

Statistical techniques for DS and Ro. Assignment 2. Task 2

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Assignment 2 repository.
Task 2 folder.

1 Effect of different schedules

For my experiments I have decided to update the temperature every 5 trials. I have selected different decay rates: $[0.3, 0.9, 0.99, 0.999]$

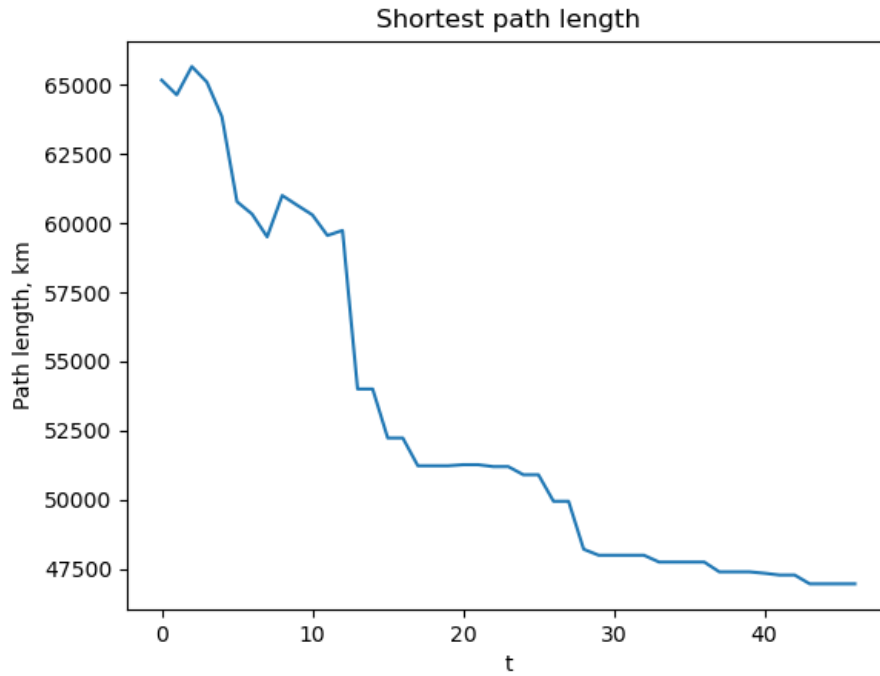


Figure 1: Simulated annealing with temperature decay rate $\alpha = 0.3$

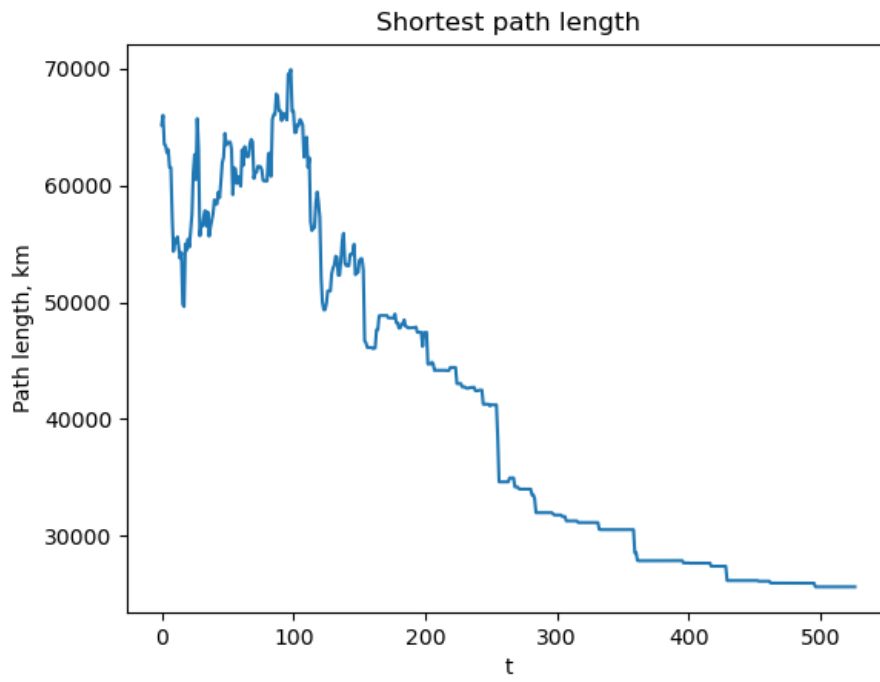


Figure 2: Simulated annealing with temperature decay rate $\alpha = 0.9$

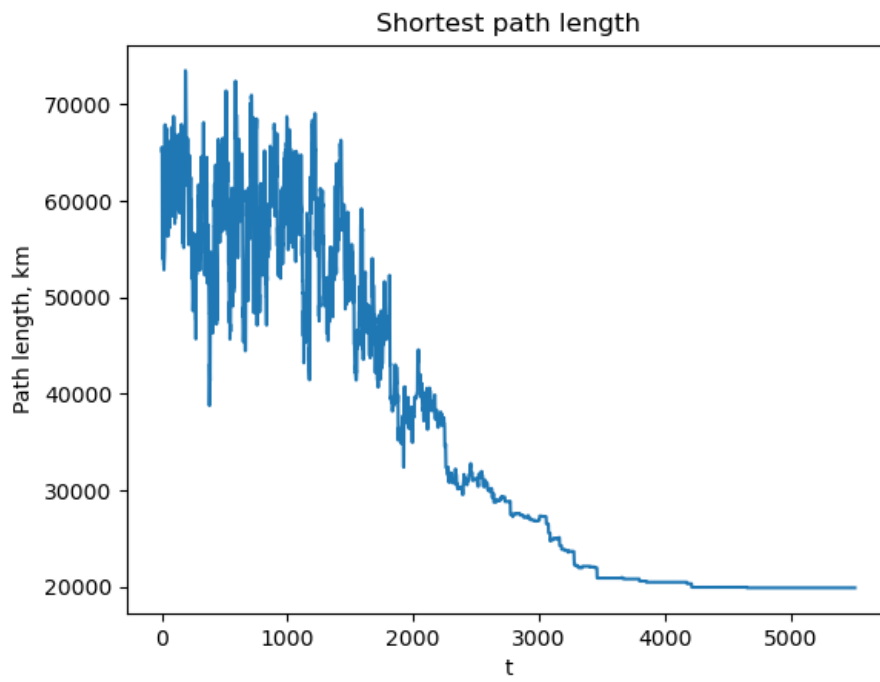


Figure 3: Simulated annealing with temperature decay rate $\alpha = 0.99$

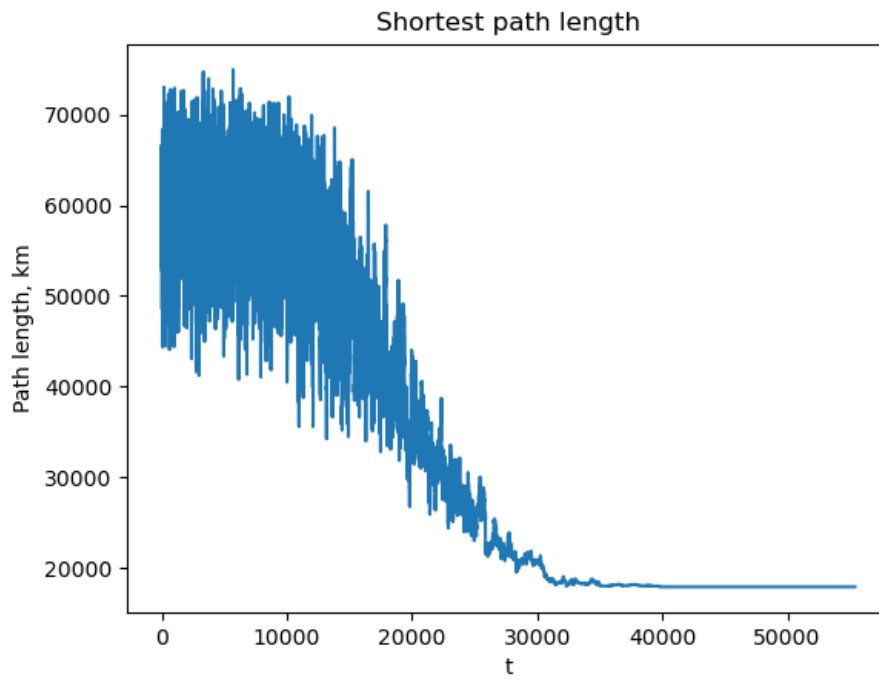


Figure 4: Simulated annealing with temperature decay rate $\alpha = 0.999$

We can observe several effects from pictures above:

1. Cool down time increases as decay rate increases
2. High decay rates tend to produce better final results
3. Exploration intensity decreases over time

Those trends also appeared after multiple restarts.