

## Abstract

Reconstruction of *phylogenetic* tree problem is an important analyse in genetic science. It is a fundamental aspect to understand the structure, function and the genetic distances from the DNA's species. The best of reconstruction tree by giving the minimum score from the distances between each species.

Optimization in reconstruction of *phylogenetic* tree is a general problem that have been studying for a long time, but still have to search the best methodology from the each possibility methodology for this case. In this Final Assignment we will discusse about the implementation of *Ant Colony Optimization* (ACO) for this reconstruction of phylogenetic tree case.

The result of this experiment shows that this *Ant Colony Optimization* (ACO) for algorithm can be applied in this optimization problem for reconstruction of phylogenetic tree. The effectiveness of this algorithm is applied and tested for four datasets. Preliminary test shows that this approach can give a good solution with minimal score from the distances between each species.

**Keywords:** reconstruction, optimization, *phylogenetic*, ACO