MobiMed: Framework for Rapid Application Development of Medical Mobile Apps

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**Abstract**
In the medical field images obtained from high definition cameras and other medical imaging systems are an integral part of medical diagnosis. The analysis of these images are usually performed by the physicians who sometimes need to spend long hours reviewing the images before they are able to come up with a diagnosis and then decide on the course of action. In this dissertation we present a framework for a computer-aided analysis of medical imagery via the use of an expert system. While this problem has been discussed before, we will consider a system based on mobile devices.

Since the release of the iPhone on April 2003, the popularity of mobile devices has increased rapidly and our lives have become more reliant on them. This popularity and the ease of development of mobile applications has now made it possible to perform on these devices many of the image analyses that previously required a personal computer. All of this has opened the door to a whole new set of possibilities and freed the physicians from their reliance on their desktop machines.

The approach proposed in this dissertation aims to capitalize on these new found opportunities by providing a framework for analysis of medical images that physicians can utilize from their mobile devices thus remove their reliance on desktop computers. We also provide an expert system to aid in the analysis and advice on the selection of medical procedure. Finally, we also allow for other mobile applications to be developed by providing a generic mobile...
application development framework that allows for access of other applications into the mobile domain.

In this dissertation we outline our work leading towards development of the proposed methodology and the remaining work needed to find a solution to the problem. In order to make this difficult problem tractable, we divide the problem into three parts: the development user interface modeling language and tooling, the creation of a game development modeling language and tooling, and the development of a generic mobile application framework. In order to make this problem more manageable, we will narrow down the initial scope to the hair transplant, and glaucoma domains.

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