CSE 231: Compilers Spring 1998

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Office hours: by appointment.

This course focuses on the *analysis* and *optimization* phases of compilers.

Prerequisite: CSE 131 or equivalent, or consent of the instructor.

Text: *Advanced Compiler Design and Implementation* by Steven S. Muchnick, 1997, Morgan Kaufmann publishers (http://www.mkp.com/books_catalog/1-55860-320-4.asp), and selected papers.

Course Outline

- Ch 1-2 Overview of optimizing compilers
- Ch 7 Graph structures for control flow analysis of programs
- Ch 8 Data flow analysis of programs, Static Single Assignment form
- Ch 9 Data Dependence of programs, Program Dependence Graph
- Ch 11-12 Scalar Optimizations, Optimization based on Static Single Assignment
- Ch 13 Redundancy Elimination
- Ch 14 Loop Optimizations
- Ch 5-6 Run-time support, Automatic Code Generators
- Ch 16-17 Register Allocation, Instruction Scheduling
- Ch 21 Case studies of compilers and future trends
- Selected papers from the literature

Course Requirements and Grading

- Readings from the textbook and papers
- Homeworks (1/3)
- Midterm exam (1/3)
- Class project (1/3)