Report for the project for the Swarm Intelligence course

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1 Implementation

In the literature many different methods are proposed and researched including various implementations of the simulated annealing, taboo search, hybrid genetic-taboo search. However, for this project an algorithm known as Hybrid Ant System for the Quadratic Assignment Problem (HAS-QAP) was used as it was propose by Gambardella and Dorigo in [**?**]. As all the ACO algorithms it uses the notion of solution construction biasing by means of pheromone trails, deposited by ants.

Listing 1: General ACO pseudo-code

```
1  procedure ACO–Metaheuristic
2  generate m random permutations π^1 ,... ,π^m .
3  [optionally] improve π^1 ,... ,π^m by local search
4  let pi* be the best solution
5  initialize the pheromone trail matrix T
6  activate intensification
7  for i=1 to I^max
8    for k from 1 to m
9      π̂^k = PheromoneTrailSwaps(π^k)
10   end
11 end
```