA
TECH

Documentation

- Web App Docs
 - <https://dgriessler.github.io/The-Music-Assistant/files/web-app-docs/>
- Server Docs
 - <https://dgriessler.github.io/The-Music-Assistant/files/server-docs/>
- E Book
 - <https://dgriessler.github.io/The-Music-Assistant/files/e-book-page.pdf>
- End-User Manual
 - <https://dgriessler.github.io/The-Music-Assistant/files/end-user-manual.pdf>
- Demo Video
 - <https://dgriessler.github.io/The-Music-Assistant/files/demo-video.mp4>



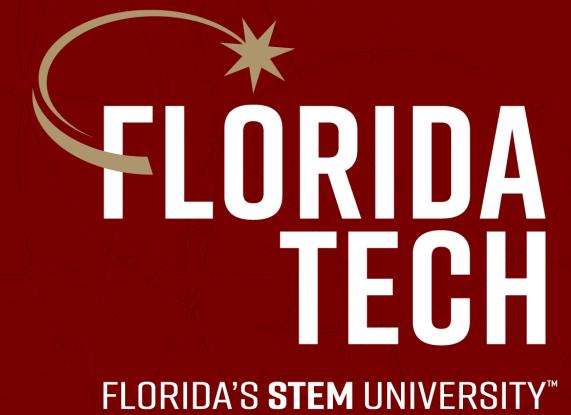
Senior Design 2019/2020

A Special Thank You

- Dr. Thomas Eskridge
 - Associate Professor of Computer Engineering and Sciences at Florida Tech
 - Our faculty sponsor
- Prof. Elizabeth Dopira
 - Director of Choral and String Studies at Florida Tech
 - Our client
- Dr. Robert Lamb
 - Director of Choral Activities at Eastern Florida State College
 - Our “second client”
- Dr. Philip Chan
 - Associate Professor of Computer Engineering and Sciences at Florida Tech
 - Head of CS/SE senior design
- Choir Students
 - Includes ~40 students at Florida Tech and EFSC
 - Testers

A Note to Senior Design Students

- This year's projects have been very impressive
- Best of luck to those who are graduating this semester



Questions?

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