



DEPARTMENT OF COMPUTER SCIENCE

MPhil Degree Oral Presentation

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Time:	25 November 2010 (Thursday) 3:00 pm – 5:00 pm (35 mins presentation and 15 mins Q & A)
Venue:	T716, Cha Chi-Ming Science Tower, HSH Campus

“Patient Journey Shortening using a Multi-agent Approach”

Abstract

Shortening the treatment journey for patients suffering from diseases like cancer is challenging for healthcare providers. The underlying difficulty lies in the fact that each treatment journey involves different healthcare units possibly in different hospitals and the shortening is hard to be achieved without careful coordination among them. In this thesis, we first investigate how patient scheduling can be improved to better utilize existing healthcare resources for patient journey shortening. With the assumption that healthcare resources can be mobilized between different healthcare units, a multi-agent based bidding approach is proposed for addressing the patient journey shortening problem. With reference to a dataset containing 9340 cancer patient journeys (which is provided by the Hospital Authority in Hong Kong), the proposed multi-agent scheduling framework was simulated and found to be effective in shortening patient journey. Another obvious alternative to shorten patient journey is to inject additional resources. The challenge is how to best allocate the resources for more effective patient journey shortening. In the second part of the thesis, we propose a 3-level bidding mechanism for dynamically allocating the resources. In particular, we designed several variants of the bid formulation so as to reflect the demand on additional resources, and proposed different strategies for distributing the resources over a year. The effectiveness of the proposed framework has been demonstrated based on the simulation model derived from the dataset provided by the Hospital Authority in Hong Kong.

***** ALL INTERESTED ARE WELCOME*****