AIN SHAMS UNIVERSITY
FACULTY OF ENGINEERING
Computer Engineering and Systems

Development of feature extraction engine for advanced driver assistance systems

A Thesis submitted in partial fulfillment of the requirements of
Master of Science in Electrical Engineering
(Computer Engineering and Systems)

by
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Bachelor of Science in Electrical Engineering
(Computer Engineering and Systems)
Faculty of Engineering, Ain Shams University, 2011

Supervised By
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Dr. Bassem Amin Hamed Abdullah

Cairo, 2016

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Statement

This thesis is submitted as a partial fulfillment of Master of Science in Electrical Engineering, Faculty of Engineering, Ain shams University. The author carried out the work included in this thesis, and no part of it has been submitted for a degree or a qualification at any other scientific entity.

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Thesis Summary

Summary

The thesis is divided into six chapters as listed below:

Chapter 1 This chapter introduces the thesis by presenting the research motivations, objectives, challenges, methodology, and thesis organization.

Chapter 2 This chapter presents an overview about the Driver drowsiness detection systems and gives an introduction to differential privacy technique

Chapter 3 This chapter presents the definitions and algorithms needed to create a differentially private drowsiness detection system.

Chapter 4 This chapter explains the implementation details of applying bLOM algorithm to driver yawning detection system.

Chapter 5 This chapter discusses the experimental results for the application of bLOM algorithm.

Chapter 6 This chapter ends the thesis by conclusion and the expected future work.

Key words: drowsiness detection, ADAS, differential privacy, Laplace mechanism, yawning detection, privacy-preserving, face recognition.

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