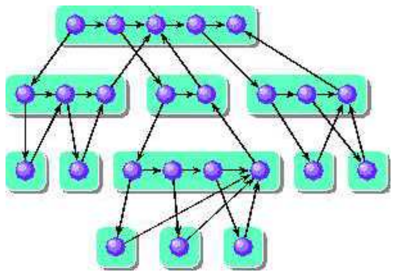
6.895 Theory of Parallel Systems



Time	MW 10:00–11:30 A.M.
	We'll move Monday's session to 7:00 P.M., if students are amenable.
Location	9-057 (distance-education classroom)
Credit	3-0-9 H-Level Graduate Credit
Prerequisites	6.046J (algorithms) and 6.170 (software engineering), or equivalent
Homepage	`http://theory.lcs.mit.edu/classes/6.895/fall03`
Instructors	Prof. Charles E. Leiserson, *MIT EECS and CSAIL*
	Prof. Michael Bender, *SUNY, Stony Brook*
	Prof. Hsu Wen Jing, *Nanyang Technological University, Singapore*
	Dr. Bradley Kuszmaul, *MIT CSAIL*

This graduate research course is aimed at Ph.D. students in Area II. M.Eng. students who plan to write their Master's thesis on the topic of parallel systems may also wish to participate. This class cannot be used to satisfy the TQE requirements for the Ph.D. program.

This class covers theoretical foundations of general-purpose parallel computing systems, from languages to architecture. We will focus on the algorithmic underpinnings of parallel systems. The topics for the class will vary depending on student interest, but will likely include multithreading, synchronization, race detection, load balancing, memory consistency, routing networks, message-routing algorithms, and VLSI layout theory. The class will emphasize randomized algorithms and probabilistic analysis, including high-probability arguments.

The focus of the class is the term project, which can be done individually or in groups of two and will account for 70 percent of the grade. Students are encouraged to advance their own research interests in their project. The hope is that many of these term projects will lead to theses or publishable papers. In addition, there will be several problem sets and programming labs.