Speaker: Prof. Stephen L. Smith

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Title: Multi-Robot Task Allocation and Sequencing: Distributed Algorithms for General Tasks

Abstract: This talk will discuss task allocation and sequencing for multiple robots with differential motion constraints. Each task is defined as visiting a subset of the robot configuration space. This general definition captures tasks including inspection and servicing, as well as one-in-a-set tasks. Our approach is to transform the problem into a multi-vehicle generalized traveling salesman problem (GTSP). The talk will give an overview of recent work on developing GTSP solvers via large neighborhood search. We will discuss how this approach can be implemented in a distributed manner using auction mechanisms. Finally, the talk will briefly touch on how this work fits into a more general problem specification language we are developing for constrained robot motion planning.

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