Active Noise Control of Speech in Headphones
using Linear Prediction

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Agenda

Introduction

- What is Active Noise Control (ANC)
- Present consumer headphones

Methods

- Adaptive Filtered-x least mean squares FIR algorithm
- Wiener filtering

Results

- Simulation

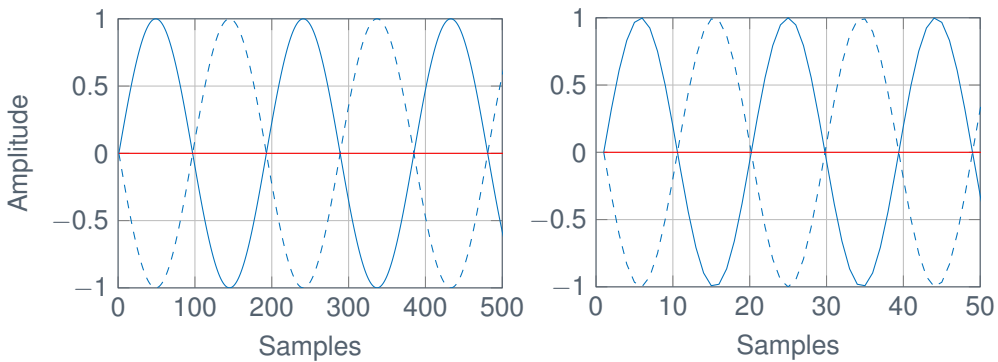
Discussion

- Computation

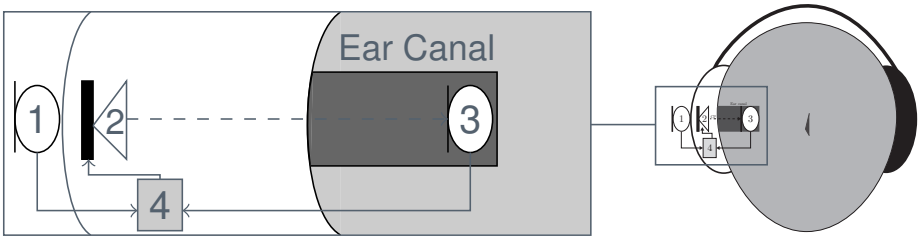
Conclusion

- Listen

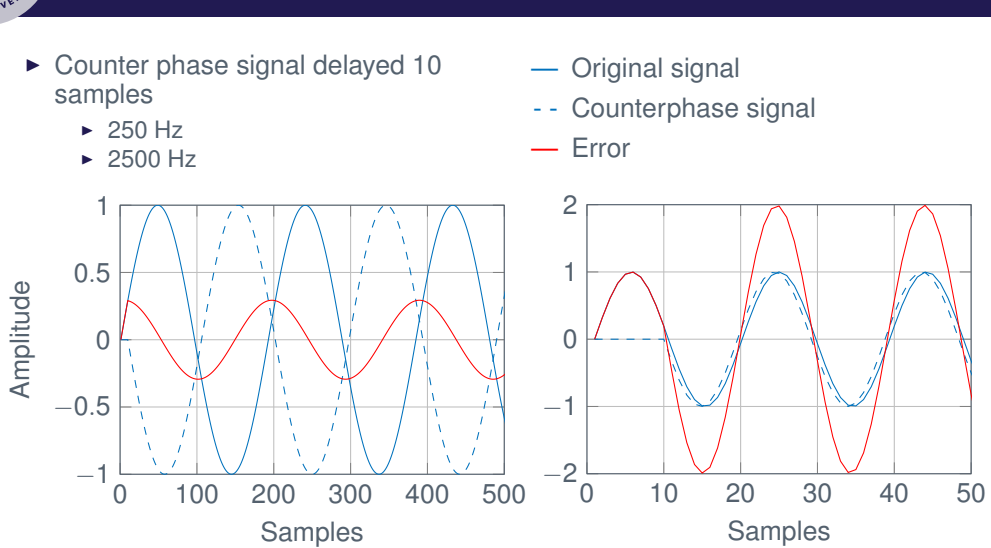
- The basic theory of ANC
  - 250 Hz
  - 2500 Hz



- Feedforward system
  - 1: Reference microphone
  - 2: Headphone loudspeaker
  - 3: Error mirophone
  - 4: Digital signal Processor (DSP)

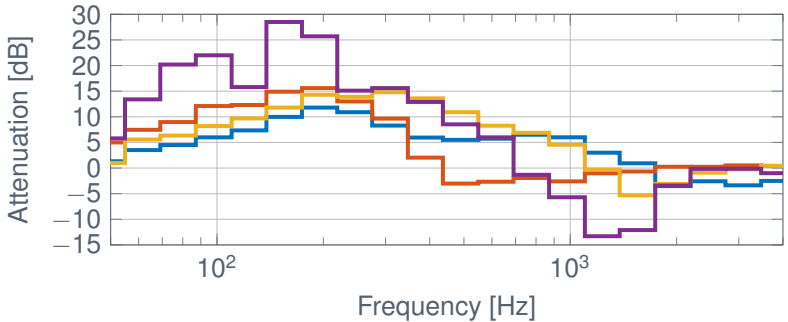


- Counter phase signal delayed 10 samples
  - 250 Hz
  - 2500 Hz



- Conversion delay

- How well does the consumer headphones attenuate?
  - Denon AH-GC20 2.200 kr (2016)
  - Bose QC25 2.799 kr (2016)
  - Bose QC15 2.696 kr (2011)
  - B&O H8 3.495 kr (2016)



- Conversion delay

Mikkel is awesome!

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