

12 TUS iMac Orchestra: Sound Synthesis, Ensemble Performance

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Full Title: TUS iMac Orchestra: sound synthesis, ensemble performance and improvised solo performances

Summary of Teaching & Learning Context

This activity is inspired by the works of the Princeton Laptop Orchestra (PLOrk) and the Huddersfield Experimental Laptop orchestra (HELO). These groups consist of students, musicians, and researchers who use laptops and audio software as musical instruments in a group performance 'orchestra' context.

This lab session was created for the first year students of the Music Technology & Production course as part of the Acoustics 1 module. The appropriate group size for this activity is around twenty students.

This activity asks students to explore novel methods of music generation and communal performance, it forms part of the continuous assessment process and assesses a student's ability to engage in, and contribute to impromptu group-based activities.

Implementing the Strategy

Computer labs are inherently suitable for this activity; for this session, the 8A104 lab on the TUS Moylish campus was used which has a group of twenty iMac machines.

The software used to generate sound is Audacity, a free digital audio workstation.

The activity mimics a real orchestral performance that follows a programme of events;

- Tuning up, which consists of synthesising the sound of an oboe with sine waves and adjusting the volume levels of the machines.
- Harmonics and Inharmonics, where students create complex tones by generating single sine wave components (generate > tone > sine > frequency value in Audacity).
- Arpeggios, where each student generates a single note from a chord in the key of C Major.
- To build up a collection of reusable resources which, over time will reduce lecturer-learner contact time.
- Ensemble performance, where the class plays 'Mary had a little lamb'. Each student acts as a single note in the tune. The instructor plays a metronome with their machine and the students are asked to play the note they generated, in time and in sequence with the song by pressing play on Audacity at the correct time.
- Intermission, where the students can visit the canteen as if they were attending an event.
- Sine wave soloists, where the instructor generates a 'backing track' in Audacity using chords from the C Major scale. The students are given fifteen minutes to construct a short solo. Each student then plays their solo section in turn.

Your Observations/Reflections

This session began with the question 'Do you think computers are instruments?,' which raised a great debate amongst the class and eventually an agreement that computers can be used as instruments when we began generating musical notes and chords.

Asking students to make music with non-traditional tools encouraged collaboration and produced a lot of laughter during the performances when the latency of the machine would effect the musical timing.

A number of students said that it was the best lab session of the year, which was fantastic.

Recommended Resources

Audacity Digital Audio Workstation; available at www.audacityteam.org

