Proposal

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1. Motivation

Hearing loss is a partial or total inability to hear. Hearing loss may be present at birth or acquired at any time afterwards Hearing loss may occur in one or both ears. In children, hearing problems can affect the ability to acquire spoken language, and in adults it can create difficulties with social interaction and at work. A hearing aid is a device designed to improve hearing by making sound audible to a person with hearing loss.

We noticed that the more expensive earphones on the market have noise-canceling function. From the example of listening to hearing loss, we think that hearing loss. Final, comparing to noise reduction.

In the final project of ASAS, we want to know what hearing loss will sound like and think about how we can use the analysis/synthesis methods we have learned so far to achieve hearing aids by simulating hearing loss simulations and compare with headphone noise reduction.

2. Method

In the final project, we can be divided into three parts. First, we should simulate hearing loss. We can use many open-source hearing loss simulators and find that there are some differences between the original sounds. The second is to refer to the research on hearing aids and we will implement, we must understand what methods the current hearing aids use. Finally, we can analysis hearing loss aid and noise-canceling difference and performance.

3. Reference

1. Wiki-Hearing loss (https://www.mayoclinic.org/diseases-conditions/hearing-loss/symptoms-causes/syc-20373072)
2. Hearing Loss Simulator – Find Out What Hearing Loss is Like (https://www.starkey.com/hearing-loss-simulator)
3. Design of ANSI S1.11 Filter Bank for Digital Hearing Aids