

CS Masters' Thesis Defense

Title: *A service oriented cross-platform approach to perform thermodynamic calculations*
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Date: Monday, February 20, 2012
Time: 11:00 a.m.
Location: GMCS 418
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Abstract:

The rise of mobile computing has changed the way software is developed and used. Apart from the traditional Personal Computers, there are portable devices such as tablets and smartphones which can be used to access the same software. Within smartphones and tablets, there are different platforms such as Android and iOS. An application that supports multiple platforms reaches a wider audience. In this regard, there are two approaches that one can follow. The first approach is to create a different version of the application for each mobile platform. The second approach is to build a mobile interface based on web technologies that can be accessed through a web browser. Using this approach, the same application can be accessed from devices running multiple platforms.

TEST, The Expert System for Thermodynamics, is a courseware created to analyze engineering problems and solutions. Applications in TEST are mainly desktop based, and cannot be accessed from mobile devices. Given the widespread use of smartphones and tablets today, there is a need to make the applications accessible from mobile devices.

A widely used analysis tool in TEST called the Phase-Change (PC) Model. Using this tool, one can calculate the thermodynamic properties of a fluid. This thesis attempts to build a mobile web interface for the PC-Model that can be accessed from multiple mobile platforms.

In building this interface, we have adopted a client-server model of computing. The complex thermodynamic calculations have been separated into a web service. This web service will be invoked by the mobile web application.

The same web service will also be invoked by Flash-based Rich Internet Applications running on desktop computers.