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Dr. Gustafson

Math 362 Fourier Analysis

November 4, 2017

Project Selection

For this years final project I have chosen to analyze some sounds from my sister’s cat Bella. The reason for choosing this sound is because it easily accessible for me to record since she lives at home with me and my sister. As well as being able to get plenty recordings myself there are an abundance of cat sounds on the internet that I can use to analyze along with the ones that I record. My main goal with this assignment is to observe the differences in how Bella’s voice changes when she is in different moods. I want to mainly focus on the difference of her purring and her meowing. I imagine a meow would be a lot scratchier than purring since the sound of her purring is usually very rhythmic from what I have observed so far.

Below are some commands I played around with on a sound wave that I recorded.

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| --- | --- |
| Input Commands | Output (Plot if Applicable) |
| >> [x,sr]=audioread('bellapurring.wav');  >> SpectrogramPlot(x,sr,10000)  >> [z,sr]=audioread('bellapurring.wav');  >> DCTIIsound(z,sr,16,96,2000)  Percent\_Reduction =  'The percent reduction is NaN.'  Compression\_Ratio =  'The compression ratio is 0 to 0, or NaN to 1.'  >> [x,sr]=audioread('bellapurring.wav');  >> FFTsoundthresh(x,sr,96,2,10,500,1500)  Dominant\_frequency =  'The dominant frequency is 2.823077e+01 Hz.'  Percent\_Reduction =  'The percent reduction is 96.000048.'  Compression\_Ratio =  'The compression ratio is 580607 to 23224, or 25.000301 to 1.'  Run\_Time =  'The run time was 0 minutes and 1.259189e+00 seconds.' |  |

Here are some soundwaves that I was able to find online. This website has multiple sounds but the one in here is a sound of a cat purring. When I plan on getting further in this project, I will be comparing sound waves of my cat meowing and those online to compare.

Koenig - <http://soundbible.com/707-Cat-Purring.htm>

Here is a wav file found online of a cat meowing.

“Various Stuff” - http://www.wavsource.com/snds\_2017-09-17\_1751672946049674/animals/cat\_meow\_x.wav

Work Cited

Koenig, Mike. “Cat Purring Sounds | Effects | Sound Bites | Sound Clips from SoundBible.Com.” *Free Sound Clips*, soundbible.com/707-Cat-Purring.html.

“Various Stuff:Animal Sound Effects.” *WavSource: Animal Sound Effects 1 / Free Wav Files and Sound Clips*, www.wavsource.com/animals/animals.htm.