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SEMINAR

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304 Whitehead Hall
Refreshments: 3:30 p.m.
Seminar: 4:00 p.m.

**SEARCHING FOR OPTIMAL PERMUTATIONS WITH
VERY LARGE-SCALE NEIGHBORHOODS**

ABSTRACT

One often wishes to find an optimal ordering of a collection of objects, with respect to some scoring function. Classic examples include the Traveling Salesperson Problem and the Linear Ordering Problem, with many applications. Unfortunately these problems are NP-complete. One heuristic approach is to make a series of greedy or stochastic moves that “locally” improve the score of an initial guess. In this talk, I will illustrate ways to expand the notion of “locality”. The idea is to consider a combinatorially large space of possible moves at each step, using dynamic programming to optimize or sample over this space. The relevant algorithms are derived from well-known algorithms for parsing with finite-state and context-free grammars.