FINAL PROJECT

The Travelling Multiple Salesman Problem

Baixin Zhang

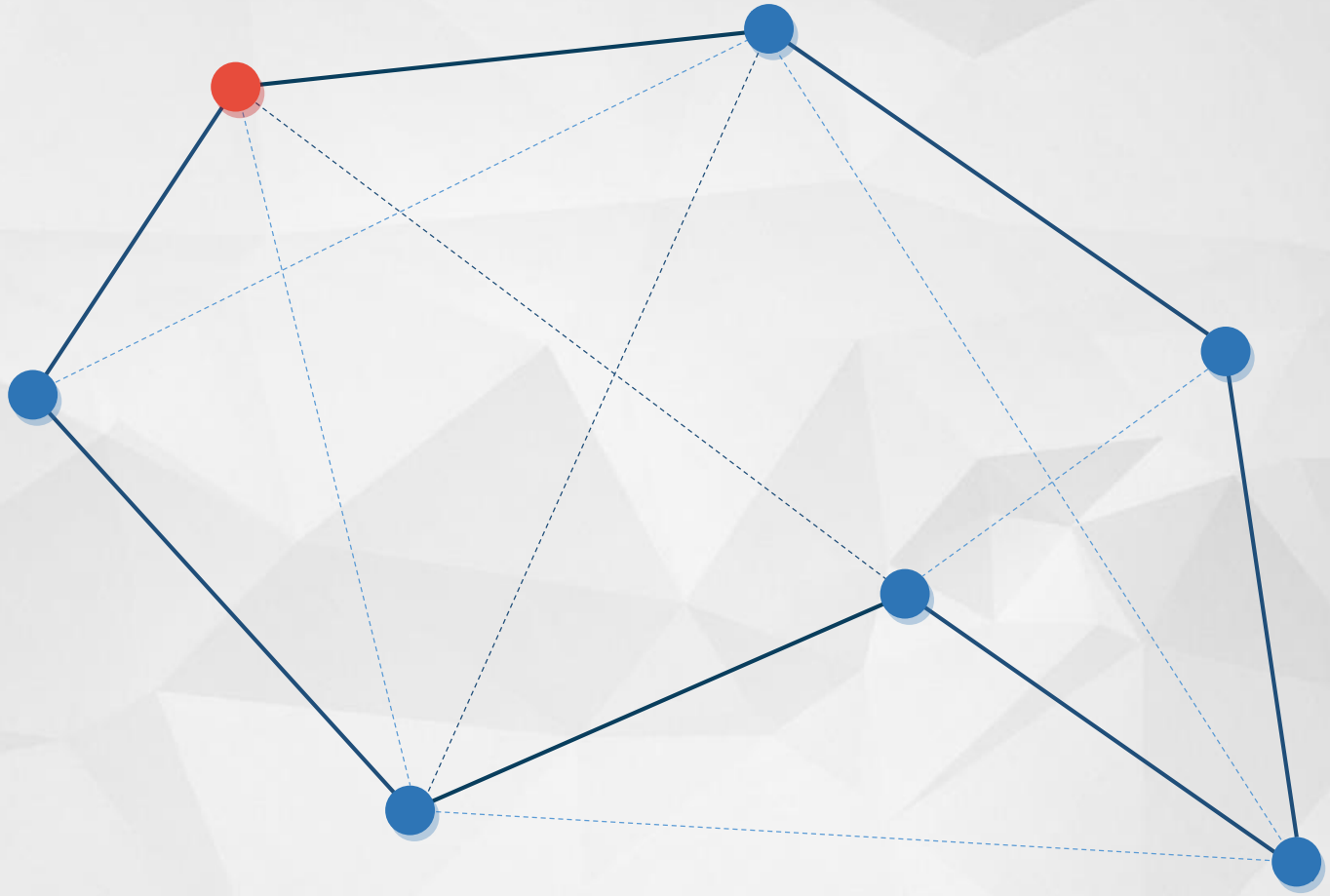
TSP

- A list of cities and the distances between each pair of cities
- A start point for the salesman
- Find a path that starts from and ends at the same node, and goes through all the vertices in the graph

TSP

Travelling Salesman Problem

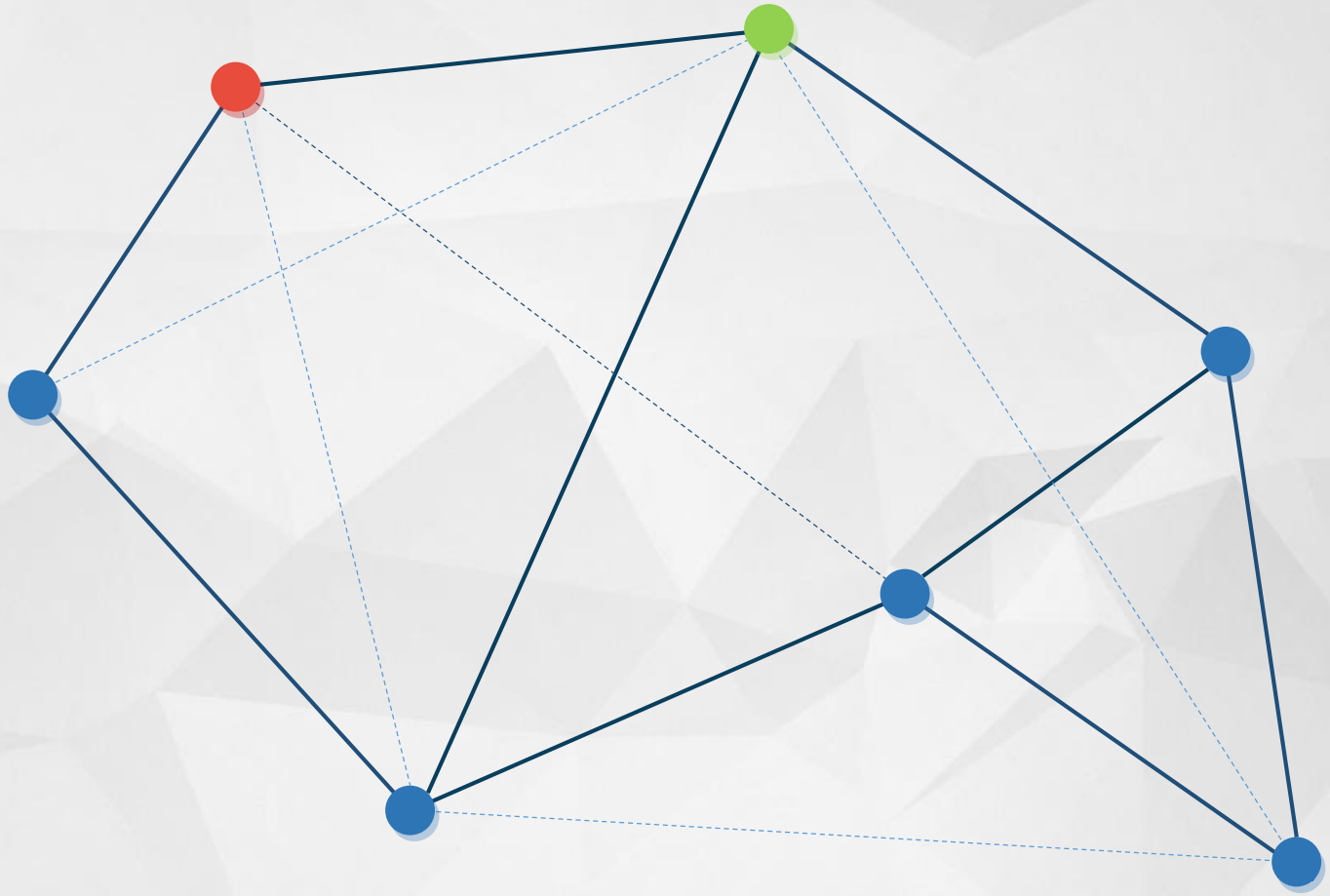
TSP



MTSP

- A list of cities and the distances between each pair of cities
- Multiple start points for the salesmen
- Each salesman has a set of cities to visit
- Find paths for each salesmen that minimize the total cost

MTSP



Multiple Travelling Salesman Problem

Algorithms

To Solve MTSP

- **Genetic Algorithm**
- Memetic Algorithm
- Ant System
- Particle Swarm Optimization
- … …

GENETIC ALGORITHM

Dianati, Mehrdad, Insop Song, and Mark Treiber. *An introduction to genetic algorithms and evolution strategies*. Technical report, University of Waterloo, Ontario, N2L 3G1, Canada, 2002.

Bibliography

- R.Jayasutha and Dr. B. S. E. Zoraida, “The optimizing multiple travelling salesman problem using genetic algorithm”, IJSRD, vol 1, issue 5, 2013.
- Varunika Arya, A. Goyal and V. Jaiswal, “An optimal solution to multiple travelling salesman problem using modified genetic algorithm”,IJAIEM ,vol 3 , Issue 1, 2014.
- H. Larki and M. Yousefikhoshbakht, “Solving the multiple traveling salesman problem by a novel metaheuristic algorithm”, Journal of Optimization in Industrial Engineering, 2014, pp. 55-63, to be published.
- T. Mohammadpour and M. Yadollahi , “ Solving the problem of multiple travelling salesman problem using hybrid gravitational algorithm”, International Journal on Communications (IJC) ,Vol 3, 2014, to be published.

Bibliography

- S. Yuan, B. Skinner, S. Huang, D. Liu, “A new crossover approach for solving the multiple travelling salesmen problem using genetic algorithms”, European Journal of Operational Research, 228, 2013 , pp. 72-82.
- M. Yousefikhoshbakht, F.Didehvar, F. Rahmati, “Modification of the ant colony optimization for solving the multiple traveling salesman problem”, Romanian journal of information science and technology ,vol16 , issue1, 2013, pp. 65–80.