

VORTRAG

"Integrating Beam-ACO with Constraint Programming for Single Machine Job Scheduling"

Mi, 24. 06. 2009, 16.00 Uhr
SE 3 / BWZ

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Abstract:

Abstract: A recent line of research concerns the integration of ant colony optimization and constraint programming. Hereby, constraint programming is used for eliminating parts of the search tree during the solution construction of ant colony optimization. In the context of a single machine scheduling problem, for example, it has been shown that the integration of constraint programming can significantly improve the ability of ant colony optimization to find feasible solutions. One of the remaining problems, however, concerns the elevated computation time requirements of the hybrid algorithm, which are due to constraint propagation. In the work presented in this talk we propose a possible solution to this problem by integrating constraint programming with a specific version of ant colony optimization known as Beam-ACO. The idea is to reduce the time spent for constraint propagation by parallelizing the solution construction process as done in Beam-ACO. The results of the proposed algorithm show indeed that it is currently the best performing algorithm for the above mentioned single machine job scheduling problem.