

Exercise Sheet 3

Submit until Friday, June 10 at 2:00pm

Exercise 1 (5 points)

Implement the basic (non-hierarchical) arc flags algorithm discussed in the lecture. In the pre-computation, divide the graph into rectangular regions. You may choose rectangles of equal sizes (simple approach), or with equal number of nodes (kd-tree).

Stick to the same coding standards as for the first two exercise sheets. Again, there is no need to put your code for this exercise sheet in a separate directory. In particular, there is no need to write a new method for the shortest path computation done at query time. Just add an option to your existing Dijkstra implementation that will make it consider arc flags.

Exercise 2 (2 points)

Compute average query times using 100 and 1000 regions. Use the same dataset and number of queries as for the previous exercise sheets. On the Wiki, report the precomputation time, the space consumption, and the average query times. (There will be a new table for this.)

Exercise 3 (2 points)

Visualize the search space (= the set of settled nodes) for a number of queries with one of the visualization methods discussed in Lecture 2. Commit a PDF named *arc-flags-search-space.pdf* with a picture of a typical search space to the SVN.

Exercise 4 (1 point)

Don't forget your *feedback-exercise-sheet-3.txt*!