

Sonification Apps

Sonification can be considered as the auditory counterpart of visualization: Data is communicated to a user by means of organized sound. The human brain can process sonification much faster than speech, and even faster than any visual cue, like text, graphs, graphics, and other depictions.

Sonification is meaningful when the visual scene is already very complex. This is the case in traffic, where drivers need to look at other vehicles, pedestrians, street signs. Traffic lights, and their satnav. Other examples include image-guided surgery, where clinicians see the patient, and monitors with the three anatomic planes of the patient, and a pseudo-3D graphic of the lesion.

Sonification is also meaningful, when visualization is undesired or impractical. Examples include the Geiger counter, where the user's vision is needed to explore the environment, while the auditory channel informs them about the amount of radioactivity. Other examples include human-machine interaction underwater, in fog, smoke, or darkness.

Sonification design is a balance between digital signal processing, music composition, and psychoacoustic considerations. In the master's project we will implement sonification apps for smartphones, reading out sensor data. We will start with a simple auditory water bubble level meter, i.e., reading out inclinometer data and presenting them by means of sound. After the first, prototypical sonification app, we can come up with new sonification ideas and use cases, like audio games, auditory graphs, auditory emoticons, and many more.

Experience with one of the following themes is helpful: sound design in Pure Data or Max/MSP, Java and XML, GUI design and branding, Unity, Git Repositories, or alpha and beta testing