Online Motion Planning, SS 17
Exercise sheet 11
University of Bonn, Inst. for Computer Science, Dpt. I

- *You can hand in your written solutions until Tuesday, 18.07., 14:15, postbox in front of room E.01 LBH.*

Exercise 31:   **Simple escape path**   (4 points)

1. Is the shortest escape path always unique? Answer the question for convex or non-convex regions R.

2. Show that for non-convex regions the diameter need not be an escape path. Define a path for any simple polygon, that is always an escape path.

Exercise 32:   **Escape path calculations**   (4 points)

1. Show that the median of a triangle is always shorter than the average of the adjacent sites.

2. Show that for $\alpha = 60°$ and Besicovitsch Zig-Zag path, b_α equals $\sqrt{\frac{28}{27}}$.

Exercise 33:   **Escape path proof arguments**   (4 points)

1. Show that Theorems 5.1 and 5.2 also hold for closed escape paths.

2. Give a formal argument that for $\alpha = 60°$ all Zig-Zag path constructions of Figure 5.5 i) are indeed escape paths.