

# **M.Sc. Thesis Defence**

## **Computational Sciences**

### **A DECISION SUPPORT SYSTEM USING A SEMANTIC FRAMEWORK FOR COLORECTAL CANCER FOLLOW-UP PROGRAM**

**BY**  
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#### **Abstract**

Health informatics is at the center of research in the health-care industry and is an interdisciplinary field of computer science applied to the medical field. According to recent studies, considerable efforts have been put towards research on EMRs (Electronic Medical Records), EPRs (Electronic Patient Records) and computerized clinical systems. But not much research or development effort has taken place towards the computerization of the follow-up care related to serious diseases, such as cancer, tumor, and heart diseases that can be provided by a secondary care provider, such as a family physician or a nurse. Cancer patients in general, are given follow-up care at the cancer centers, which are overburdened with the number of patients and the logistics.

In order to improve the follow-up care to the patients and to provide a useful tool to the physicians for effective and efficient follow-up program, this thesis presents a methodology to computerize the Colorectal Cancer follow-up program. A semantic framework is used to build a decision support system for the follow-up care program for Colorectal Cancer. This framework can be easily extended to other types of cancer or serious diseases.

In this thesis, a semantic ontology for the Colorectal Cancer follow-up care program is first created. This ontology represents the actual Colorectal Cancer follow-up guidelines, including its terms, tests, and relationships between each component; then this ontology is employed in the proposed semantic framework as information/data source from which all the useful query results can be obtained. A prototype of a decision support system for the Colorectal Cancer follow-up care program is developed by using this semantic framework and has been tested with test data.

*Everyone is welcome!*