SEMINAR NOTICE:

Mining Behavioral Specifications of Distributed Systems

TIME & LOCATION:

ADSC
Wednesday, 24 October 2012
9AM, @ ADSC
Level 8, Fusionopolis
Connexis North

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Abstract:

The absence of faithful specifications results in poor and inconsistent understanding of programs thereby incurring higher effort and cost in their usage and maintenance. As developers often fail to document requirements and design intentions as specifications, automated techniques have been proposed as means to mine for specifications from program execution traces. These techniques, commonly termed specification mining, have shown to improve comprehension of programs and enable the use of formal methods to ensure compliance and detect regression. Current techniques have been designed for sequential programs and find limited application in the domain of distributed and embedded systems. This talk looks at how specification mining can be advanced to synthesize global behavioral specifications for systems containing several concurrent, asynchronous and independent processes. By identifying recurring patterns of interaction, abstracting class behavior and detecting changes across software versions, the proposed mining methodologies can produce models that can easily be represented in the form of sequence diagrams or Message Sequence Charts. As these are traditional and popular formats used to communicate distributed system behaviors, the synthesized specifications are easy to interpret.

Brief Biography:

Kumar is a Ph.D. candidate at the Department of Computer Science at the National University of Singapore. He is presently employed as a research associate at NUS and has worked as a software engineer at Motorola Electronics Singapore Pte. Ltd (2003-2008). He received an M.Comp degree from NUS in 2007 and B.Eng in Computer Engineering from Nanyang Technological University, Singapore in 2003.

His current research focuses on topics in software engineering such as formal specifications, program comprehension and software evolution.