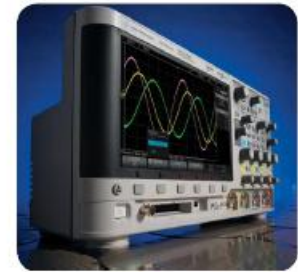




Matlab + Filterbuilder Filtre

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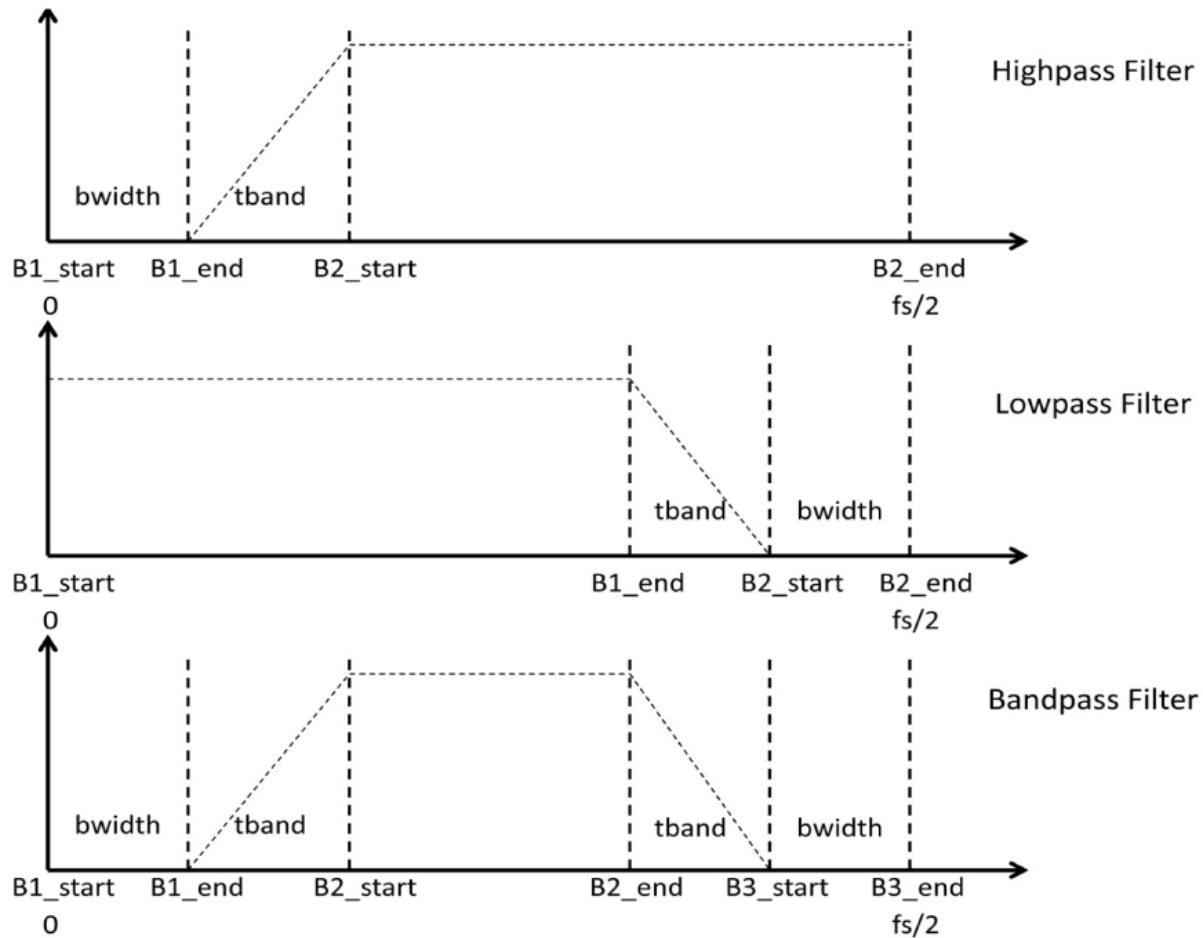


Filter

- Digitale filer er baseret på analoge filtre
- De digitale filtre opføre sig dog ikke på samme måde som de analoge



Filter typer



MATLAB øvelse

Filter signal

- Først skal App installeres i MATLAB!
- Filter_signal.zip
- Den ligger på Informations drevet sammen med Speech_files som indeholde lydfileer til analysere
- Udpak Speech_files et eller andet sted!



Installation af Filter_signal

Tryk her først

Start Appen

Find App installations filen og tryk åben

MATLAB R2013a

HOME PLOTS APPS

Get More Apps Install App Package App

Signal Analysis Filter Signal Sample Rate Conversion Time Domain Features of ... Spectral Magnitude Data Acquisition GPU Julia Set Explorer Input Impedance C... PID Basics Waveform

FILE APPS

Install App

Current Folder

Name

metadata

Callbacks_filter_GUI

Dinfinity.m

filter.mat

Filter Design Users

Filter Signal.mlappinstall

filter_GUI25.m

Filter_Snapshot_2.JPG

FilterSignalApp.m

fK.m

N_estimate.m

Filter Design Users Guide.pdf

Install App

Dokumenter MATLAB Apps FilterSignal

Søg i Fil

Organiser Ny mappe

Favoritter

Overførsler

Seneste steder

Skrivebord

OneDrive

Biblioteker

Billeder

Dokumenter

Musik

Videoer

Computer

Lokal disk (C:)

Navn

Ændringsdato

Type

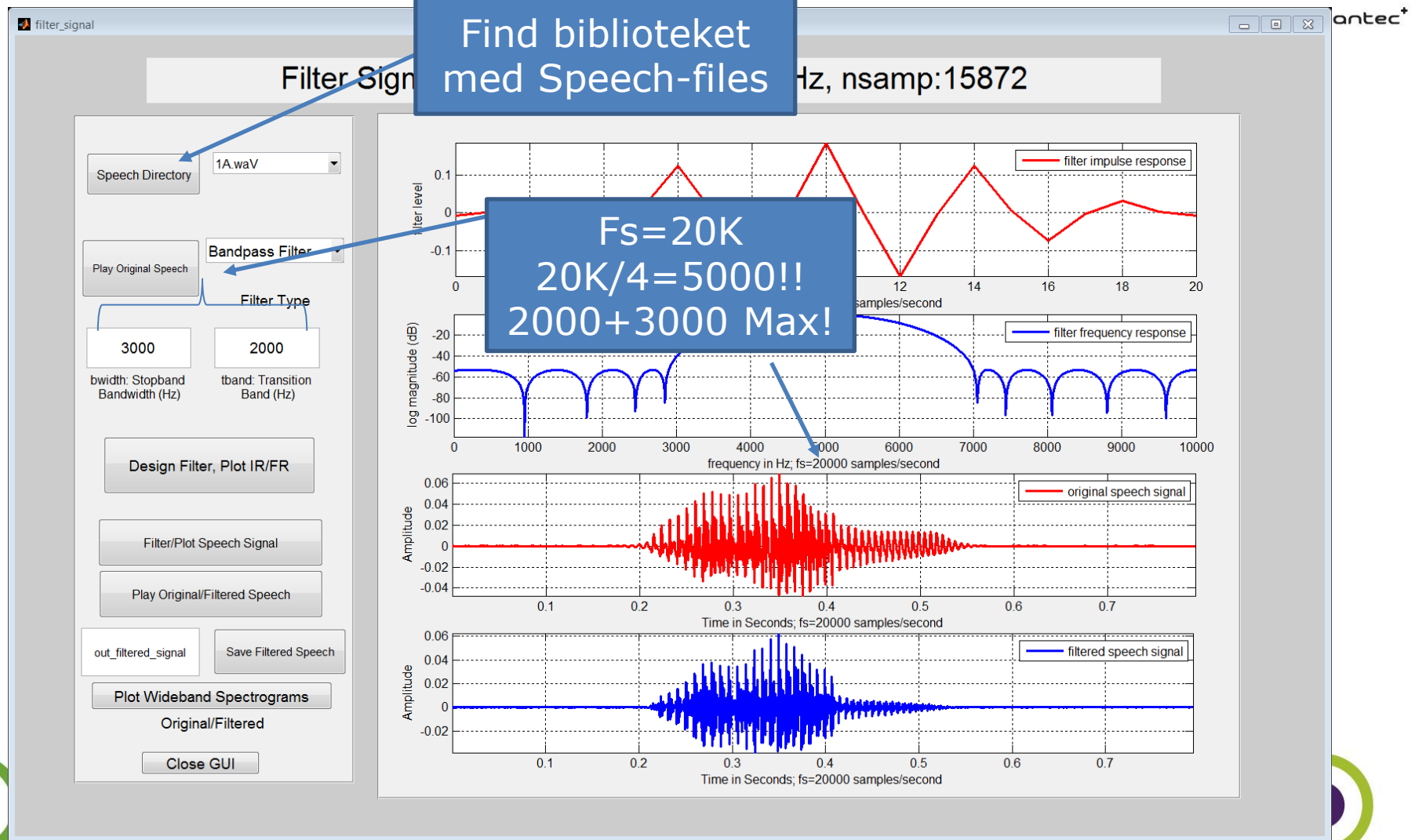
metadata 13-01-2014 21:44 Filmappe

Filter Signal.mlappinstall 13-01-2014 21:44 MATLAB App Insta

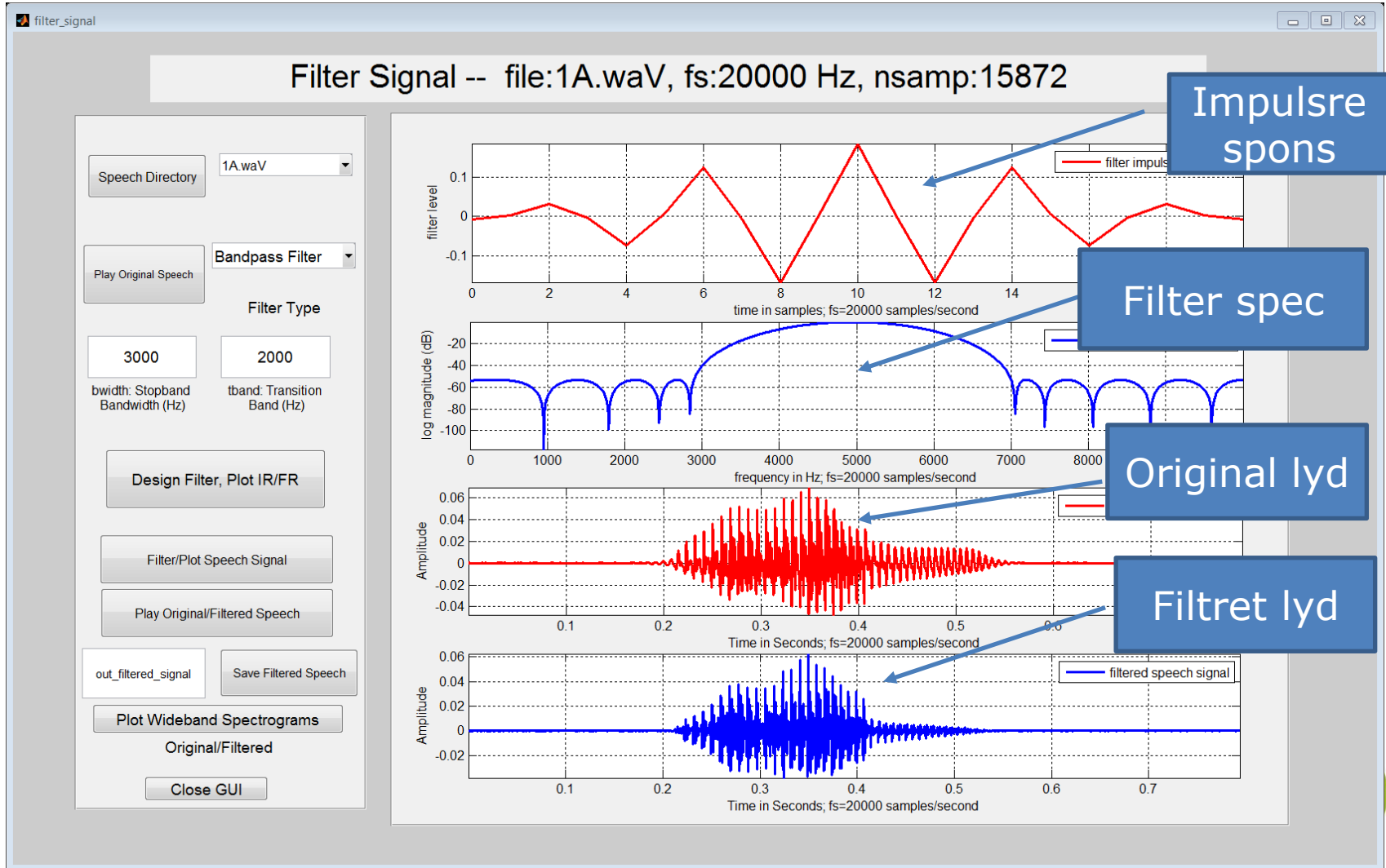
Filnavn: MATLAB App Installer (*.mlappinstall)

Åbn Annuller

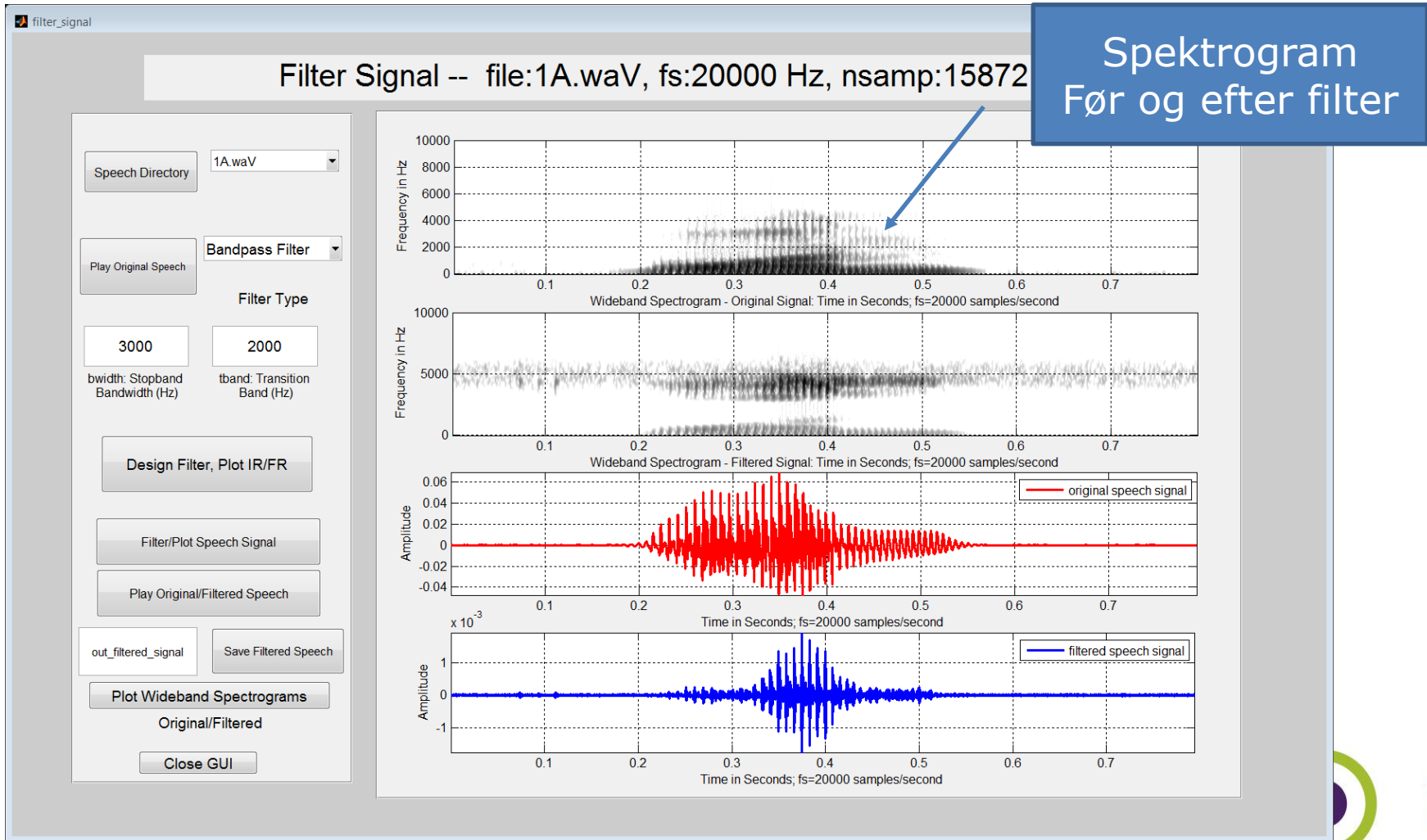
Filter signal



Filter signal



Filter signal



FIR Finite respons filter

- Stabil
- Lavere støj
- Lineær fasekarakteristik
- Stor struktur => mange forsinkelses elementer

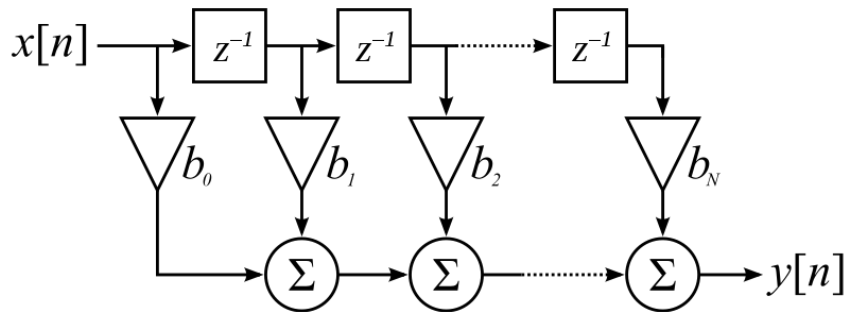
IIR Infinte respons filter

- Kan være ustabil
- 5-10 mindre forsinkelses struktur end FIR

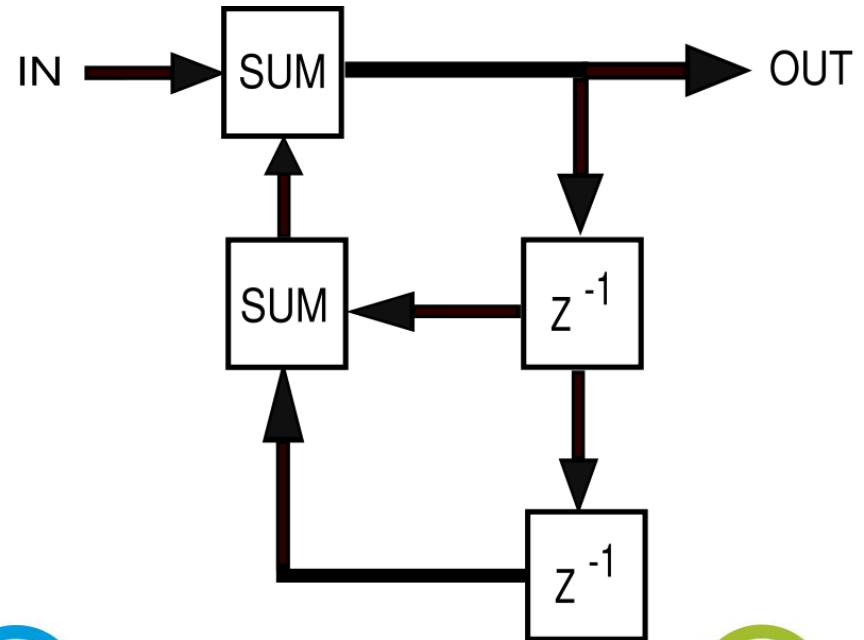
Digitale filtre



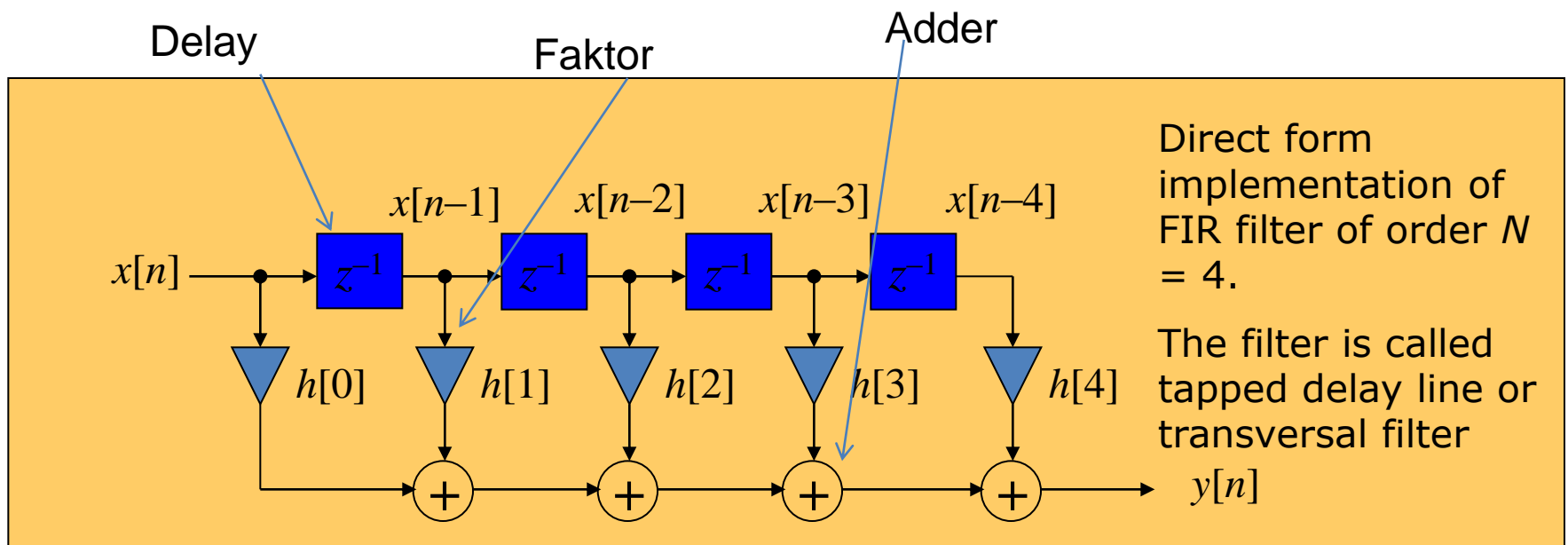
FIR



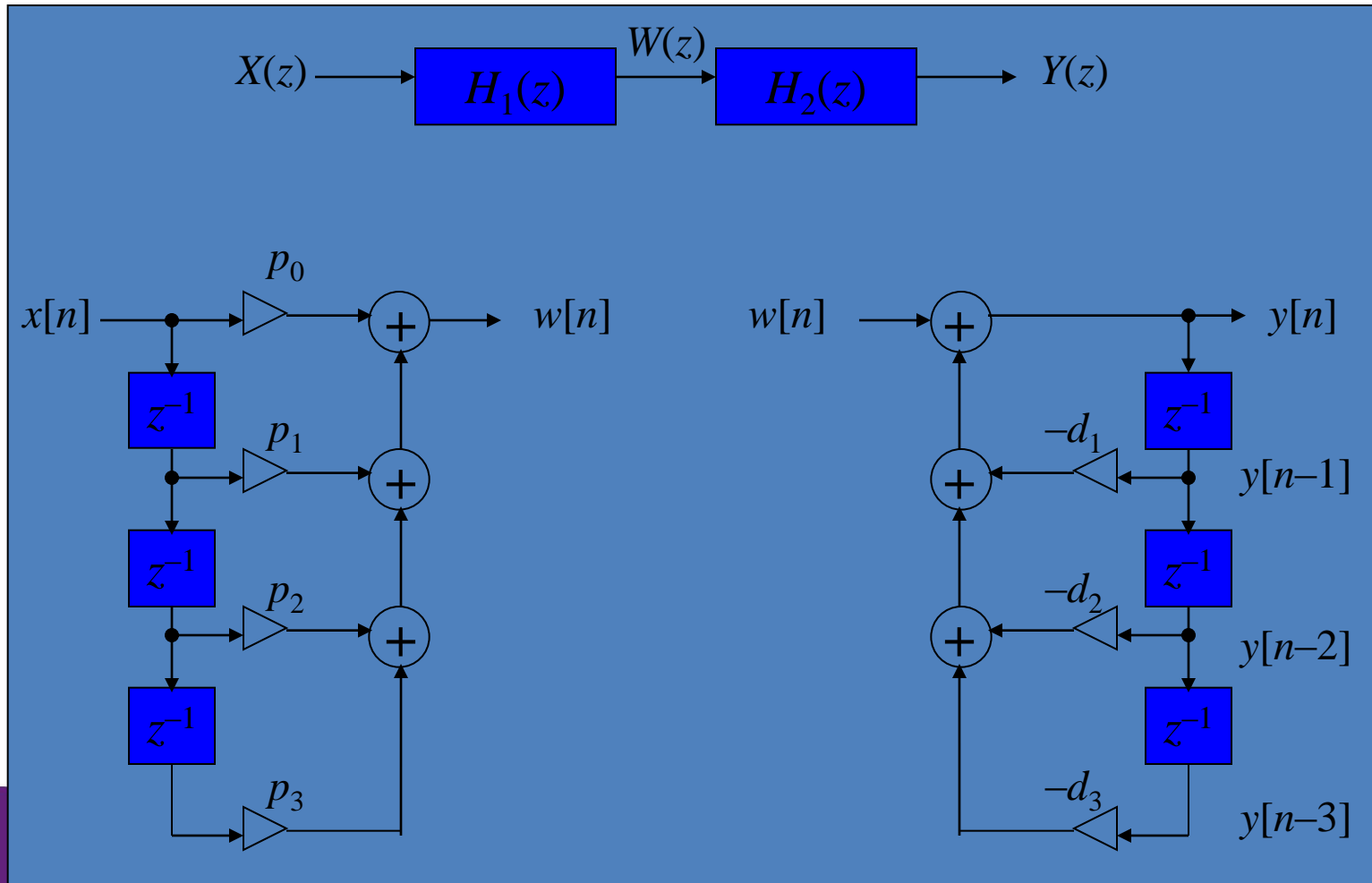
IIR



FIR filter Direct form



IIR Filter Direct form



Filterbuilder

Lowpass Design

Lowpass Design
Design a lowpass filter.

Save variable as: Hlp View Filter Response

Main Data Types Code Generation

Filter specifications

Impulse response: FIR

Order mode: Minimum

Filter type: Single-rate

Frequency specifications

Frequency units: Normalized (0 to 1)

Fpass: .45 Fstop: .55

Magnitude specifications

Magnitude units: dB

Apass: 1 Astop: 60

Algorithm

Design method: Kaiser window

▸ Design options

Filter implementation

Structure: Direct-form FIR

Use a System object to implement filter

OK Cancel Help Apply

FIR eller IIR

Orden af filteret

Frekvens spec.

Amplitude spec.

Implusresponse og frekvensresponse

- Stabilt system \Rightarrow Impulsrespons går imod 0
- Marginalt stabilt system \Rightarrow Impulsrespons går imod en fast DC værdi eller sinus oscillerer uendeligt
- Ustabilt system \Rightarrow Impulsrespons vokser imod uendeligt



Opgave lab 4

- Afprøve FIR.m med $N=2,10,100$
- Afprøve simfir.mdl
- Lave simfir.mdl selv ved hjælp af vejledningen sidst i opgaven.

