

Subject: Computational Sound
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W17 -- CS489 -- Computational Sound

Undergraduate "topics course". Check Quest, to get correct CS489!

<http://www.cs.uwaterloo.ca/~mannr>

Audience

- 3B or later (CS370, 371, and/or Matlab/Octave experience)
- sound/music/math/programming interests
- students who want to do independent project

Evaluation

- Assignments (short programs in Octave): 50%
- Project: 50%

Topics

- Data formats and processing
- Introduction to acoustics and sound measurement
- Sound transducers (speakers, microphones)
- Frequency Analysis (FFT, CS370/371).
- Sound synthesis
- Topics to be decided by class

Project topics

1. Student's choice (data selection + analysis + report)

- modeling of guitar effect pedal
- analysis of your own singing voice
- music indexing (Shazam)
- bird or other animal sounds

2. Experimental analysis and Measurement (report)

- measure speakers, microphone, room acoustics, etc

3. Open source (programming + report)

- Arduino/Teensy programming
- Friture software
- University of Waterloo (Vanderkooy/Mann) measurement system

DEMOS

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