Math 320 – Computer Methods in the Mathematical Sciences I.

Project Title: Fourier Transform and Voice Recognition.

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1 Presentation

Comments:

- Nice image for Fourier series.
- Great demonstration in MATLAB! (Square wave)
- Well done describing how Fourier series approach the Fourier transform.
- Nice animation of voice comparison.
- The definition of Fourier Transform and particularly the FFT were a bit shortchanged.
- Very nice demonstration with the volunteer!

Grade: 9.5/10
Engaging and sophisticated presentation, with some neat demonstrations!

2 Paper

Comments:

- With numbering of definitions etc, the paper becomes very readable.
- Exposition may have benefited from an outline of the structure in the introduction.
- What determines the choice of ω_0?
- Nice images for the Fourier series.
- Description of FFT makes it clear where the $\log_2 N$ factor comes from but not clear where N comes from.
- Robustness to noise is really well described.
- The application from Voice Recognition is great – I'm glad you figured out a good way to do this!

Grade: 9.5/10
Fun paper with serious math, sophisticated computation, and relevant applications! Could have been a bit more polished, but all-in-all really great.