The Power of Abstraction

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Abstract

Abstraction is at the center of much work in Computer Science. It encompasses finding the right interface for a system as well as finding an effective design for a system implementation. Furthermore, abstraction is the basis for program construction, allowing programs to be built in a modular fashion. This talk will discuss how the abstraction mechanisms we use today came to be, how they are supported in programming languages, and some possible areas for future research.

Biography

Barbara Liskov is an Institute Professor at MIT and also Associate Provost for Faculty Equity. 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 Turing Award in 2009, the ACM SIGPLAN Programming Language Achievement Award in 2008, the IEEE Von Neumann medal in 2004, a 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 current 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.

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