**The Traveling Salesman Problem: How The Ants Solve It**

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**Abstract**

The dilemma faced by the traveling salesman wherein he has a finite number of cities to visit and a desire to minimize the total distance traveled by visiting each one once without backtracking is a popular mathematics problem in combinatorial optimization. Though the origins are unclear, the Traveling Salesman Problem, or TSP, was mathematically formulated by several mathematicians in the 1800s and later studied in depth in the 1930s. Practical applications range from planning and logistics to DNA sequencing. Our goal is to implement the Ant Colony Algorithm so as to improve upon a simple brute force solution of selecting the nearest neighbor.

**Introduction**

Mathematicians and Computer Scientists alike are aware of the Traveling Salesman Problem. It is well-studied, and its existence has even affected pop culture in several ways.[[1]](#endnote-1)

**Algorithm Explanation**

Lorem

**Complexity**

Lorem

**Analysis of Results**

Lorem

1. *Travelling Salesman (2012).* http://www.imdb.com/title/tt1801123/. Retrieved 12/08/2017. [↑](#endnote-ref-1)