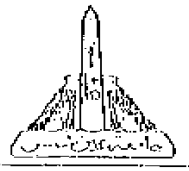

Ain Shams University
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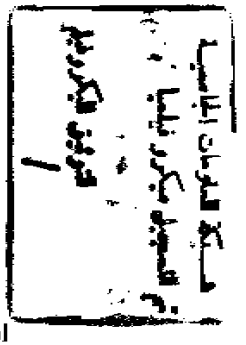

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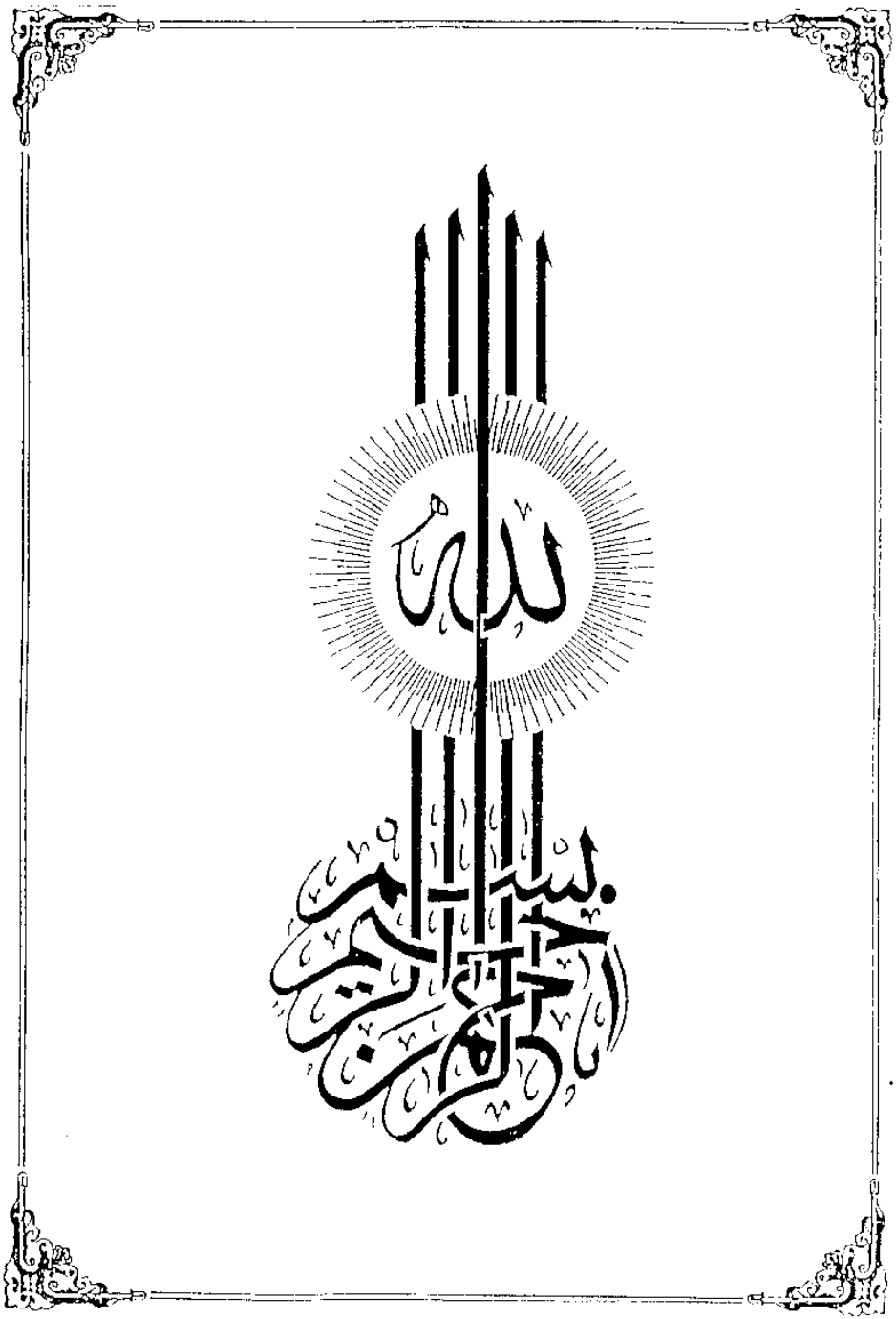

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This statement is submitted to Ain Shams University for the degree of Master of Science in Electrical Engineering (Computer and Systems Engineering).

The work included in this thesis was carried out by the author at the **Computer and Systems Engineering Department, Ain Shams University.**

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

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Synchronization in Distributed Multimedia systems

Abstract

This thesis discusses synchronization in distributed multimedia systems and putting the light on the differences between traditional real-time systems and multimedia systems. The thesis studies many of the effects of multimedia applications on different computer aspects and study some of the solutions proposed in the literature. Solutions are covering both multimedia synchronization specification and mechanisms.

A model is proposed covering both the specification and mechanisms of the multimedia synchronization problem and focuses on streaming media. The model is capable of guaranteeing inter-stream synchronization, while it does its best to achieve stream continuity. The model is followed by mathematical analysis to find its working constraints. Moreover, a prototype of the model was implemented and a set of experiments was performed to test model parameters. The results of these experiments were analyzed to find the best set of parameter values. This set is a compromise between percentage of skipped data units and the maximum affordable out-of-sync error.

Keywords

Multimedia, Synchronization, Multimedia synchronization, Distributed multimedia systems, Inter-stream synchronization, Stream continuity, Out-of-sync error.

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