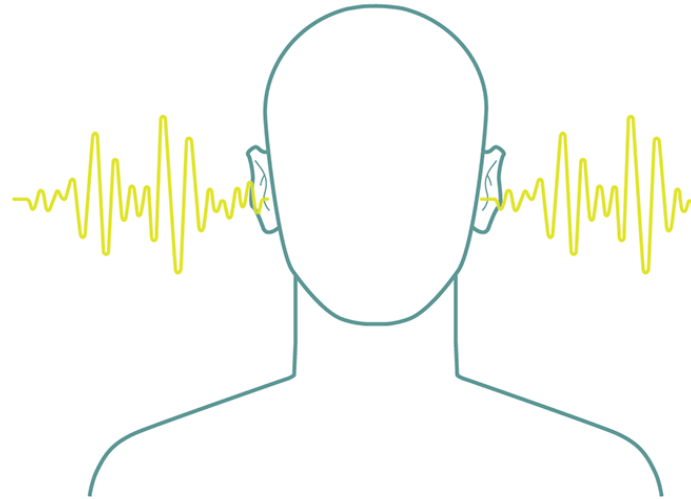


# Sonification: Enabling Accessible Data Interpretation for the Visually Impaired

**We live in a time where the majority of all information is available online. That information should be available for everyone, but how would a person with visual impairment interpret information displayed in a graph? This is where sonification comes in. Sonification is the technique of transforming information into sound. The challenge is to make sure that the information is interpreted in the same way by sound as it is through visual means. How can a listener differentiate between different values of data by sound? And how should the sonification solutions be brought to the people with visual impairments?**



It was decided that a prototype should be developed that could make use of sonification to enable a person with visual impairment to interpret a set of predetermined data. By looking at existing sonification tools, positives and negatives from those could be acknowledged before developing the prototype and more focus could be put into increasing the interpretation of the sonified data. The prototype was developed with the help of user testing and user feedback and incorporating that feedback aimed to make it intuitive to use for the intended user with visual impairment.

Through the prototype more user testing could be performed where the findings of the tests answered the questions of how to develop a prototype for someone with visual impairment, and how to tweak sound settings to make the data easy to interpret. With a functional prototype the question of how a person with visual impairment would interact with a sonification prototype could also be answered.

The findings indicate that correct usage of a screen-reader, providing context through reference values, using big ranges for the auditory characteristics of pitch and note velocity, and users being able to modify the note duration all help in interpreting sonified data. Sonified data can be interacted with by starting, stopping, choosing position, volume, and navigating with a screen-reader. Based on the findings some guidelines could be outlined. They emphasize the importance of a minimalistic design, enabling keyboard navigation and interaction and to ensure screen-reader compatibility. These guidelines serve as a foundation for future development in the field, fostering innovation and inclusivity.

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