

13th Session of Lecture Series on
Formal and Logical Aspects of Computer Science

Verification of Reactive Systems

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Time : Thursday, February 25, 2010 (Esfand 6, 1388) 14:30 to 16:00

Place : School of Mathematics, IPM, Niavaran Square, Tehran, Iran

Abstract: Model checking is an automatic technique for verifying finite state concurrent systems. It has a number of advantages over traditional approaches to this problem that are based on simulation, testing, and deductive reasoning. The method has been used successfully in practice to verify complex sequential circuit designs and communication protocols. The main challenge in model checking is dealing with the state explosion problem. During the past two decades considerable progress has been made in dealing with this problem. In this lecture, we compare model checking with other formal methods for verifying hardware and software designs. We describe how model checking is used to verify complex system designs. We also trace the development of different model checking algorithms and discuss various approaches that have been proposed to deal with the state explosion problem.

(Note : Topics covered by this lecture series are computational logic, type theory, topology in theoretical computer science, proof carrying code, formal specification and verification of systems, computability, proof theory, model checking, and so on.)