سامية محمد مصطفى

شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

سامية محمد مصطفى

شبكة المعلومات الجامعية

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التوثيق الالكتروني والميكروفيلم

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سامية محمد مصطفى

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

سامية محمد مصطفى

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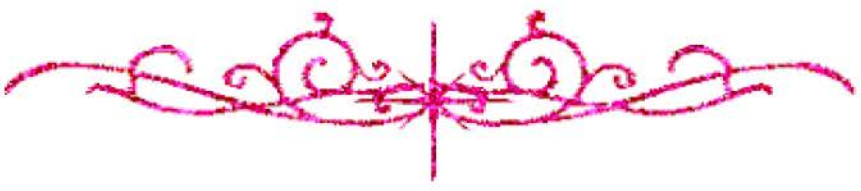
بعض الوثائق الأصلية تالفة



سامية محمد مصطفى

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بالرسالة صفحات لم ترد بالأصل

ALEXANDRIA UNIVERSITY
FACULTY OF ENGINEERING

RECOGNITION OF PARTIALLY OCCLUDED OBJECTS

A thesis submitted to the
Department of Computer Science and Automatic Control
in partial fulfillment of the requirements
for the degree of
Master of Science

By :
Sherin mosstafa youssef

Supervised By :
Prof. Dr. Mohamed A. Ismail
Prof. Dr. Amin A. Shokry

Alexandria , 1995

We certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a dissertation for the degree of Master of Science.

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Abstract

The aim of this work is to demonstrate how to enhance the capability of the computer vision to recognize partially occluded parts.

In the thesis, we show how local features are used for object identification. Local features such as corners, holes, lines, curve segments,...etc. depends only on a subset of an object so it is possible to deal with the problem of recognizing occluded objects in the case where some of the local features are visible.

First, a survey of computer vision process is introduced with an emphasis on the related topics, this is followed by discussion of the problems of occlusion. Next, three techniques have been presented, the first uses the holes in the objects as a local feature for radial template matching. The second, uses the Curvature Guided Polygonal Approximation to represent objects in isolated and occluded scene depends on the existence of critical points of high curvature. Third, contour matching for those objects who do not posse critical points or in cases where such critical points are hidden.

In the simulation stage, algorithms and modifications have been implemented and results are summarized. The system is tested on a real set of handtools and mechanical parts. Different techniques are compared with respect to the ability of detection of occluded objects with boundary separated into isolated clusters, relative sensitivity to noise, the ability of recognize objects of different scales (sizes) and rotation, complexity and computational load.

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Appendices

CHAPTER 1