

Multi-listener Sonification: An exploratory workshop

Your Host : Paul Lunn

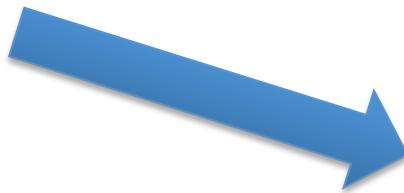
**Please download MAX MSP from
<https://cycling74.com/downloads/>**

About Me

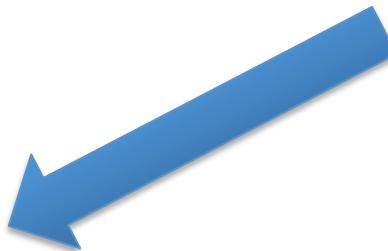
- Senior Lecturer in Music Technology at Coventry University in the UK
- PhD Researcher at York University, supervised by Dr Andy Hunt
- Investigating applying sonification techniques to big data



Why teams?



**International
Community for
Auditory Display**



Introducing The Lone Sonifier

Sonifies in isolation

Does not verify any findings

Interacts with the sound

Bias

Was he paying attention all the time?

Did he get distracted?

Hearing fatigue

Hearing ability?



Team Sonification

Sonification
in a team

Results can be
independently
verified

Interacts with
both the
sound and
each other

Share the
workload

Impact of
distractions
reduced

Several
perspectives

The group ear

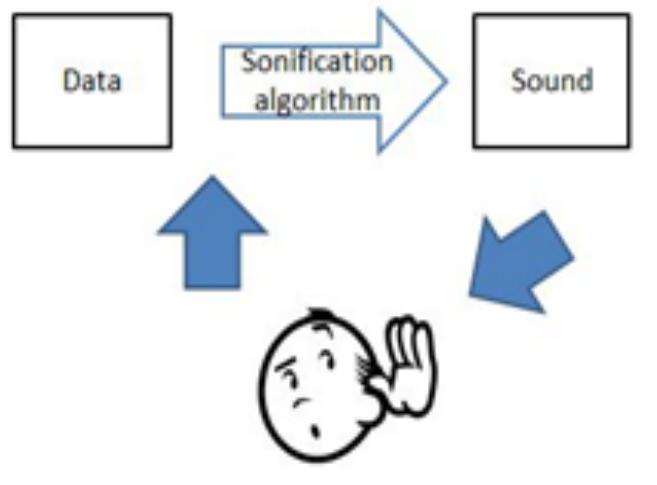


The Group ear

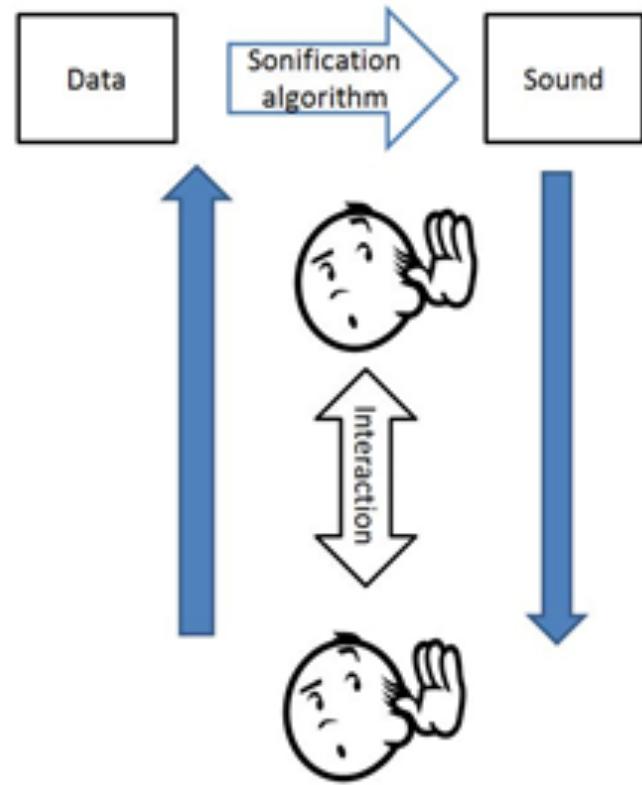


Is this automatic peer review?

Team sonification = Interaction²



Solo listener within an interactive control loop



Two listeners within an interactive control loop

Sonification in teams

- Have identified several approaches to team based interactive sonification
- Ensemble sonification
- Distributed sonification

Ensemble Sonification

- A team of sonifiers within the same environment
- Each interacts with the data
- Each interacts with each other
- Possibly requires a conductor to lead the ensemble



Distributed Sonification

- Sonification “work” is distributed to a team
 - Each member interacts with the data in isolation
 - Different environments
 - Different distractions
 - Results are confirmed by multiple hits
- Eric Whitacre’s Virtual Choir



Crowd Sourced Science

- Distributed Sonification enables many users to interact with data
- Public engagement
- This could be the basis for sonification based citizen science
- E.g Galaxyzoo, frogwatch, weather detective
- If it is based on a topic that catches the public's imagination, this could be an excellent way of promoting the subject
- E.g. Astronomy, Medical, ecological, environmental

Session Set Up

- Make sure that Max msp is installed on your computer
- <https://cycling74.com/downloads/>
- Unzip the file I sent to your email address to your desktop
- No looking!

Exercise 1

- Please open seti_demo.matpat
- If you think that you can hear a tone within the white noise – press the lower button!

Short break!

- Next on the agenda is Pair Sonification

Pair Sonification

- Pair sonification is based upon principles developed for “Pair Programming”
- Agile Software Development
- Agile software techniques were introduced to improve code quality and productivity

Solo Programming



Programmer

Pair Programming



The driver writes
the code



The observer
reviews each line
of code

**The roles are
switched
regularly**

Pair programming benefits

- The pair need to think/plan before they design
- Discourages bad habits
- Mentoring
- Sharing best practice
- Forms mutual understanding of design

Pair Sonification Example



The driver
interacts with the
sound



**The roles are
switched
regularly**

The observer
provides feedback
to the driver

Exercise 2

- Work in pairs
 - Please open task_2 folder
 - Run pair_radio_1
 - The driver does what the observer tells them
 - Find the best setting
-
- Now swap roles with pair_radio_2

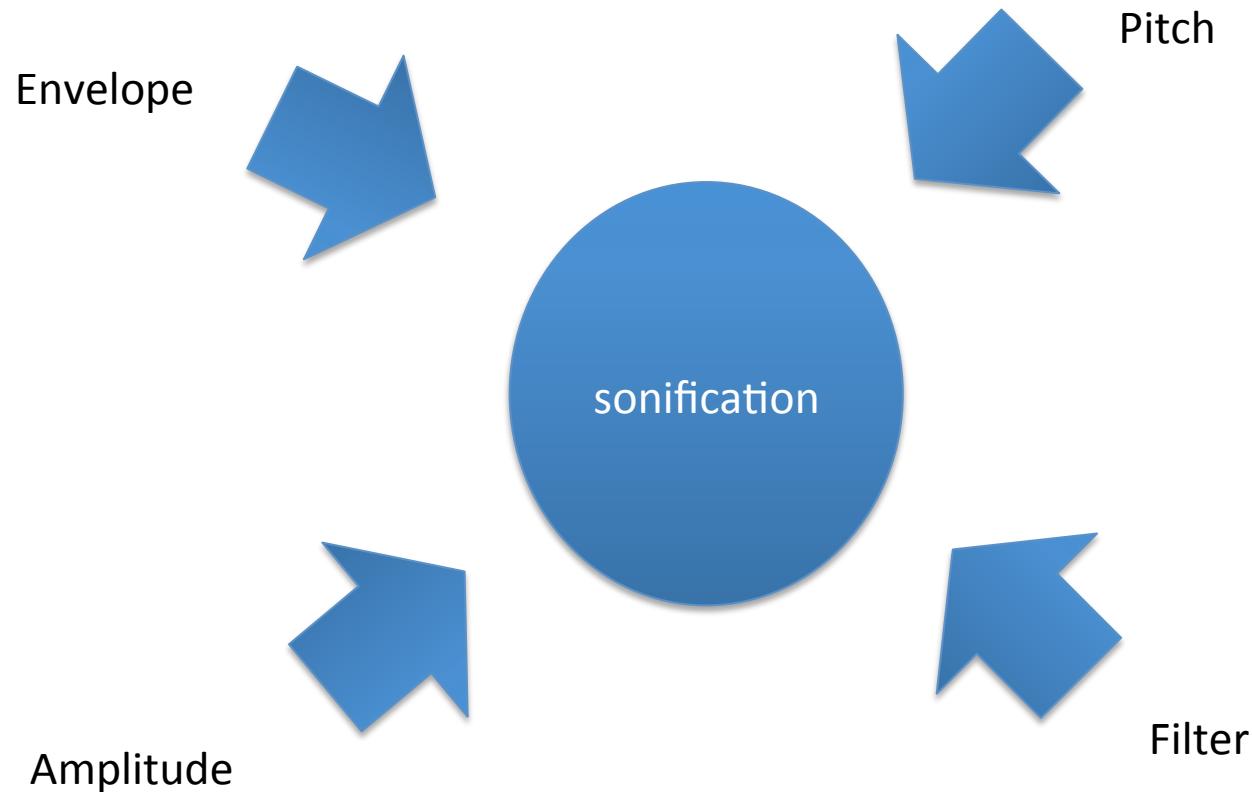
Short break!

- Next on the agenda is Ensemble Sonification

Ensemble Sonification

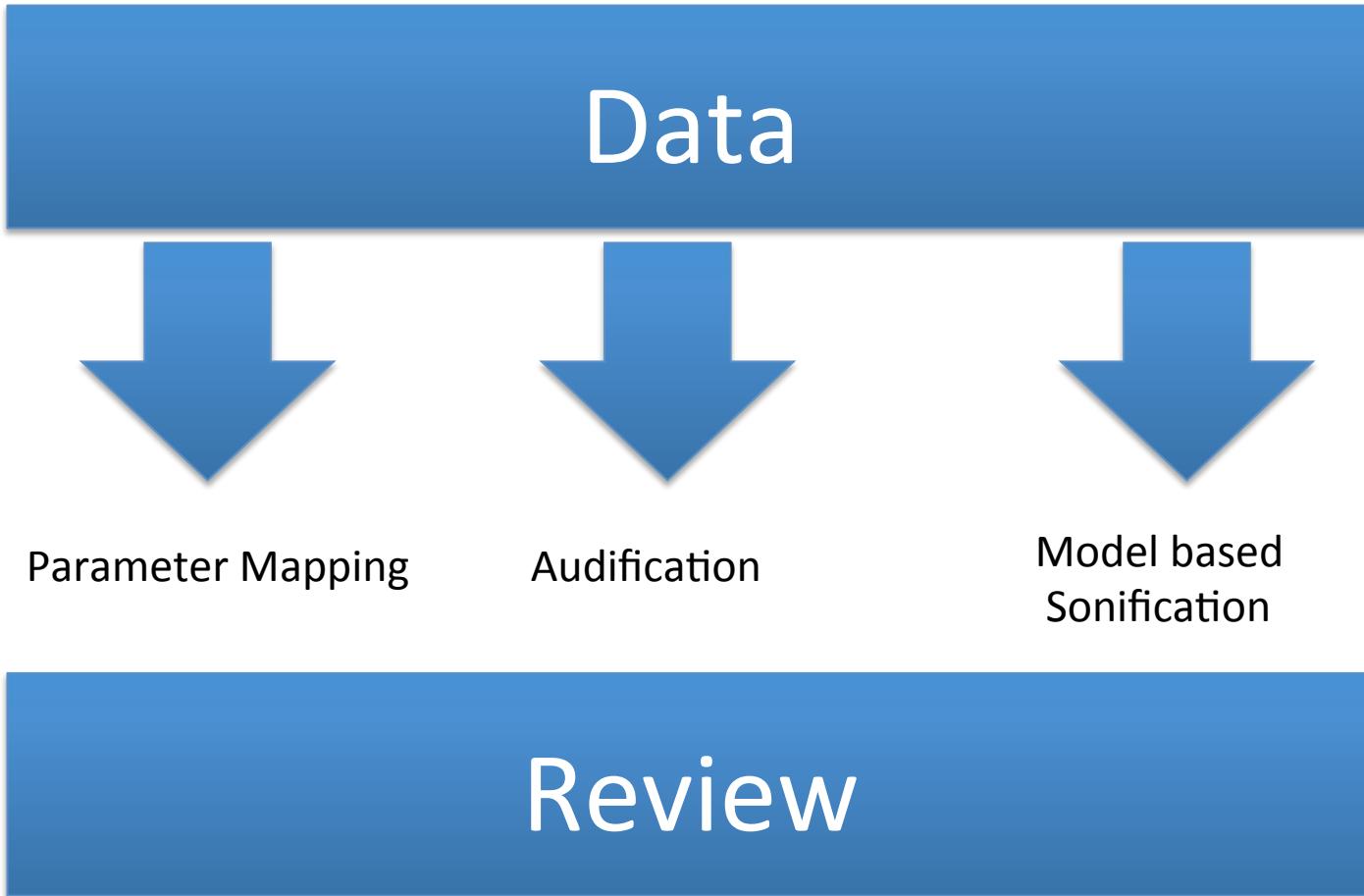
- 3 or more in a team
- Working concurrently or in parallel
- Again this encourages planning and discussion before the work is progressed
- Team dynamics may come into play

Ensemble Parameter Mapping



Each member controls one aspect of the sonification in a shared environment

Ensemble parallel sonification



Each member applies a different sonification technique to the same data

Who's in charge?



Task 3

- Please open ensemble radio.matpat
- Work as a team – audio contains background noise + random spoken words (fruits)
- How many fruits can you hear?
- You have 15 minutes

The end

Thank you for attending!