

6.111 Final Project Abstract

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Title: Realtime Visual Audio Composition

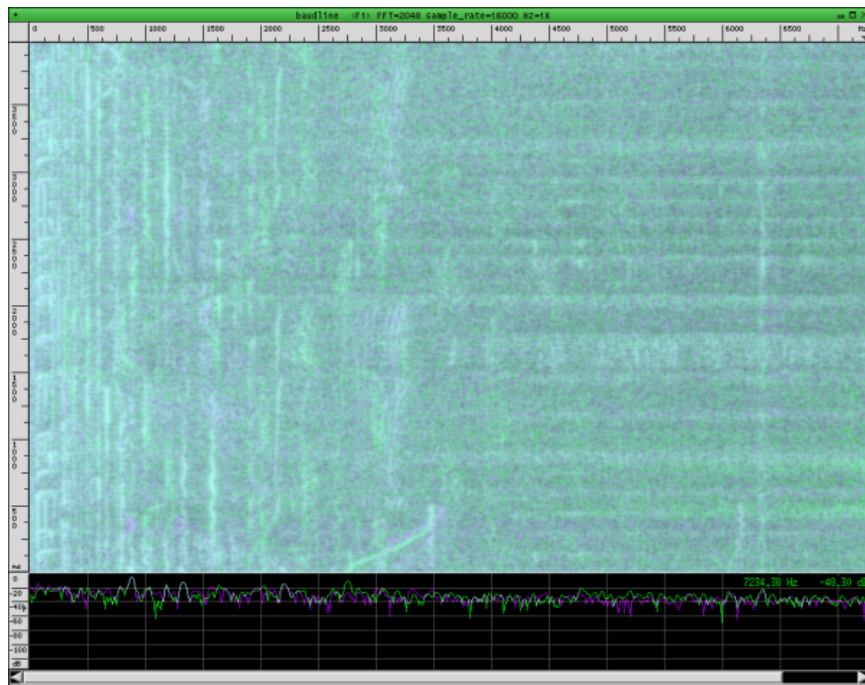


Figure 1: This screenshot shows a spectrograph created from an audio file on a PC. Our device will perform the opposite transformation in real time using FPGA hardware and play back the audio to a speaker.

Our final product will interface with a digital camera to scan spectrographs drawn on a white board, process the spectral domain information into a time domain waveform using the IFFT (Inverse Fast Fourier Transform) algorithm, and output the audio to a speaker. Pre- and post-processing techniques (frequency filters, windowing, etc) will be user configurable via the graphical user interface. A visual display of the processing, similar to the image above, will show the user the filtering options as well as the current status of the image scan.

Our design should split roughly into 3 sections: camera input and preprocessing, the visual interface, and audio output. Individual group members will focus on one of these areas.