DAT6 Project Writeup
Detecting a Door Closing from Sound

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March 6, 2015

1 What is the question you hope to answer?

The question I'm hoping to answer is: 'can I predict the occurance of an event from an analysis of the sound it makes?'

More specifically, I'd like to be able to predict if a door was closed by applying a machine learning algorithm to a large dataset containing the sound of a door closing probably hundreds of times over three hours.

2 What data are you planning to use?

I'm planning to use the audio from the following 3-hour YouTube video somebody posted of him or herself opening and closing a door repeatedly:

`https://www.youtube.com/watch?v=tULM0KBx7i8`

3 What do you know about the data so far?

Currently the data is in an audio format, and in order to do any analysis I'm going to have to turn the audio data into frequency data with some sort of signal processing algorithm. Mostly likely one of the Fourier transformation algorithms built into numpy, or a Fast Fourier transformation algorithm from a different python add on package.

After that I will have to set up some sort of machine learning algorithm to progressively increase the accuracy of a prediction of a door closing based on the signature its frequency makes over time. I have no idea how to even begin to do this, but I understand it's something that will be covered in class.

4 Why did you choose this topic?

I chose this topic because it seems like a simple application of predicting events based on an audio analysis. I'm really fascinated by the idea and I'd love to learn how to go about doing something like that, and this seems like a good place to start. Plus, it's within the scope of the class.