

The Challenges and Future of Electronic-System Level Design Automation

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In this talk, the speaker will introduce new concepts of software/hardware system abstractions for effective system modeling and design automation. As IC design automation reached its peak at the turn of the century, the industry unsurprisingly asks for upgrade to electronic system-level design automation. However, the complexity and diversity, particularly the inclusion of both software and hardware components, of system designs are of huge challenges. In contrast to the successful abstractions of transistor-, gate- and RTL-level designs, the traditional system-level transaction models and function-time models seem to be of limited use. It is concluded that proper characterizations of system behaviors, particularly inter-component interactions (shared-data accesses, signals, interrupts, etc.) and timing behaviors (bus contentions, cache misses, preemptions, etc.) are identified to be keys to system modeling and designs.