1 - Search Tree Restructuring
Erik Zawadowski, PhD Student, Carnegie Mellon University, 5000 Forbes Ave, Pittsburgh, PA, 15213, United States of America, epz@cs.cmu.edu, Tuomas Sandholm

Poor branching decisions in search can increase solve time by orders of magnitude. We introduce an approach where, instead of committing to the tree so far, we restructure the tree throughout the search. We define two tree-modifying operators and show that conflict-directed backtracking (CDBT) can be expressed as a compound operation. CDBT is, however, only one of many compound tree operations. We study more aggressive compound operations and present experiments on graph coloring and 3SAT.

2 - A New Heuristic Algorithm for the Non-Unique Probe Selection Problem
Elisa Pappalardo, Department of Mathematics and Computer Science, University of Catania, Viale Andrea Doria, 6, Catania, Italy, epappalardo@dmi.unict.it, Beyza Atlaticiohlu Ozek, Famos Pardalos

The identification of biological agents in a sample is an important problem arising in medicine. In this talk we introduce a new model and heuristic for the Non-unique probe selection problem. This model consists of selecting optimal oligonucleotide probe sets for use in hybridization experiments in which target viruses or bacteria identify biological samples. Furthermore, the feasible solution is produced for large, real data sets.

3 - An Infinite Hidden-Markov Model for Multiple Change Point Estimation
Chandan Reddy, Assistant Professor, Wayne State University, 5143 Cass Avenue, 452 State Hall, Detroit, MI, 48084, United States of America, reddy@cs.wayne.edu, Adel Alaeidini, Kai Yang

Despite their capability in monitoring the variability of processes, control charts are not effective tools for identifying process change points. In this paper, we develop an infinite hidden Markov model (HMM) with parameters estimated using Dirichlet process (DP) and Markov Chain Monte Carlo (MCMC) for identifying multiple change points in different types of processes. We also use extensive simulation studies to study the performance of the proposed method.

4 - Parallel Knapsack Algorithms on Multicore Architectures
Clara Novoa, Assistant Professor, Texas State University, 601 University Dr, San Marcos, TX, 78666, United States of America, cnovoa@txstate.edu, Apar Qasem, Hammad Rashid

This work investigates the scalability of two parallel implementations of dynamic programming recursions for the integral knapsack problem on multicore architectures. The study also identifies a tunable parameter which can be used to enhance speedup.

5 - Scheduling Jobs in a Permutation Flowshop to Minimize Total Earliness and Tardiness
Jeffrey Schaller, Professor, Eastern Connecticut State University, 83 Windham St., Department of Business Administration, Willimantic, CT, 06226, United States of America, schallerje@easternct.edu, Jorge Valente

This paper considers the problem of scheduling jobs in a permutation flow shop with the objective of minimizing total earliness and tardiness. Procedures are described and results of tests on various problem sets are reported.