

**Paulo Marcos Figueiredo de Andrade**

**"Um GRASP para a Solução do Problema da Maximização da Diversidade"**

The Maximum Diversity Problem (MDP) consists of identifying, in a certain population, a sub-group of individuals of fixed size, that has the biggest possible diversity of characteristics. This sub-group is identified applying a method, that, based on some information of the individuals, allows the comparison between sub-groups, in order to find which is the most diverse.

Being a NP-Hard problem, enumeration techniques of solutions for populations with a high number of individuals, can be computationally impracticable. This characteristic of the MDP motivates the study of the application of heuristics and metaheuristics capable of identifying good solutions in feasible computational time. The main objective of this work is to deepen the study of the application of GRASP metaheuristic to solve the MDP. In [Gho96], Ghosh presented a GRASP for the MDP. Using this heuristic as a baseline for comparison, was developed a new approach based on GRASP, that takes in consideration global information of the population analyzed. From the obtained results, it can be verified that a global analysis of the population can help in the identification of superior solutions when compared to the solutions achieved by the approach developed by Ghosh. Another contribution of this work is the discussion of the proper method to measure the diversity of sub-groups of individuals. It is illustrated that different methods present different results, that can be more or less suitable for certain situations.