

Summer Term 2021

## Assignment on Computational Geometry - Sheet 3

Due Date 21. 06. 2021

Due by 21. 06. 2021 via email to [weller@informatik.uni-bremen.de](mailto:weller@informatik.uni-bremen.de))

### Exercise 1 (Nearest Neighbors with BSP-Trees, 7 Credits)

Extend the simple recursive algorithm for nearest neighbor search that it can be combined with BSP-Trees.

### Exercise 2 (Front-To-Back-Rendering, 7 Credits)

One application for BSP-Trees you know from the lecture is Back-To-Front-Rendering, i.e. realizing the painters algorithm. Please describe an algorithm based on BSPs that implements *Front-To-Back-Rendering*.

### Exercise 3 (Kinetic Segment Tree, 6 Credits)

Please provide a pseudo code algorithm to update a kinetic segment tree for the case that the segment is extended by an elementary interval from the *left* side.