Homework 4 Uniform Quantization Report

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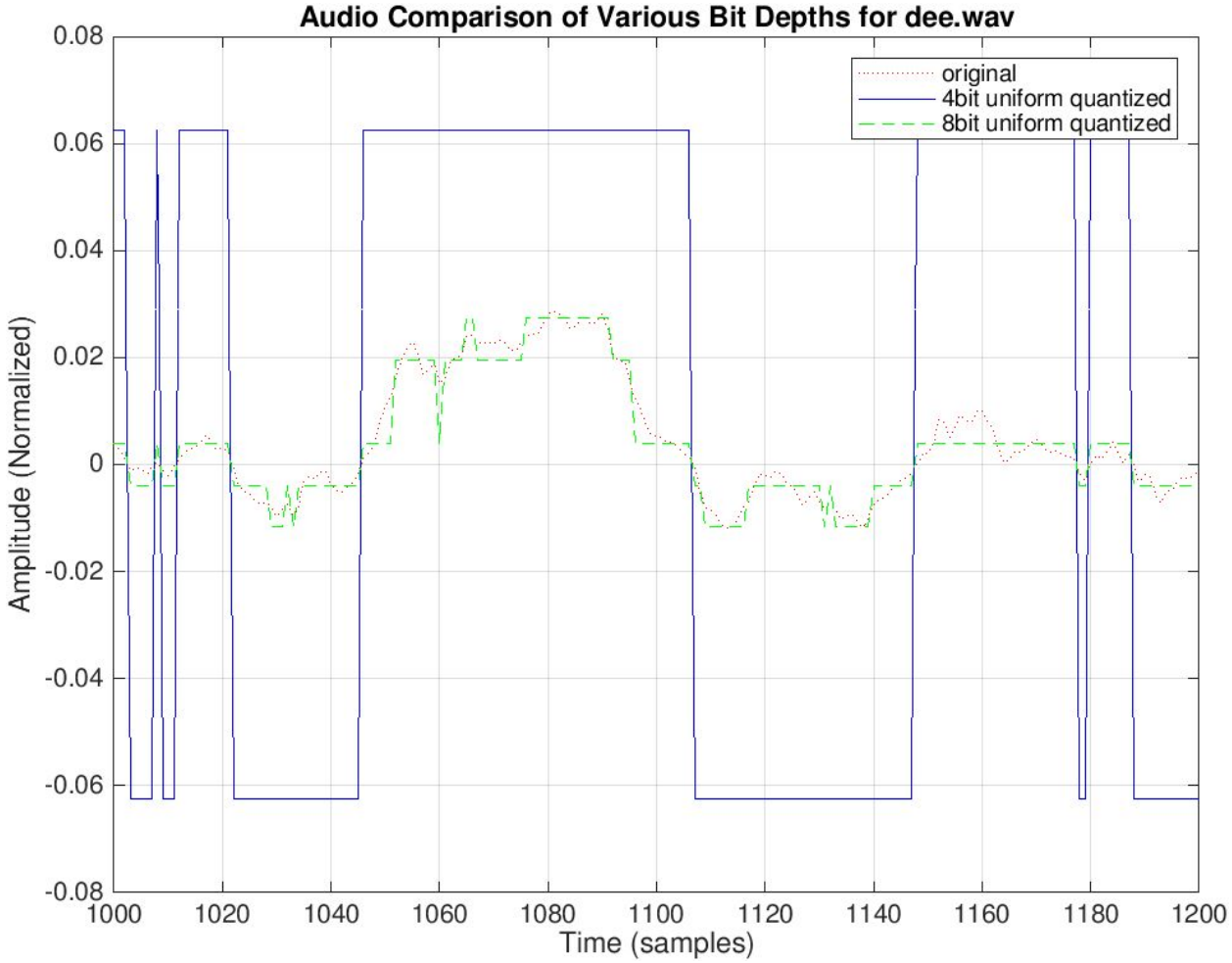
Uniform Quantization

I used uniform quantization to compress an audio waveform to 4-bit and 8-bit audio.

dee.wav

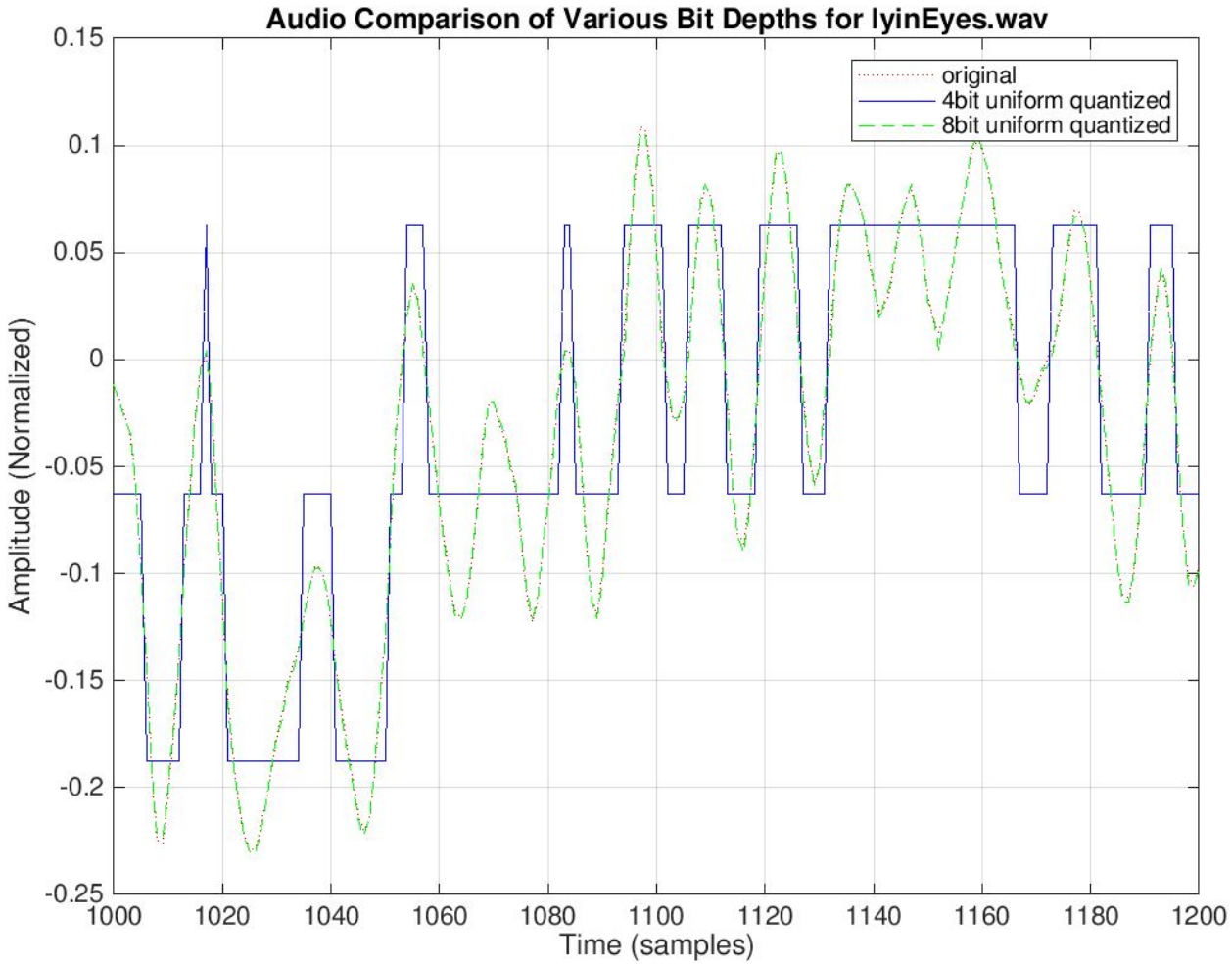


Distortion for 8 bit depth: 7.493366e-06
Distortion for 4 bit depth: 2.195969e-03

When I listen for the difference between the original file and the 8-bit depth file, I almost cannot tell a difference beside some noise. It's very similar. I see, though, that 0 is not an available audio level in accord with the directions, and that is likely the source of the noise. The distortion is very low for this bit depth because it fairly accurately represents the curve as pictured.

When I listen for the difference between the original file and the 4-bit depth file, I can tell a very significant difference. There is a very large amount of noise that almost blocks the real audio from getting through. The audio is distant and strange. The distortion is fairly high for this bit depth because it does not represent the curve very well.

IyinEyes.wav



Distortion for 8 bit depth: 6.199506e-06
Distortion for 4 bit depth: 3.224834e-03

When I listen for the difference between the original file and the 8-bit depth file, I can tell very little difference beside some noise. It's very similar. For some reason, though, that 0 is not an available audio level according to the directions, and that is likely the source of the noise. The distortion is very low for this bit depth because it fairly accurately represents the curve as pictured.

When I listen for the difference between the original file and the 4-bit depth file, I can tell a very significant difference. There is a very large amount of noise that almost blocks the real audio from getting through. The audio is distant and strange. The distortion is fairly high for this bit depth because it does not represent the curve very well.