UNIVERSITÀ DEGLI STUDI DI TORINO

ID

VP121_DIP_INF

Visiting Professor Program
Academic year 2022/2023

TEACHING COMMITMENT: 12 hours

COURSE TITLE

State space exploration and model checking via decision diagrams

TEACHING PERIOD
2nd term

SCIENTIFIC AREA
Computer science - formal methods

LANGUAGE USED TO TEACH
English

COURSE SUMMARY
The course will discuss various techniques for CTL, LTL and CTL* model checking of discrete events dynamic systems (DEDS) models, based on various sorts of Decision diagrams.
Decision diagrams will be introduced, together with basic operations and their complexities. The presentation will cover both theoretical problems and implementation issues.
The application of decision diagrams to state space generation of DEDS and to state-based verificaiton of LTL, CTL and CTL* properties, will then be introduced.

LEARNING OBJECTIVES
Becoming familiar to the very powerful data structure called decision diagrams, that has application in many fields, besides DEDS verification. Acquiring familiarity with the study of complexity of algorithms based on this data structure.

TUTORSHIP ACTIVITIES
N/A

LAB ACTIVITIES

The course has a large part of lab activities, conducted by the students using their computers, and using an open source tool called GreatSPN, that includes a CTL, LTL and CTL* model checker.

OTHER ACTIVITIES BESIDES THE COURSE

One seminar to PhD students

VISITING PROFESSOR PROFILE

A researcher expert in DEDS model, state space exploration based on decision diagrams. The visiting professor should be fluent in decision diagrams.

CONTACT PERSON AT THE DEPARTMENT

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