Active Noise Control of Speech in Headphones
using Linear Prediction

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

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

Results
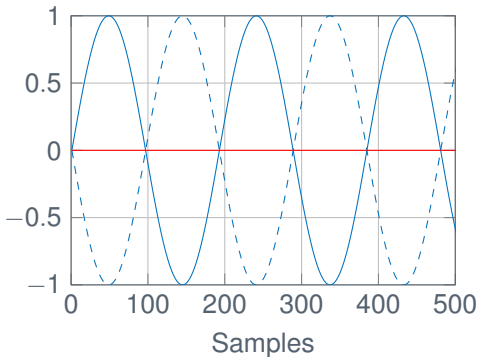   Simulation

Discussion
    Computation

Conclusion
    Listen

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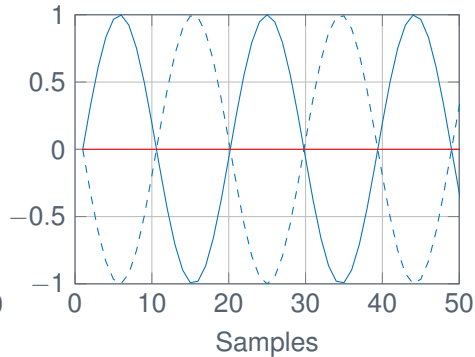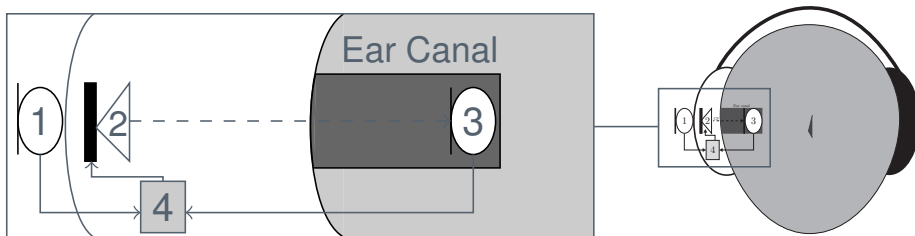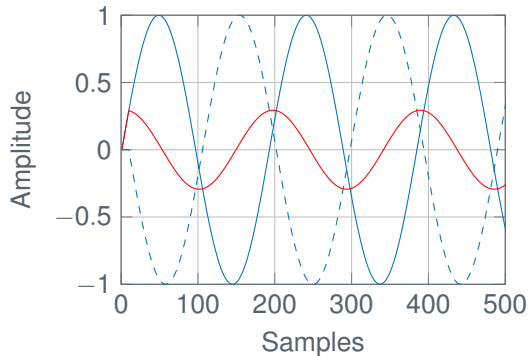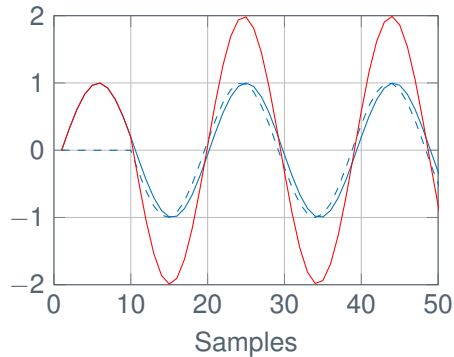Dept. of Electronic Systems
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▶ The basic theory of ANC
  ▶ 250 Hz
  ▶ 2500 Hz

— Original signal
- - Counterphase signal
— Error

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

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

— Original signal
-- Counterphase signal
— Error

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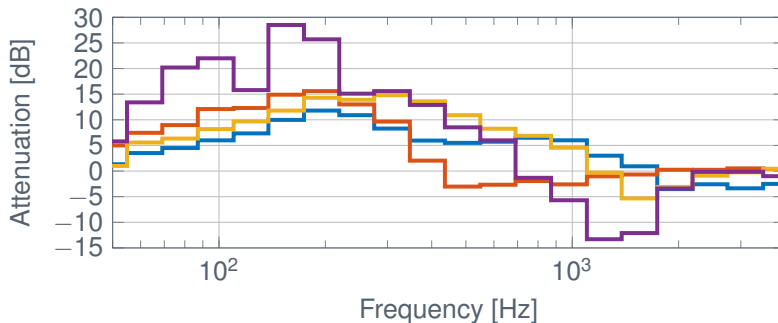Aalborg University
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► Conversion delay

▶ 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 for president!