

hossam maghraby



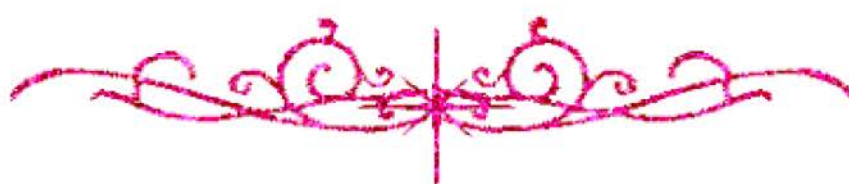
بسم الله الرحمن الرحيم



hossam maghraby



شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

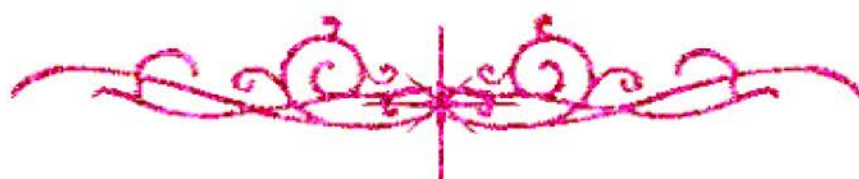
قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



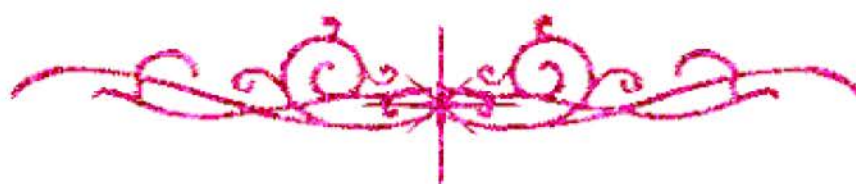
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شبكة المعلومات الجامعية



بعض الوثائق الأصلية تالفة



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بالرسالة صفحات
لم ترد بالأصل



6/0.28

**PRINCIPAL COMPONENT ANALYSIS & NEURAL
NETWORKS BASED EAR BIOMETRICS**

by

KHOLOUD SALAH ELDEEN AHMED GODA

BIS 147

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE
in
Systems and Biomedical Engineering

**FACULTY OF ENGINEERING, CAIRO UNIVERSITY
GIZA, EGYPT
JUNE 2005**

Principal Component Analysis & Neural Networks based Ear Biometrics

By

Eng. kholoud Salah Eldeen Ahmed Goda

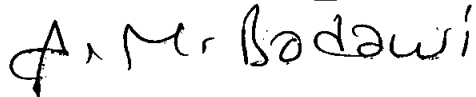
A Thesis Submitted to the
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SYSTEMS AND BIOMEDICAL ENGINEERING

Under the Supervision of

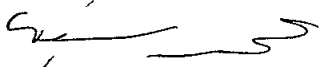
Prof. Mohamed Emad Rasmy

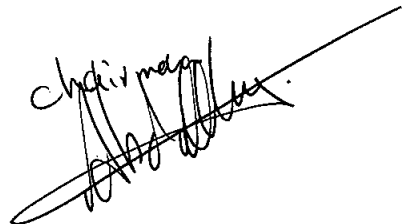


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FACULTY OF ENGINEERING, CAIRO UNIVERSITY
GIZA, EGYPT
June 2005

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Approved by the
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GIZA, EGYPT
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ABSTRACT

Biometrics deals with personal identification of individual based on their biological or behavioral characteristics. The two types of problems are mainly verification and recognition of individuals. The need to identify people is as old as humankind. In this thesis we studied the ability to identify persons using ear images and the similarity between person's right and left ears. Dataset of 100 subjects, 50 for male and 50 for female of each 5 images for left and 5 images for right ears were acquired. Two main approaches have been used for the recognition of ear images: I) Principal component analysis technique II) Neural Networks. Images were first preprocessed to correct for illumination variations then the grayscale ear image were localized from the profile image. All ear images were then resized to equal size. Principal Component Analysis (PCA) and Neural Networks (NN) were used to recognize the identity of the person. Performance statistical parameters were estimated for the overall systems such as: Sensitivity, Specificity, False Accept Rate (FAR), False Reject Rate (FRR), Efficiency and Receiver Operating Curve (ROC). System performance and recognition rates were found to exceed 92%. This promising results suggests using ear images in a multimodal biometric system for personal identification.

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