Ph.D. Preliminary Oral Defense

Tuesday, December 6th, 2016
## 223 Atanasoff Hall at 10:00 a.m.

Nimanthi Atukorala
Situation-Oriented Requirements Engineering

The need of an effective requirements engineering approach became inevitable realistic in software development projects over the past 70 years. Especially, the current competition between software companies has focused them to dedicate huge part of their funds and researches to identify novel and attractive features to be embedded to the software systems in order to gain higher customer satisfaction. Most of such features are aiming to attract the customers through personalization, high efficiency, high security and better usability.

However, in practice there are situations where these well-developed software systems are unable to reach to the expected customer satisfaction. We believe that the lack of knowledge about the customers individual factors including their interests, believes and lifestyle plays a major role in such failures. In other words, observing, analyzing and understanding of human factors must be a major concern in requirements engineering process in order to gain higher customer satisfaction.

In this proposal we first present a semi-automated methodology to generate the situation-transition structures which can be used to analyze the human behavior patterns in a specific domain. The term situation is defined as a 3-tuple $< d, A, E >$ where d denotes human desire (mental state), A denotes the human actions vector, and E denotes the surrounding environment context vector. Second, we present a novel semi-automated requirements engineering approach to generate prioritized set of end-user centered requirements based on features extracted from the situation-transition structure. We illustrate the pertinence of the proposed work through some preliminary case studies with open access data-set. The proposed research road-map and the future work are then asserted.
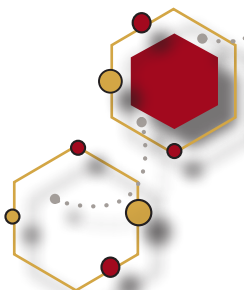
Major Professor:
Carl Chang
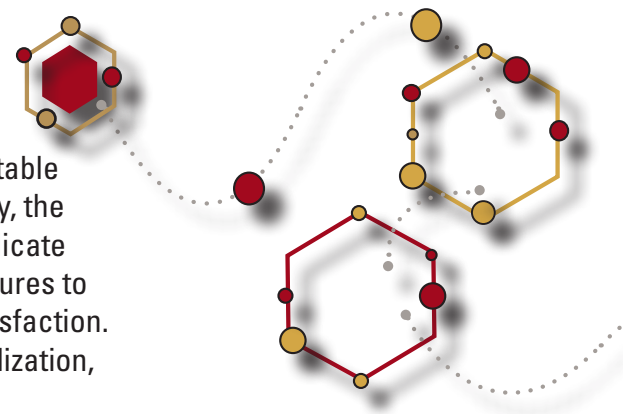
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