

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

- الآية -

رَبِّ أَوْزِرْغَنِي أَنْ أَشْكُرَ (
نِعْمَتَكَ الَّتِي أَنْعَمْتَ عَلَيَّ
وَعَلَى وَالِدَيَّ وَأَنْ أَعْمَلَ
صَالِحًا تَرْضَاهُ وَأَدْخِلْنِي
بِرَحْمَتِكَ فِي عِبَادِكَ
). الصَّالِحِينَ

صدق الله العظيم

(الآية 19 سورة النمل)

To My Family

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Abstract

Signals from the sender to the receiver or within the devices are subject to noise due to electromagnetic waves between the signals or because of climate change and other reasons. This noise affects the original signal, leading to a change in the shape and characteristics, therefore to get rid of this noise would be by using the filters. The filter is the most important system used in different devices and applications, since the primary purpose of the filters is to get rid of the unwanted signal noise

This research focuses on digital filters. There are generally two types: FIR & IIR, but the basic idea are based on FIR. This research contains some of the concepts of the language MATLAB.

The main objective of this research is to design a moving average filter for filtering the voice, using the software program which is written by the programming language MATLAB.

تجريد

الإشارات في أثناء طريقها من المرسل الى المستقبل أو داخل الأجهزة فإنها تتعرض لضجيج بفعل الأمواج الكهرومغناطيسية أو تداخل الإشارات فيما بينها أو بسبب تغير المناخ وغيرها من الأسباب ، هذا الضجيج يؤثر على الإشارة الأصلية مما يؤدي الى تغيير في شكلها وخواصها ، بالتالي لابد من التخلص من هذا الضجيج ويتم ذلك بواسطة المرشحات .

تعتبر المرشحات من أهم الأنظمة المستخدمة في الأجهزة والتطبيقات المختلفة ، إذ أن الغرض الأساسي للمرشحات هو التخلص من الإشارة الغير مرغوب فيها (إشارة الضجيج) .

يركز هذا البحث علي المرشحات الرقمية بصورة عامة بنوعيتها **FIR** **& IIR** لكن الفكرة الأساسية له مبنية على النوع **FIR** ، ايضا سوف يتحدث هذا البحث عن بعض مفاهيم لغة **MATLAB** .

الهدف الأساسي لهذا البحث هو تصميم **moving average**
filter بغرض ترشيح الصوت باستخدام **software program**
مكتوب بلغة البرمجة **MATLAB**.

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Abbreviations

DSP : **D**igital **S**ignal **P**rocessing

FIR : **F**inite **I**mpulse **R**esponse

IIR : Infinite Impulse Response

Op-Amps : Operation Amplifier

ADC : Analog to Digital Converter

DAC : Digital to Analog Converter

RF : Radio Frequency

LTI : Linear Time Invariant

ASIC : Application Specific Integrated Circuit

MATLAB : MATrix LABoratory

2 D : Two Dimension

3 D : Three Dimension

LINPACK : Linear System Package

EISPACK : Eigen System Package

PC : Personal Computer