CS 156: The Calculus of Computation – Fact Sheet

Staff

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Course Outline

- Decision procedures with applications to analyzing and developing robust software.
- Logic review: Propositional and first-order logic; induction. (Chapters 1-4)
- Verification: Methods for proving correctness of sequential programs using first-order reasoning; need for decision procedures. (Chapter 5)
- Decision procedures: Algorithms that decide the validity of logical formulas for common theories including SAT, equality, arithmetic, recursive data structures, and arrays. (Chapters 7, 9, 11)
- Combination theories and combination of decision procedures. (Chapter 10)
- Projects include writing verified programs.
- Overview of Temporal Logic and its application

Textbook

The Calculus of Computation: Decision Procedures with Applications to Verification

Author: Bradley and Manna
Published by: Springer 2007
Link: http://aleph.technion.ac.il/F/?func=item-global&doc_library=TEC01&doc_number=002291628
                (Technion Library Availability)