

Algorithm fun
(Not another drum machine)
Assignment due 10 March 2008

In this assignment, you'll be sonifying an algorithm or programming technique from the world of "normal" computer science.

Noobs

0. Reading: Introduction to Recursion:

<http://phoenix.goucher.edu/~kelliher/cs18/feb23.html>

1. Recursion is a cornerstone of effective and elegant algorithms, and the Fibonacci sequence is a "classic" introductory programming assignment. Write a recursive ChuckK function to print out the Fibonacci sequence.

2. Now use this function in a musical expression of the Fibonacci sequence. Need inspiration? Peruse the internet for information about all the manifestations of the Fibonacci sequence in nature and its relationship to the Golden Section, and the ubiquitous use and misuse of these ideas in music composition and analysis.

3. If I play a sound composed of a sine tone at 800Hz and a sine tone at 1400Hz (superimposed), and I sample the sound at a sampling rate of 1000Hz and play back the sampled version, what will I hear? Why?

What to hand in:

- Your code for Question 1.
- Your sonification code.
- A few paragraphs describing your approach to sonifying the algorithm, why you chose this approach, and what you think about the results.
- Your answer to Question 3.

Be ready to demo in class.

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1. Think about how sonifying an algorithm might elucidate certain properties, or about how you might express the beauty of your favorite algorithm through sound.

Some ideas to get you started: sorting (pick at least 2 algorithms and sonically compare them), exact or approximate solutions to the traveling salesman problem, searching through different structures (BST vs. heap), ...

2. If I play a sound composed of a sine tone at 800Hz and a sine tone at 1400Hz (superimposed), and I sample the sound at a sampling rate of 1000Hz and play back the sampled version, what will I hear? Why?

What to hand in:

- Your code.
- A few paragraphs describing your approach to sonifying the algorithm, why you chose this approach, and what you think about the results.
- Your answer to Question 2.

Be ready to demo your sonification in class.