The Bounded Degree Minimum Spanning Tree [1,2] or Degree Constrained Minimum Spanning Tree problem (DC-MST or d-MST) is an NP-Hard problem that appears in many applications such as telecommunication networks and integrated circuits design. The project proposes an approach using Particle Swarm Optimization (PSO) algorithm [3, 4] to solve the d-MST problem in complete graphs, but it can be generalized to any kind of graphs. For applying PSO to solve the problem, we use some new methods for creating particles and swarm as well as finding new position for each particle in each step. Results of computational experiments are compared to a standard dataset to show the efficiency of the algorithm.

References:

Keyword: Particles Swarm Optimization, PSO, Bounded Degree, Spanning Tree, DC-MST, d-MST, NP-Hard, Hamilton Path,