**290N: The Unknown Component Problem and Sequential Synthesis**

*Tue Thu 9:30-11:00*

*Lecturers: Robert Brayton and Alan Mishchenko*

*The Unknown Component Problem* involves solving the equation $X \cdot C \equiv S$, where
- $C$ is a known context
- $S$ is a specification
- $X$ is the unknown

$X$ is a solution if its composition with context $C$ satisfies specification $S$. There is no unique solution; in general we want a solution that is efficiently implementable.

Applications of *The Problem* include:
- inter-connected FSMs
- game solving
- distributed component testing
- protocol conversion
- discrete control

Learn state-of-the-art computational methods and algorithms related to
- BDDs and SAT
- automata theory
- non-determinism
- multi-valued logic

Work on practical applications in
- sequential synthesis
- concurrent and parallel systems
- game theory

Participate in the development of a new sequential logic synthesis system.

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