Ain Shams University

Faculty of Engineering
Electronics & Communications Engineering Department

ARABIC SPEECH RECOGNITION

ROBUST QURANIC RECITATION RULES-BASED MODELING

شبكة المعلومات الجامعية
تم التسجيل ميكرو فيلميا
التوثيق اليكروفيلمى

By

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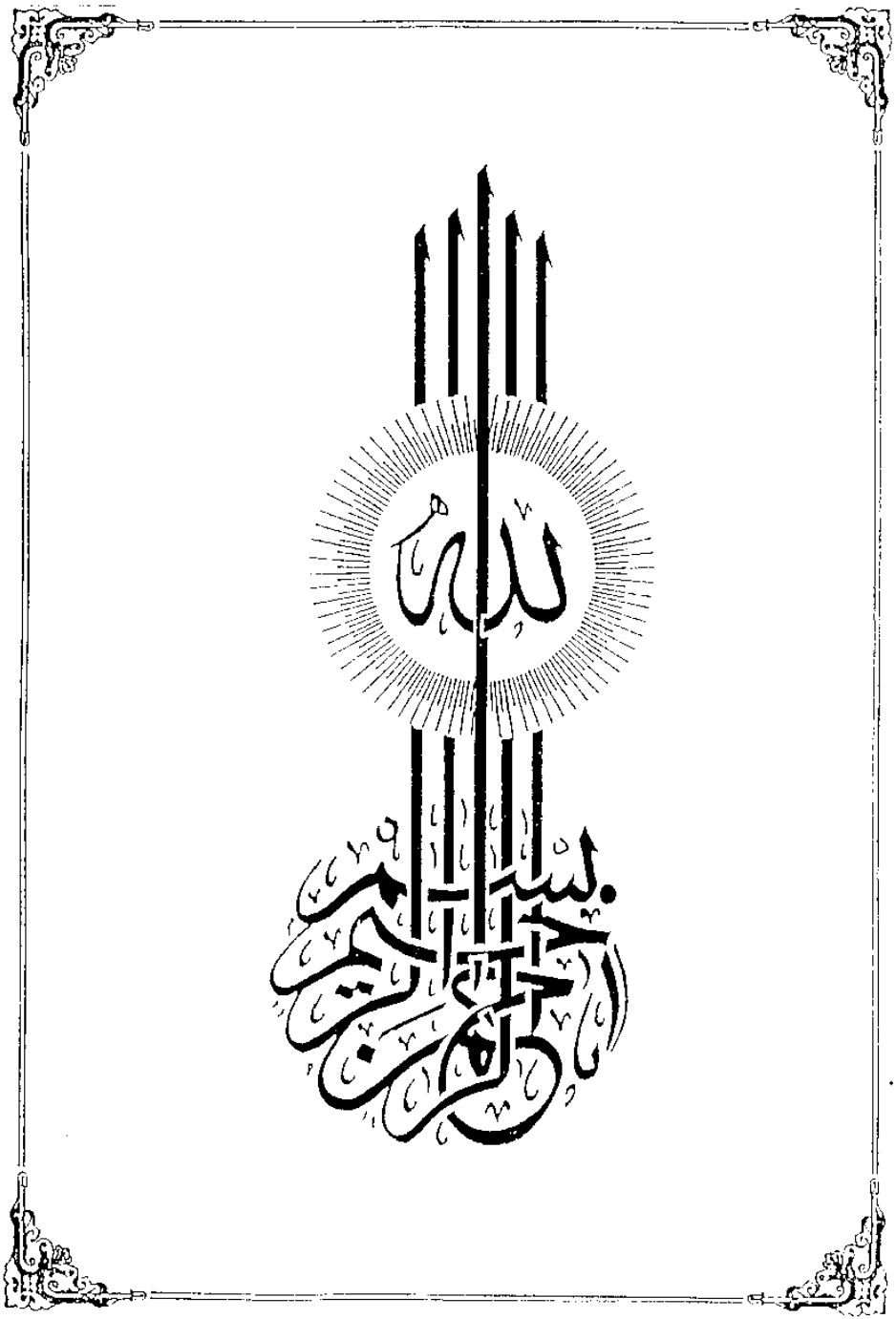

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STATEMENT

This dissertation is submitted to Ain Shams University for the Degree of Ph.D. in Electrical Engineering.

The work included in this thesis was carried out by the author at the Electronic & Communications Engineering Department, Faculty of Engineering, Ain Shams University, from / / to 21 / 12 / 1996

No part of this thesis has been submitted for a degree or a qualification at any other university or institution.

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ABSTRACT

The subject of speech recognition has found great interest in both research and applications, specially, in the era of computer development and information technology.

This thesis presented a verification of the robustness of Quranic recitation rules to enhance Arabic speech recognition. To acheive this task, basic and familiar recitation rules with attached chosen utterances have been investigated based on speaker dependency as well as speaker independency environments. In each case, a speaker uttered the recommended utterance alternatively with rule and free from it. The recommended utterances have been recorded formally, pre-processed, then windowed into specific frames to follow the quasi-periodic features of speech. Features extraction of the chosen utterances has been implemented in terms of linear prediction coeffecients (LPC) for code-book design, mapping, and results representation. Tables and charts have been illustrated to indicate the output error behaviour in each investigation. Hidden Markov Model (HMM) as a valuable statistical technique has been applied and the output recognition results have been tabulated. Fortunately, the output results of HMM inspection supported very well the preceding investigations.

Algorithms have been constructed for all phases on investigations. The results were encouraging with respect to precision to go ahead in advanced work to build up a recitation-based learning machine of the ***glorious Quraan***.

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