Release Summary

Robot Ear, 12/03/2023

Key User Stories and Acceptance Criteria

A. As a user, I want to be able to upload a file of music in order to eventually get sheet music back
    a. Given that I have a wav file on my computer, when I click the ‘upload’ button and select the wav file, then I am able to upload that file
B. As a user, I want to have accurate sheet music so that I can play my music correctly
    a. Given that I have uploaded my wav file, when I click the ‘download’ button, then the sheet music that I get back is accurate
C. As a user, I want to be able to save my generated sheet music so that I can revisit the sheets (fail)
    a. Given that a user has generated their pdf sheet music, when they click the ‘saved files’ button, then they are able to save it to their account on the database and access it again in the future upon login
D. As a user, I expect the web application to be able to segment the audio file precisely so that it can identify notes (fail)
    a. Given that a user successfully uploaded a wav file with complex rhythm, when they download their pdf (via ‘download’ button) the sheet music that they receive accurately represents this complex rhythm
E. As a user, I want to be able to receive a pdf of generated sheet music so that I can reference it
    a. Given that a user has successfully uploaded sheet music, when they click the ‘download’ button, then they are able to save the file to their computer
F. As a user, I want to be able to log into the web application
    a. Given that a user has a unique email and password, when they click ‘sign up’ and enter their information, then the user is able to have an account and log in to Robot Ear (via the(‘login’ button)
G. As a user, I want the web application to have advanced technology such as ML technologies so that I can have the most precise sheet music
    a. Given that a user has successfully uploaded a wav file with low audio quality, when they download the sheet music, then it is accurate regardless of the low-quality wav file

Known Problems

1. Complex rhythm: Our segmenter and Pdffer only produce quarter notes. Our segmenter makes cuts every 500ms rather than dynamically making segments based on where notes are in the file.
2. Saving Sheet Music: Our database does not support saving sheet music in the webapp to be re-accessed upon future login

3. Machine Learning Classifier: 4% accuracy on testing set (90% accuracy on training set). Transformer model is overfitting to training set.
4. Consecutive PDF generation: as you upload files and generate the pdfs, the resulting pdfs are an accumulation of all the wav files uploaded so far
5. Sheet music appears in the html upon generation: the way it shows up on the homescreen and continues showing up. This is the result of the library we are using to convert html to PDFs.

Robot Ear Product Backlog

User stories that did not get completed:

1. As a user, I want to be able to save my generated sheet music so that I can revisit the sheets (fail)
2. As a user, I expect the web application to be able to segment the audio file precisely using spectral speak so that it can identify notes with high-level accuracy (fail)
3. As a user, I want to be able to record audio within the web-app via an ‘in-app recording’ button so that I can get a pdf for real-time audio inputs (fail)