NATIONAL UNIVERSITY OF SINGAPORE

School of Computing

C S S E M I N A R

Title: **Verifying Recursive Programs using Intraprocedural Analyzers**

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Date/Time: 5 November 2014, Wednesday, 04:00 PM to 06:00 PM

Venue: Executive Classroom, COM2-04-02

Chaired by: Dr Chin Wei Ngan, Associate Professor, School of Computing
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ABSTRACT:

Recursion can complicate program analysis significantly. Some program analyzers simply ignore recursion or even refuse to check recursive programs. In this talk, I will present an algorithm that uses a recursion-free program analyzer as a black box to check recursive programs. With extended program constructs for assumptions, assertions, and nondeterministic values, our algorithm computes function summaries from inductive invariants computed by the underlying program analyzer. Such function summaries enable our algorithm to check recursive programs. We implement a prototype using the recursion-free program analyzer CPAChecker and compare it with other program analyzers on the benchmarks in the 2014 Competition on Software Verification. The talk is based on our SAS 2014 paper with the same title.

BIODATA:

Yu-Fang Chen is an associate research fellow (equivalent to Associate Professor at universities) in Academia Sinica and an Associate Professor in National Taiwan University. He received his Ph.D from National Taiwan University in 2009 under the supervision of Prof. Yih-Kuen Tsay and worked as a postdoc in the group of Prof. Bengt Jonsson and Prof. Parosh Abdulla at Uppsala University. His main research interests includes automata theory, program verification, and software model checking. He was awarded Best Theory Paper at ETAPS 2010 for his paper titled "When Simulation Meets Antichains. (on Checking Language Inclusion of NFAs and TAs)".