

NATIONAL UNIVERSITY OF SINGAPORE

School of Computing

DISTINGUISHED LECTURE

Title: **Multicore Programming**

Speaker: Professor Barbara Liskov
 Massachusetts Institute of Technology

Date/Time: 27 January 2017, Friday, 10:30 AM to 12:00 PM

Venue: LT19, COM2 level 1

Chaired by: Dr Leong Wing Lup, Ben, Associate Professor, School of Computing
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Abstract:

This talk describes a new approach to implementing efficient concurrent programs that run on multicore computers. The approach is inspired by work on software transactional memory, and like that work aims to make it easier to write correct concurrent programs through the use of atomic transactions. A conventional STM tracks reads and writes of memory words, which can lead to high overhead. Our approach, called STO (software transactional objects), is based on data abstraction instead. Implementations of transaction-aware datatypes can take advantage of datatype semantics to reduce bookkeeping, limit false conflicts, and implement efficient concurrency control. This way we can provide both good performance and correctness based on modularity and encapsulation.

Biodata:

Professor Barbara Liskov has been an Institute Professor of MIT since 2008. She is a member of the National Academy of Engineering, a fellow of the American Academy of Arts and Sciences, and a fellow of the ACM. She received the ACM's Turing Award in 2009, the IEEE Von Neumann medal in 2004, the lifetime achievement award from the Society of Women Engineers in 1996, and in 2003 was named one of the 50 most important women in science by Discover magazine. Her research interests include distributed systems, replication algorithms to provide fault-tolerance, programming methodology, and programming languages. Her research projects include Byzantine-fault-tolerant storage systems, peer-to-peer computing, and support for automatic deployment of software upgrades in large-scale distributed systems.