ARTIFICIAL NEURAL NETWORKS APPLIED TO POWER FLOW SOLUTION IN ELECTRICAL POWER SYSTEM

Thesis presented in partial fulfilment for the award of the

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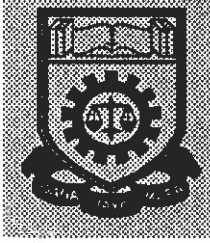

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ABSTRACT

Artificial Neural Networks (ANNs) recently has gain momentum as tools for solving a complex system operating states which is dependent on several operating parameters. Basically the study is to identify the best Artificial Neural Networks model which gives the Artificial Neural Networks performance. Several Artificial Neural Networks models are tested and the best model is obtained which gives the best convergence.

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CHAPTER 1

1.0 INTRODUCTION.

System modelling has received a lot of attention and has been used in a wide area of application such as industrial applications, the financial sector, telecommunications, the environment sector and many other areas.

Linear systems modelling has been well established and today, a variety of methods are available for linear system modelling. The more difficult area of modelling arises when the system is non-linear such as the power system. Lately, a lot of effort has been directed into this area and many new methodologies have become available which are more superior to linerised model of the non-linear system. The motivation behind this is due to the fact that most systems encountered in the real world are non-linear to some extent and in many practical application, non-linear models may be required to achieve an acceptable prediction accuracy.

Any function to describe the real world can be very complex and the explicit form of this function is usually unknown, so that any practical modelling of real world process must be based upon a chosen model set of known functions. Obviously this model set should be capable of approximating the underlying process, of a given system, within an acceptable accuracy. Beside that, an efficient identification procedure must be developed for the selection of a parsimonious