

TRAVIS WRIGHT
COMP SCI - AUDIO - DATA
PORTFOLIO

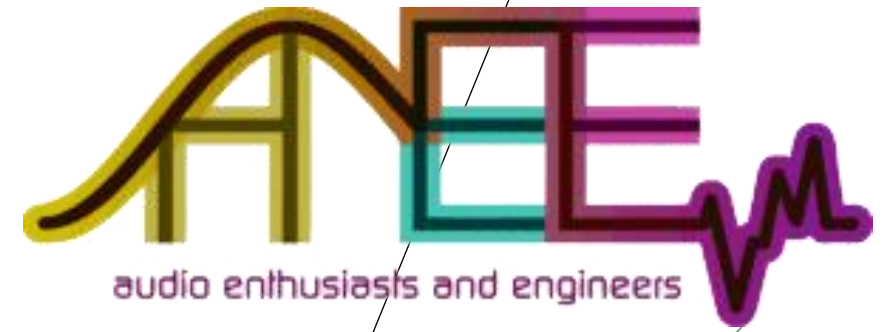
C++ EQUALIZER



JUCE

AEE Software Project Team-Leader

- Utilized the JUCE framework, an open-source C++ library for audio application and plugin development.
- Led a team of audio enthusiasts coordinating tasks and ensuring a timely delivery while maintaining and teaching coding standards.
- Implemented user interface components for real-time audio adjustments, enabling seamless interaction and precise control over sound input and output.
- Conducted thorough testing and debugging to ensure stability and performance across various audio environments and platforms.



C++ Equalizer

The plugin seamlessly integrates with Windows AudioFilePlayer and JUCE's Plug-In Host, enabling users to effortlessly select and play their desired tracks while unlocking a suite of advanced features:

- Real-time Spectrum Analyzer
- Custom Visual Sliders
- Bypass Buttons

Adjustable Parameters:

LowCut Filter

- Adjust slope (12, 24, 36, 48 dB/Oct)

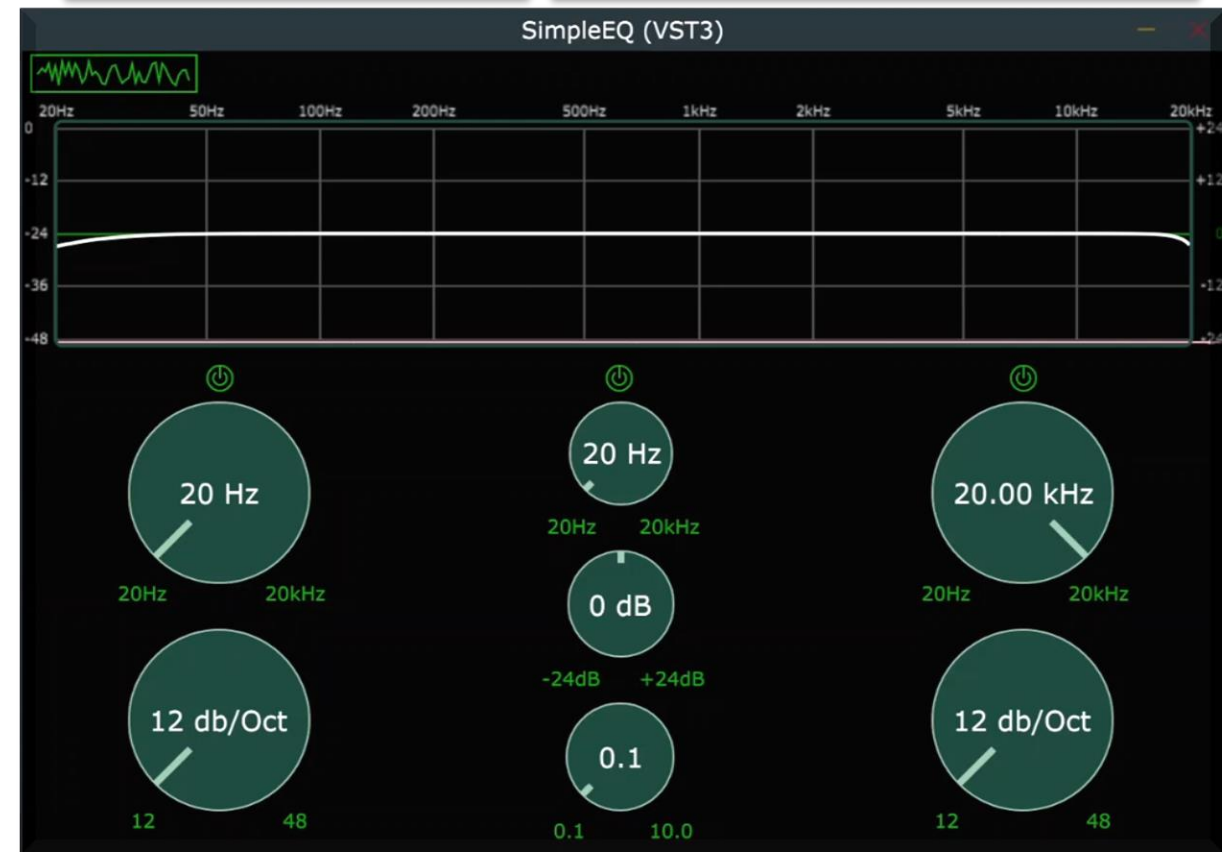
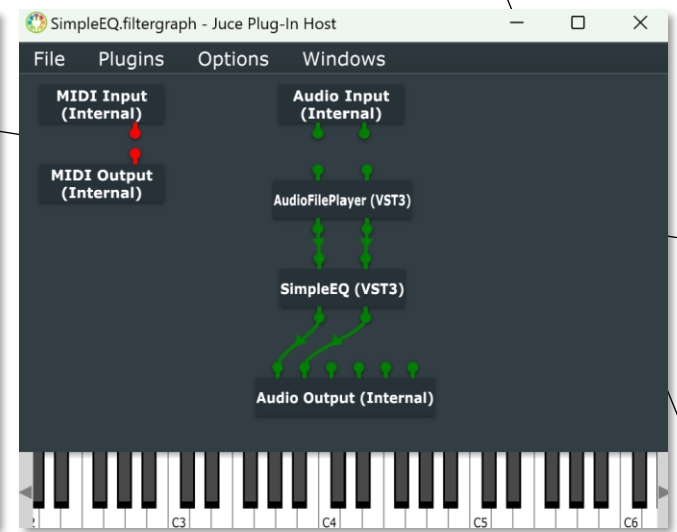
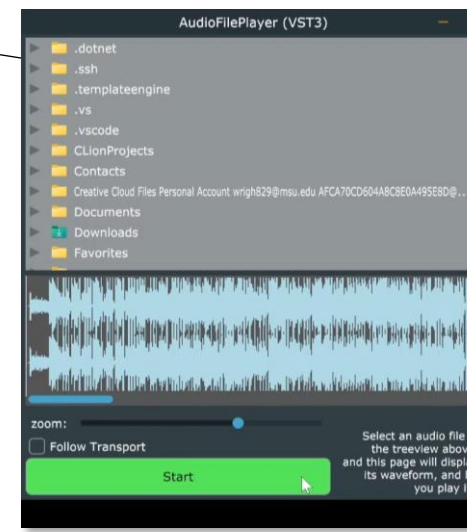
HighCut Filter

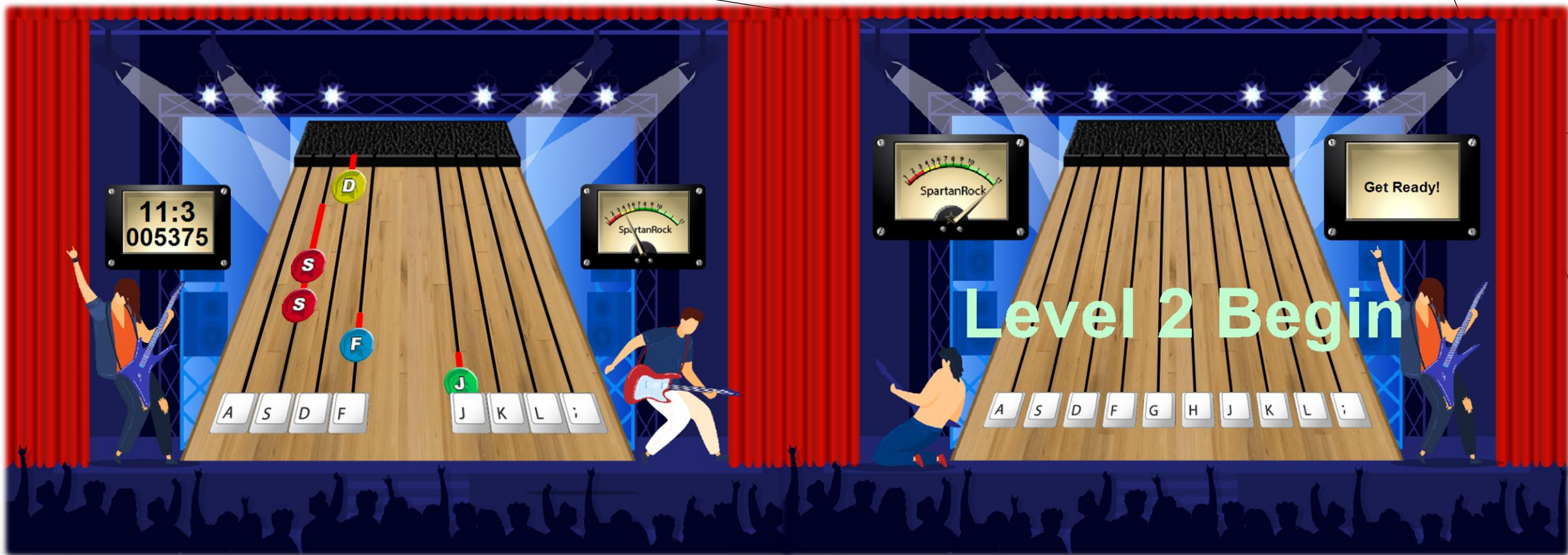
- Adjust slope (12, 24, 36, 48 dB/Oct)

Peak Frequency

- Select specific frequency (20hz – 20kHz)
- Increase/decrease gain (-24dB - +24dB)
- Adjust quality factor (0.1 – 10.0)

demo video →





CSE335: SPARTAN HERO

Designed and developed an interactive music game reminiscent of Guitar Hero, featuring multiple levels and intricate mechanics. Created in C++ using 'wxWidgets' and 'miniaudio' libraries to manage audio playback, user interactions, scoring, and ensuring a fluid, immersive experience.

The month-long project was constructed using SCRUM techniques to manage sprints and hold regular team meetings, ensuring effective task coordination with an emphasis on robust testing and debugging:

- Utilized Trello for team-productivity management
- Adhered to Google's testing standards
- XML file load and save compatibility

NOISE REMOVAL SCRIPT - PYTHON

Project

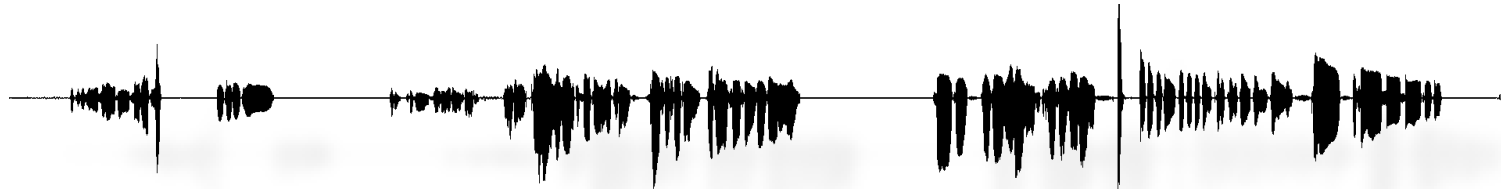
- Developed a Python script using Pydub and Numpy to manipulate audio files and enhance the workflow at WLNS-TV Channel 6 News.
- The script intelligently identifies and removes background noise by dynamically detecting silence based on a customizable dB threshold, with buffer extensions to prevent abrupt cuts in audio.
- Ensures only meaningful audio is retained by defining minimum segment length and merging overlapping segments, enhancing the clarity and continuity of the final output.
- Utilized by news reporters and on-air anchors when recording long audio segments in the field. The script aims to assist in the final editing process of news casts, stories, and voice overs.

BEFORE:



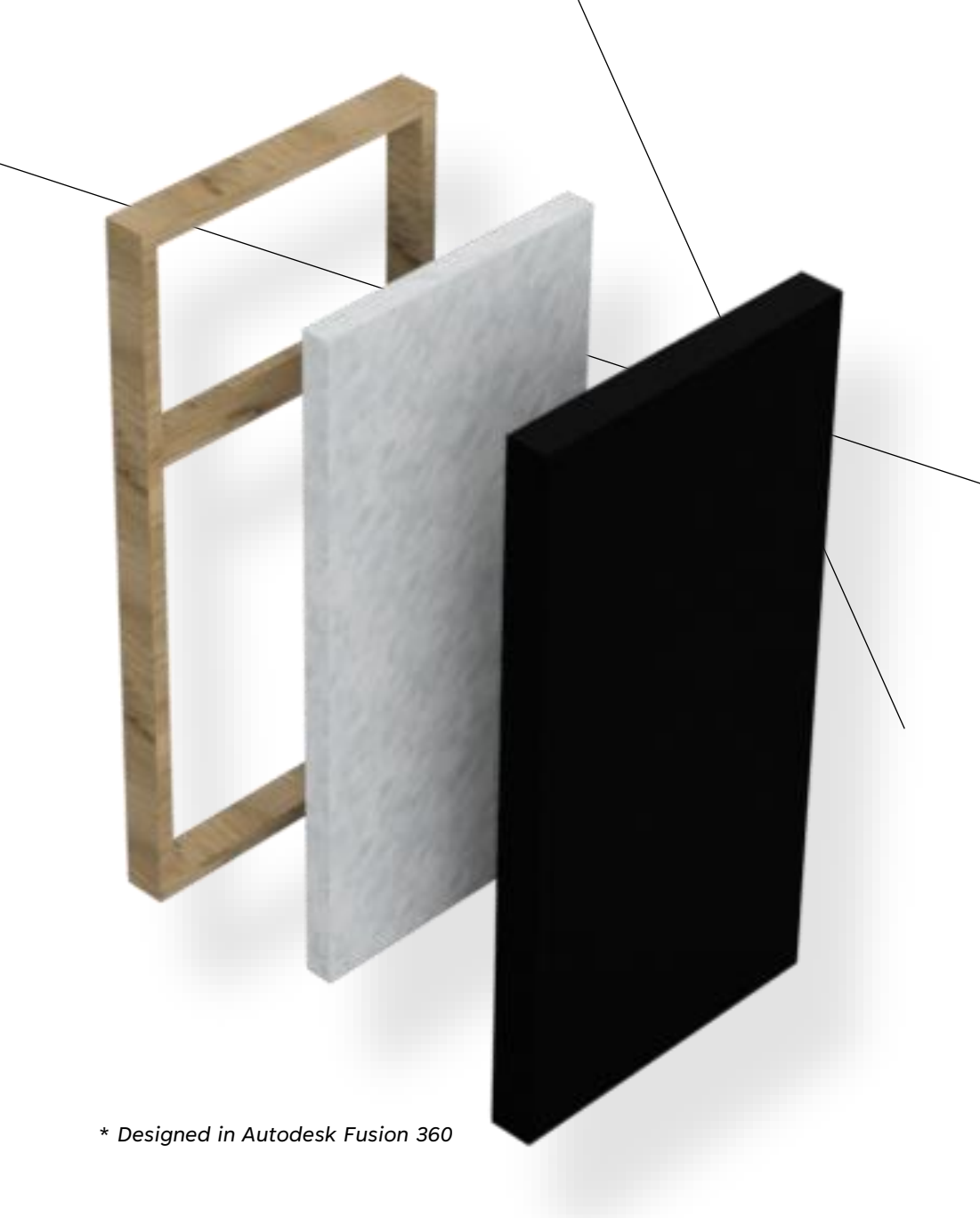
Pydub 

AFTER:



 NumPy





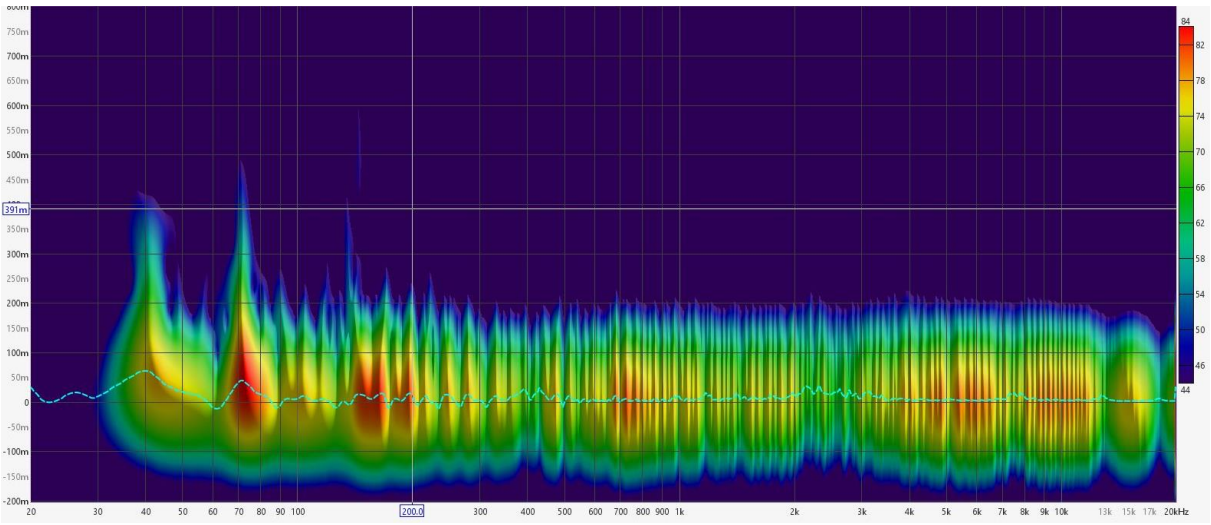
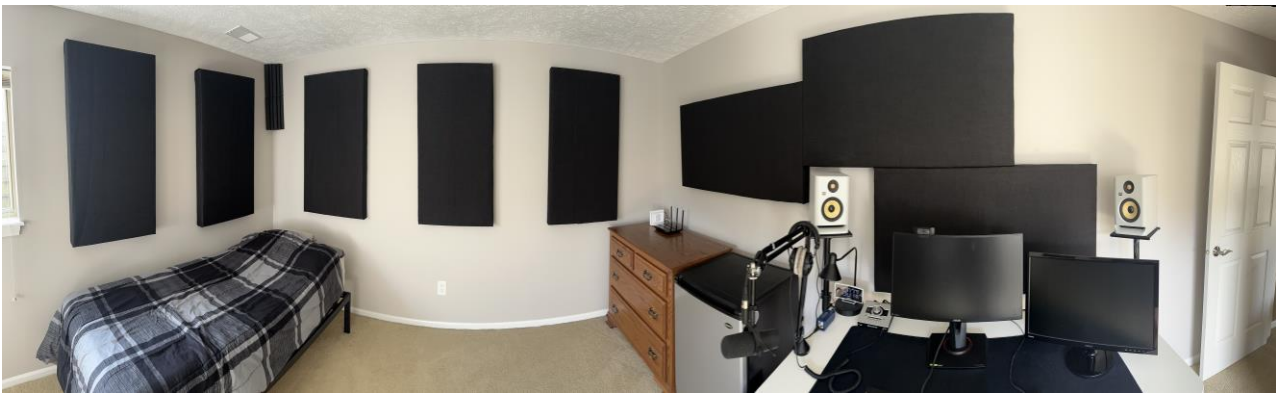
* Designed in Autodesk Fusion 360

ACOUSTIC PANELS

I designed and **hand-crafted eight** custom **acoustic panels** using Nu-Wool ECOCELL blankets: a **sustainable** product made from at least **70% recycled materials**, including post-consumer recycled newspaper, which helps reduce waste in landfills. Each panel measures **4ft x 2ft x 4in** providing excellent **sound absorption**. The construction includes a sturdy pine frame and black burlap fabric.

After installing the panels, I utilized **Room EQ Wizard (REW)** to assess the effectiveness of the acoustic treatment. Using a **Behringer ECM8000** condenser microphone, I **conducted detailed measurements** of the room's acoustics, focusing on decay time and reflections.

This process allowed me to quantitatively validate the impact of the panels and fine-tune the setup for optimal acoustic performance, and gaining valuable experience in **data analysis** and **data acquisition**.



GOOGLE DATA ANALYTICS



Overview:

Completed the Google Data Analytics Certificate, mastering essential **data analytics** concepts and techniques. This comprehensive program provided **hands-on experience** in **preparing, processing, and analyzing** large datasets to uncover actionable insights.

Skills:

Developed expertise in **data cleaning, analysis, and visualization**, with a focus on **data-driven** storytelling and interpreting **trends** to support business objectives. Enhanced ability to create impactful **dashboards** and reports that drive **informed decision-making**.

- Excel: data analysis and organization using *formulas* and *pivot tables*
- SQL: *queried, analyzed, and managed* data in Google's BigQuery
- R: *manipulated and displayed* data using the *tidyverse* package
- Tableau: developed interactive *dashboards* and compelling *visualizations*

THANK YOU



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