

The Department of Computer Science and Engineering
University of Nevada, Reno

cordially invites you to a Master's colloquium

**A Generic Queuing System and Time-Saving Region Restrictions for
Calculating the Crossing Number of K_n**

A thesis submitted in partial fulfillment of the
requirements for the degree of Master of Science
with a major in Computer Science.

by

Bei Yuan

Abstract: With the availability of inexpensive computer clusters it is now economically feasible to use parallel processing to attack computationally intensive problems such as calculating the crossing number of a graph. In 1996 Harris and Harris presented an algorithm for solving the crossing number problem of complete graphs, which was implemented in parallel by Tadjiev and Harris a year later. Their algorithm, though parallelized, was not load balanced and did not prune the search space with additional restrictions.

This thesis introduces an easily adaptable parallel work queue combined with a more restrictive algorithm to solve crossing number problems. Implementation of the parallel work queue offers an opportunity to get better results than previously possible on crossing number problems. Meanwhile, we also use this more restrictive algorithm to verify the efficiency of our parallel queuing system. Both the algorithm implementation and analysis are given in this thesis.

2:00 pm, Wednesday, October 27th, 2004

Access Grid Node, Scrugham Engineering and Mines (SEM)

for more information contact Dr. Fred Harris @ 784-6571 (fredh@cs.unr.edu)