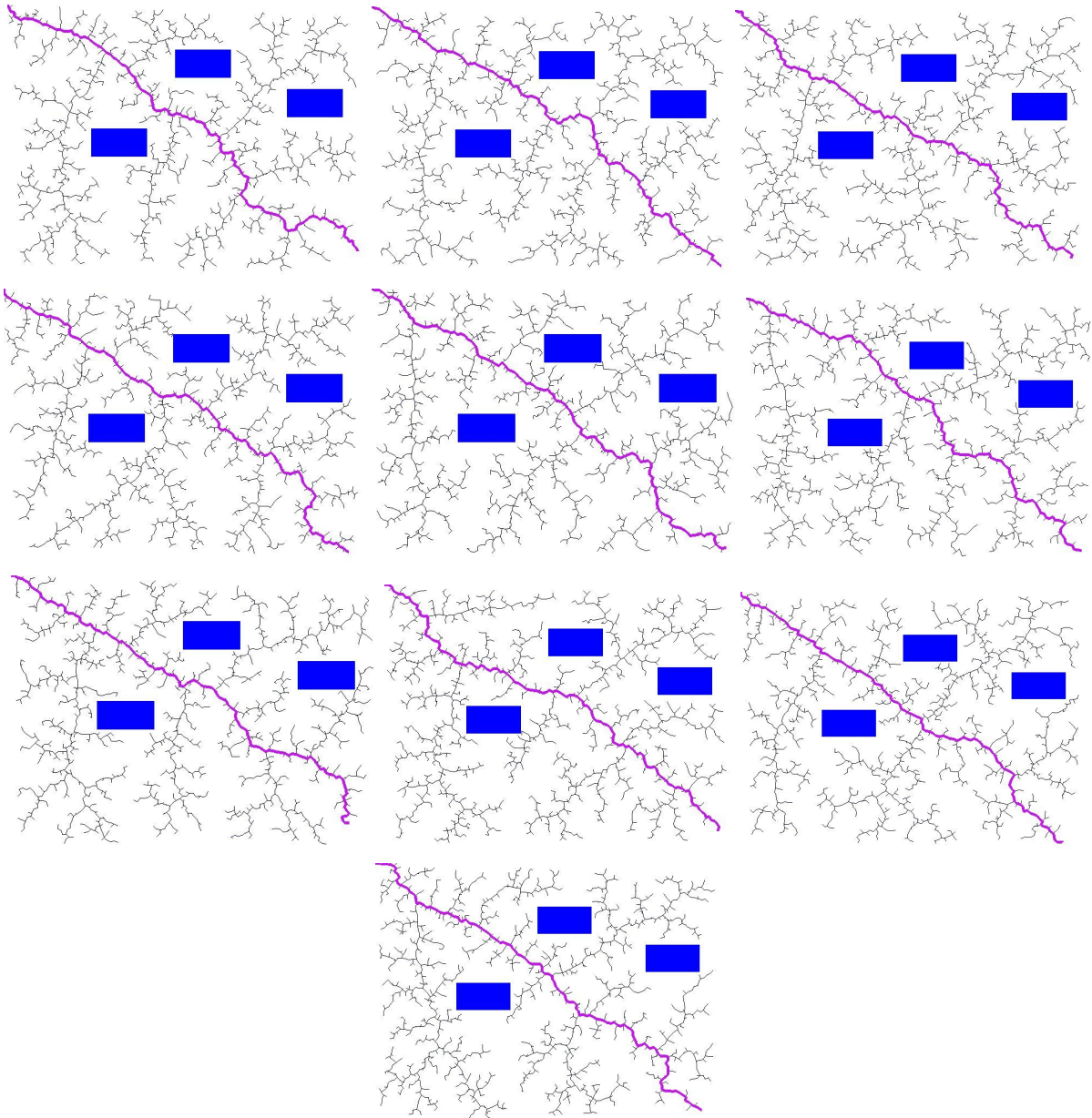


EVALUATION

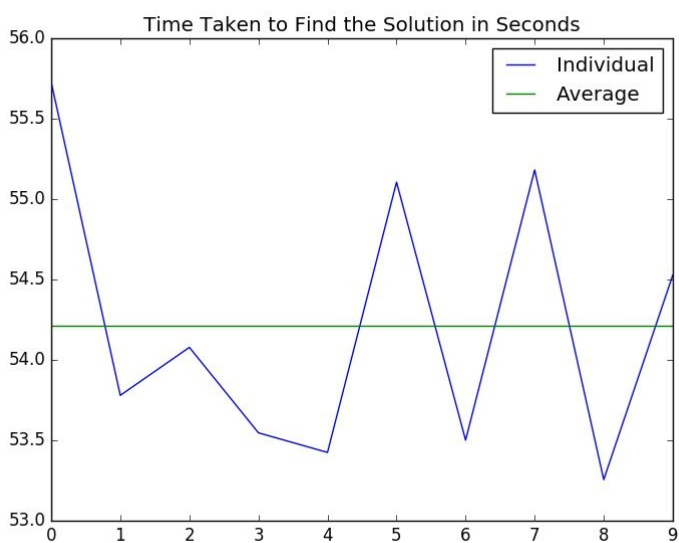
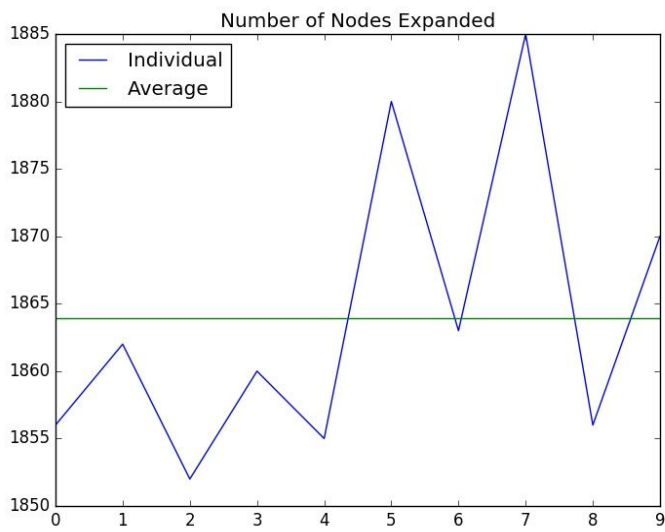
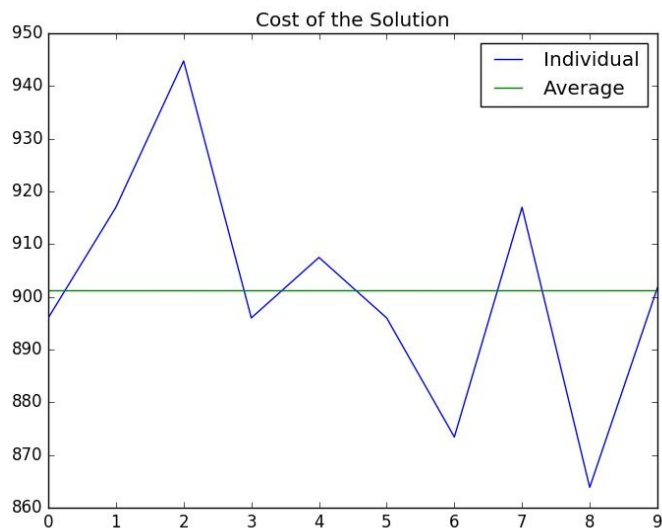
Bi-directional RRT*(BiRRT*) is implemented with one extended tree from the root and one connected tree from the goal. The performance of the BiRRT* is compared with RRT and RRT*. Time taken to find the solution, number of samples taken, and the cost of the path are taken to be the metrics for evaluation. The solutions and evaluation metrics (plots) are documented here.

RRT

Solutions

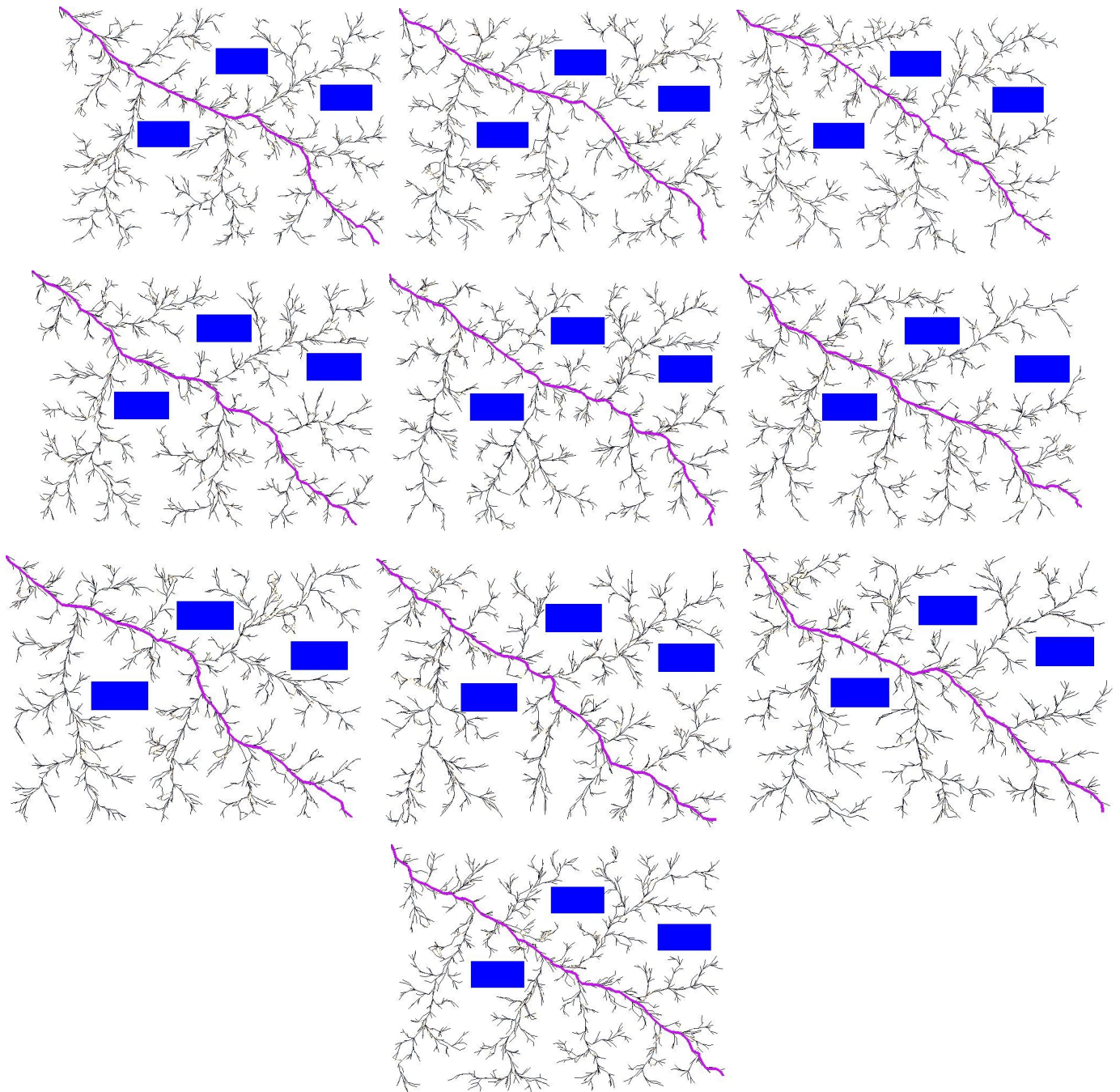


Performance:

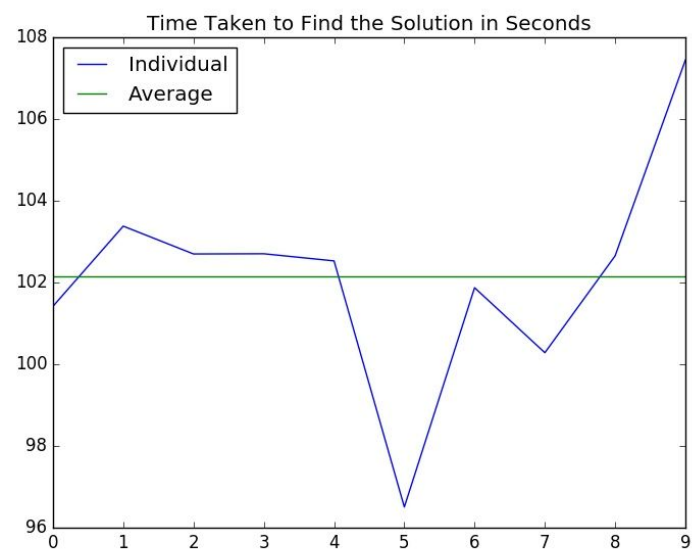
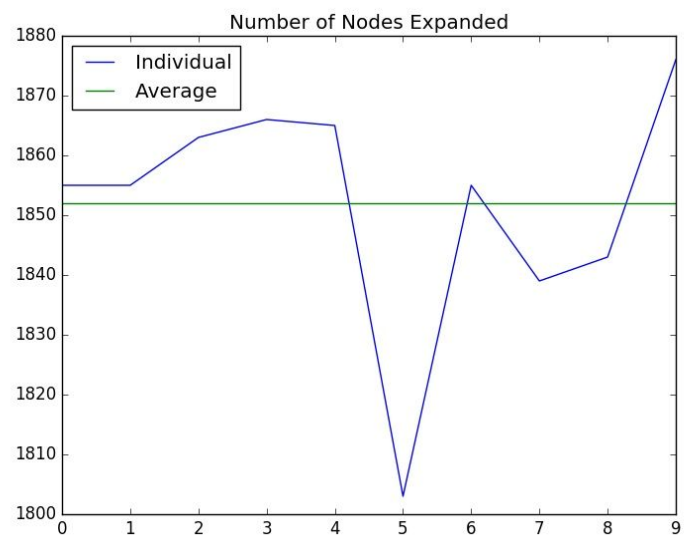
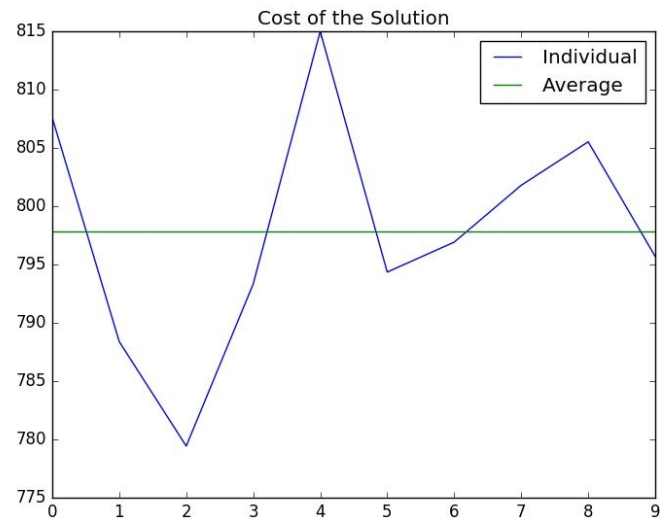


RRT*

Solutions

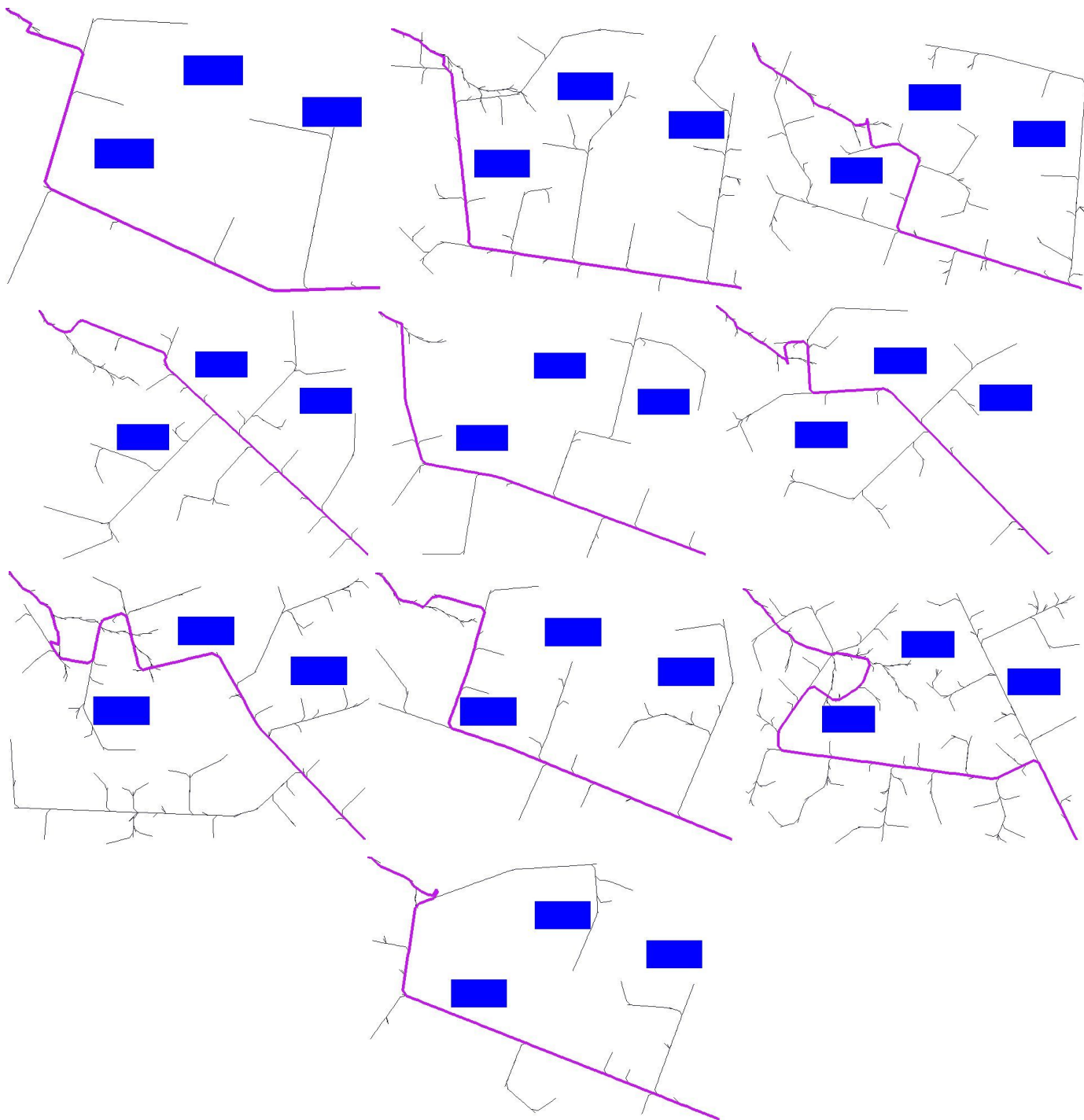


Performance

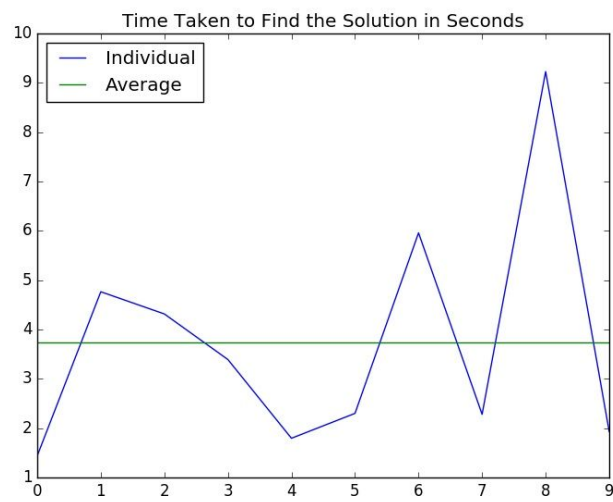
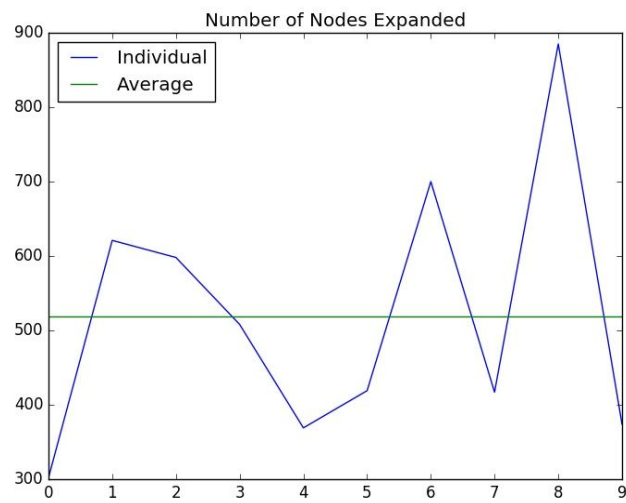
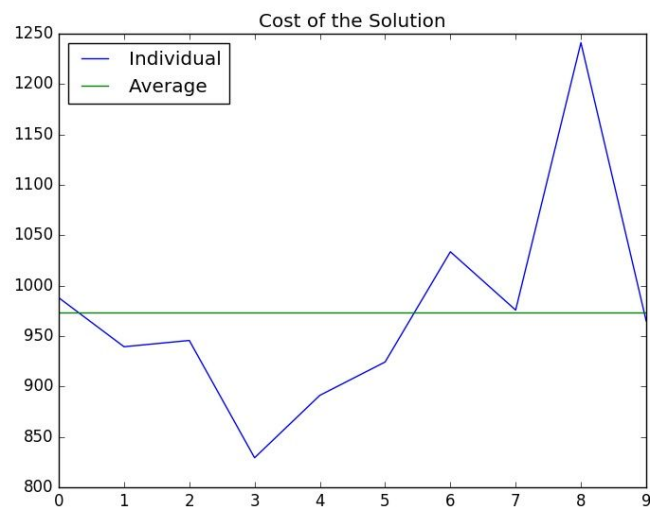


Bi-directional RRT*

Solutions



Performance



Comparison

Algorithm	Average Cost	Avg. Nodes expanded	Avg. Time (sec)
RRT	901.3	1864	54
RRT*	798	1852	102.15
BiRRT*	973	519	3.74

RRT* finds a solution which is more optimal than RRT and BiRRT*, but takes more time. BiRRT* is the most optimal in time among the three and expands less number of nodes.