

Faster Shortest Path Computation for Traffic Assignment

Boshen Chen

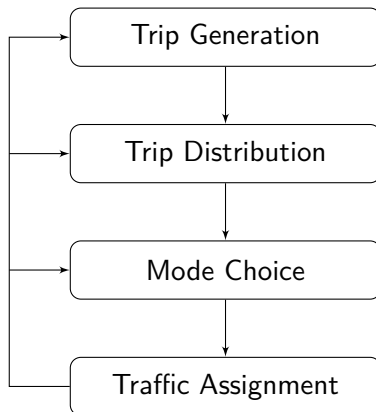
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- 1 Project motivation - Traffic Assignment
- 2 Solving the Traffic Assignment problem - faster shortest path calculations
- 3 Results - speed ups

Transportation forecasting

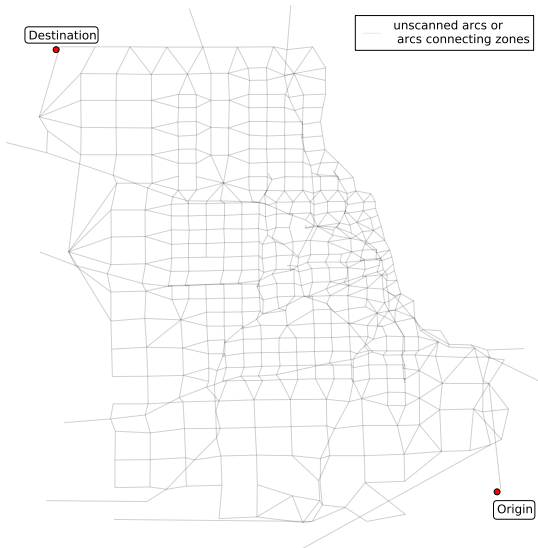


Faster shortest path calculations

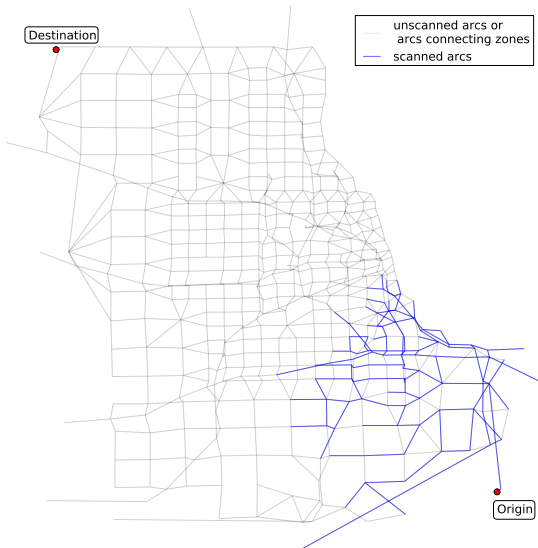
What exist and what I have done ...

- Bellman Ford - label correcting algorithm
- Dijkstra - label setting algorithm
 - different data structures - Heap trees and their advantages
- bidirectional
- A* search
- bidirectional A* search
- preprocessing

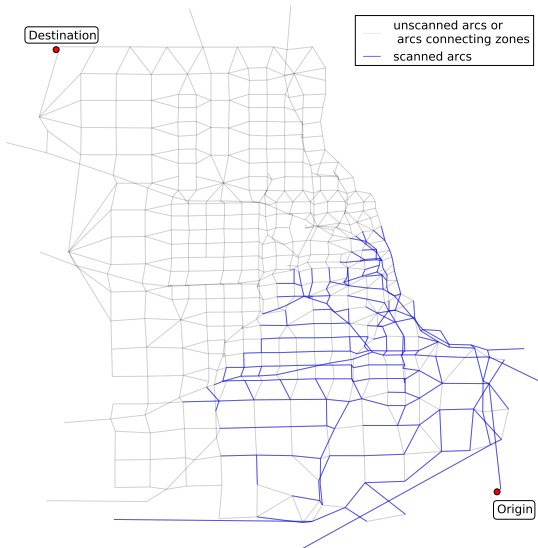
Dijkstra's Algorithm



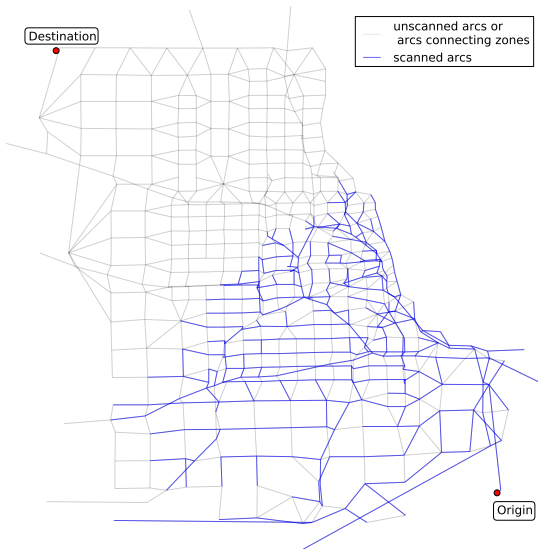
Dijkstra's Algorithm



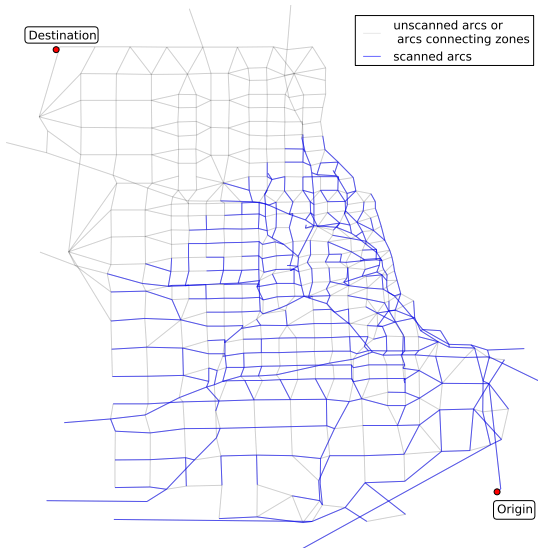
Dijkstra's Algorithm



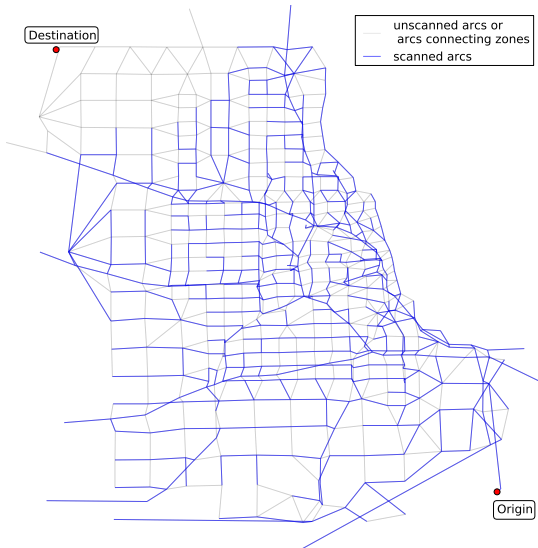
Dijkstra's Algorithm



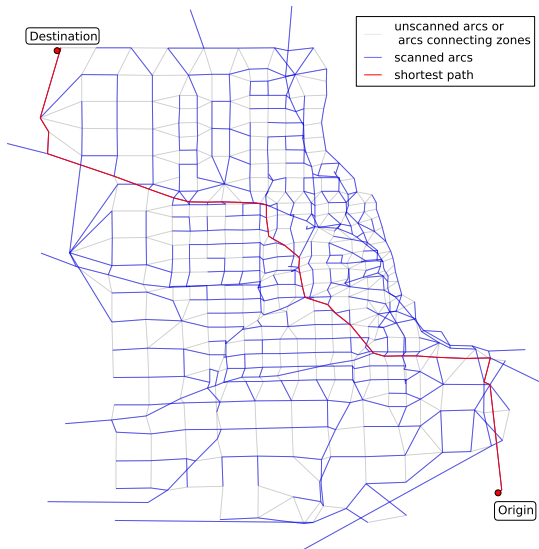
Dijkstra's Algorithm



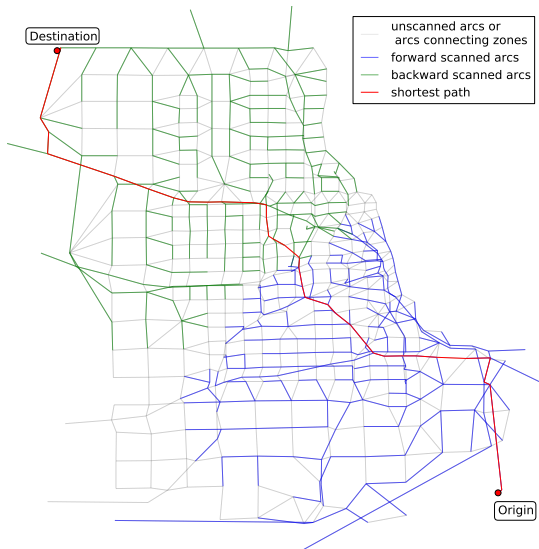
Dijkstra's Algorithm



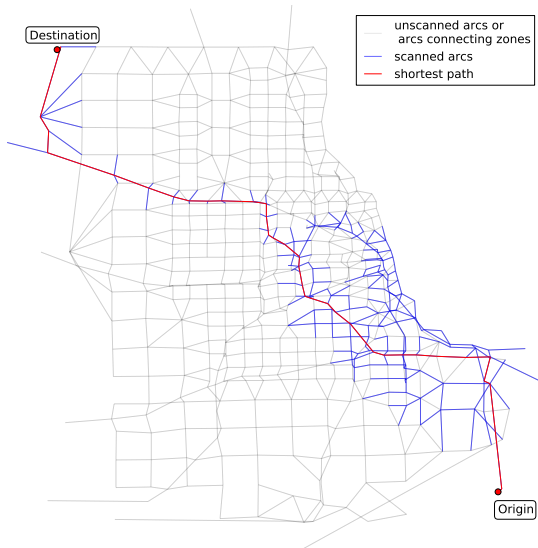
Dijkstra's Algorithm



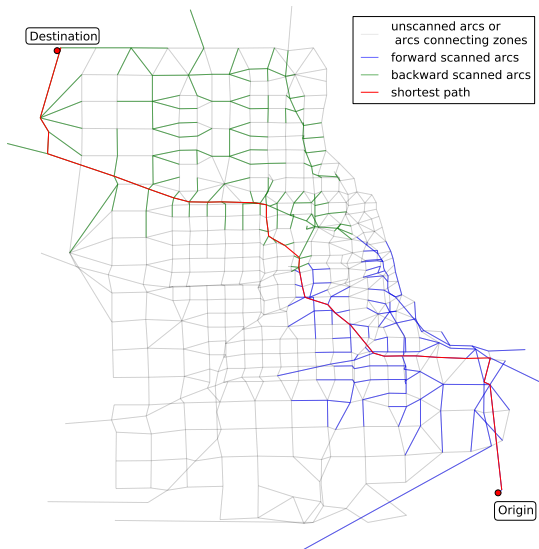
Bidirectional Dijkstra's Algorithm



A* Search



Bidirectional A* Search



A* Search vs Bidirectional A* Search

