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Signals and Systems: Final Project Proposal

We propose to work on creating a python based Vocoder for the purpose of auto-tuning somebody's voice in real-time. Our timeline for the project looks like so:

1. Simple, non-real-time ipython implementation
2. Non-real-time, stand-alone application (minimum deliverable)
3. Real-time, stand-alone application

The project will start with a simple implementation in python that takes a pre-recorded file, breaks it up, and applies the filtering as listed in step 1. After this, the next step is to complete a stand-alone application that allows for easy interface with the vocoder. The final step would be to complete an application which auto-tunes the voice as you speak, either saving it directly to a file , or playing it live. For our final deliverable, we plan on spending approximately half the time discussing how a vocoder actually functions before demonstrating the state of the application. We hope to be able to do near-real-time vocoding but would be satisfied with the state referenced in step 2.