The Travelling Salesman Problem - Comparison of different approaches

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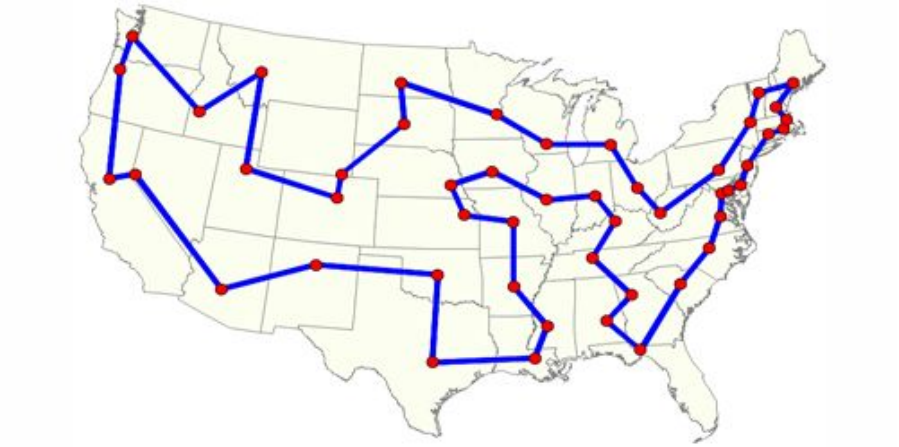
Travelling Salesman problem

- One of the most famous problems ever
- NP-hard
- Many approaches with more or less success
- Some of them specialised for a specific TSP insance
- Which one to use?



My project

- Implementing some famous algorithms and testing them versus each other
  - Exact algorithms
  - Approximation algorithms
  - Genetic algorithms
  - Heuristic algorithms
  - ML approach (?)
- Different type of tests
  - Metric/non-metric
  - Real/artificial
  - Symmetric/asymmetric
- Different stopping criteria
  - Running time
  - Memory consumed
  - Correctness achieved (?)

Lin-Kernighan heuristic - obtaining best results so far

- A generalization of 2-opt and 3-opt heuristics
- Used to get almost all of the best known results for famous TSP instances
- Some freedom left in the original paper - area to explore and benchmark!

Project progress so far

(60% TOTAL) ALGORITHM CODING: 80% DONE

(10% TOTAL) TESTING INFRASTRUCTURE: 40% DONE

(30% TOTAL) DISSERTATION: TO DO