

Model Checking and Synthesis

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During the last three decades, the automatic verification of systems, called “model checking” has gained a lot of success as an alternative to manual methods of system testing. In this series of lectures, we will see some of the basic techniques to formally specify properties of systems and automatically verify them. We will concentrate on Linear Temporal Logic and Buchi Automata specification, and on explicit state model checking, as is done in the SPIN model checking system. We will also mention briefly branching time specification/verification. Finally, we will show the principles of automatically constructing correct-by-design systems directly from their specification.

References

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2. D. Peled. *Software Reliability Methods*. Springer; 2001.
3. R. Rosner, A. Pnueli. *On the Synthesis of a Reactive Module*. POPL 89; pp. 179-190; 1989.