Republic of Iraq
Ministry of Higher Education
Al-Mustansiriya University
College of Education
Department of Mathematics

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Comparison of Some Kernels to Estimate AR Spectrum

A Thesis

Submitted to the Council of College of Education,

Al-Mustansiriya University as a Partial Fulfillment of the

Requirements for the Degree of Master of Science in
Mathematics

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2014 A.D

1435 A.H

مقارنة بين بعض دوال الوزن لتقدير طيف نموذج الانحدار الذاتـي

رسـالة

مقدمة إلى مجلس كلية التربية في الجامعة المستنصرية

وهي جزء من متطلبات نيل درجة الماجستير في علوم الرياضيات

من قبل

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م2014

هــ 1435

ABSTRACT

In Mathematics and signal processing, an autoregressive (AR) process is a representation of a type of random process, as such; it describes certain time varying processing in nature, economics, etc. the autoregressive process specifies that the output variable depends linearly on its own previous values.

An algorithm that estimates the strength of different frequency components (the power spectrum) of a time domain signal, this may also be called frequency domain analysis.

The consistent estimation of the spectral density function is the famous algorithm in this area.

There is an important term in the consistent estimation of the spectral density function which is the lag window (or kernel).

Our focus in this research will be on the lag window, so we suggested a new lag window (NLW) and compare it with a wide range of the famous Lag windows by using simulation. In this simulation experiment, we calculated the consistent estimation of the spectral density function for law order AR process with a wide range of situations.

The most significant conclusion here is that the suggested lag window is better than others in most of cases.