Bonus Mini Lab: "Audiovisual Signal Processing"

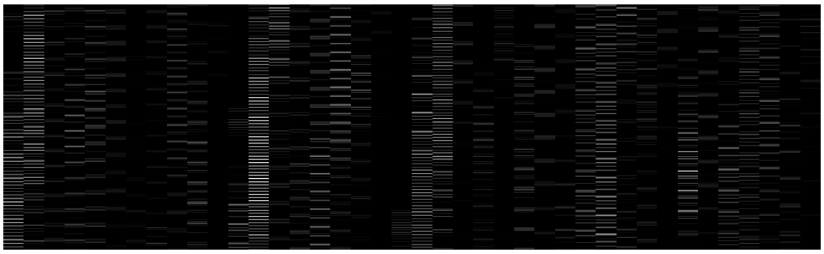
EE 20 Spring 2014
University of California, Berkeley

1 Introduction

In Lab 5, you were introduced to the concept of spatial frequency in image processing. In this mini lab, we hope to solidify your understanding of this idea by making a direct connection to temporal frequency in audio signal processing.

This exercise was adapted from Professor Miki Lustig's *21st Century Vinyl Challenge* from EE 123, Fall 2012. All necessary materials can be found at `https://github.com/nosaesa/ee20`.

2 A Picture You Can Hear



Hidden in this image is an audio file. Your task is to extract the sound and transcribe its contents. It may be helpful to know that each "column" is 50 pixels wide, and there are 40 "columns" in total (use `imshow(av_matrix)` in MATLAB to take a closer look at the image). Hint: try listening to a one-pixel wide column. Can you hear anything? Try stacking a few different one-pixel wide columns on top of each other.

3 Closing Thoughts

Hopefully you found this mini lab to be cute! It should test your MATLAB skills more so than your EE 20 skills, but we hope you had fun. Feel free to

email `jlievense@berkeley.edu`: for more hints; to verify your solution; or to submit a guess as to who the mystery speaker is!