

# Field Robotics Center Seminar Series

Tuesday, August 24th, 2010 GHC 2109 noon - 1pm

Pizza will be served



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## Improving Market-Based Task Allocation with Optimal Seed Schedules

### Abstract

Task allocation impacts the performance efficiency of agent teams in significant ways. Due to their efficient and proven performance, Market-based task allocation approaches have grown in popularity for many such multi-agent domains. In addition, market-based approaches are very well suited to dynamic domains such as emergency response, in which the set of the tasks or the environment changes in real time. However, market-based approaches are not guaranteed to produce optimal solutions and researchers have investigated many techniques for improving their performance in different scenarios. Since many application domains have a significant static component coupled with dynamic elements, we explore the option of enhancing team performance in these domains by seeding market-based task allocation with optimal schedules pre-computed for the static tasks. We compare the performance of the TraderBots market-based algorithm with and without the seeded optimal schedules in simulation and on a team of robots. Our results demonstrate that seeding market-based allocation with optimal schedules can improve team performance, particularly when the proportion of static tasks is high. This talk describes joint work with Balajee Kannan, Imran Fanaswala and M. Bernardine Dias.

### Speaker Bio

G. Ayorkor Korsah is a Ph.D. student in the Robotics Institute, working with Tony Stentz and Bernardine Dias. Her research interests fall into the two broad areas of include planning and coordination for heterogeneous teams, and exploring the synergies between technology and education in developing communities.

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