COLLOQUIUM SPEAKER
Mathematics & Computer Science

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Abstract:

The traveling salesperson problem is easy to state: given a set of locations with known distances between each pair of them, determine the shortest route that visits each location and returns to its starting point. Unfortunately, no efficient algorithms are known for this problem and none can exist unless P = NP.

Despite this barrier, approximation algorithms for this problem have been known for decades. In 1976, Christofides discovered a polynomial-time algorithm that finds such a route whose length is guaranteed to be no greater than 1.5 times the length of the shortest possible route. Since then, approximation algorithms have been proposed for natural variants of the traveling salesperson problem such as instances where we are given distinct start and end locations for the route or instances where the distances between two locations may not be symmetric.

I will describe some of the exciting new techniques that are being used to devise polynomial-time approximation algorithms for some variants of the traveling salesperson problem. My contributions to this body of work will appear throughout the discussion.

Date: Friday – January 25, 2013

Location/Time: B650 – 12:00 to 12:50 p.m.

OPEN TO ALL INTERESTED PERSONS. Some refreshments provided.