NATIONAL UNIVERSITY OF SINGAPORE

School of Computing

C S   S E M I N A R

Title: **Detecting Redundant CSS Rules in HTML5 Applications: A Tree-Rewriting Approach**

Speaker: Dr Anthony Lin
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Date/Time: 22 April 2015, Wednesday, 02:30 PM to 04:00 PM

Venue: SR@LT19 (COM2, Level 1)

Chaired by: Dr Jaffar, Joxan, Professor, School of Computing
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Abstract:

HTML5 applications normally have a large set of CSS (Cascading Style Sheets) rules for data display. Each CSS rule consists of a node selector (given in an XPath-like query language) and a declaration block (assigning values to selected nodes' display attributes). As web applications evolve, maintaining CSS files can easily become problematic. Some CSS rules will be replaced by new ones, but these obsolete (hence redundant) CSS rules often remain in the applications. Not only does this ``bloat'' the applications, but it also significantly increases web browsers' processing time. Most works on detecting redundant CSS rules in HTML5 applications do not consider the dynamic behaviours of HTML5 (specified in JavaScript); in fact, the only available method that takes these into account is dynamic analysis (a.k.a. testing), which cannot soundly prove redundancy of CSS rules. In this talk, I will describe a static analysis technique based on a monotonic tree-rewriting abstraction of HTML5 applications. Our algorithm relies on an efficient reduction to an analysis of symbolic pushdown systems (for which highly optimised solvers are available), which yields a fast method for checking redundancy in practice. We implemented our algorithm and demonstrated its efficacy in detecting redundant CSS rules in HTML5 applications.

This work is joint with Matthew Hague (Royal Holloway University of London) and Luke Ong (Oxford University)

Biodata:

Dr. Anthony Lin is an assistant professor in computer science at Yale-NUS College. He completed his PhD at Edinburgh's University School of Informatics under Prof. Leonid

Libkin and Dr. Richard Mayr. Previously, he was an EPSRC Postdoctoral Research Fellow at University of Oxford (2010-2013). His main research focuses on program analysis for the web and algorithmic program verification.