Online Motion Planning, SS 17
Exercise sheet 7
University of Bonn, Inst. for Computer Science, Dpt. I

- *You can hand in your written solutions until Tuesday,* 13.06., 14:15*, postbox in front of room E.01 LBH.*

Exercise 19: Analysis of 2-ray search strategies (4 points)

Analyse the competitve ratio of the following strategies for the 2-ray search problem:

1. $x_i = (i+1)2^i$
2. $x_i = 2 \cdot 3^i$

Exercise 20: Maximal reach calculations (4 points)

a) Implement the strategy for attaining the optimal reach for the 2-ray problem for $C \in [3, 9)$.

b) Present the optimal strategy (max. reach) for $C = 8.5$ and $C = 7.5$.

c) Compute the best strategy (smallest ratio C) if the goal is at most 15 steps away from the start.

Exercise 21: Recurrence solution for $C > 9$ (4 points)

Consider the recurrence $x_0 = 0$ and $x_1 = 1$ and $x_k = D(x_{k-1} - x_{k-2})$ for $k \geq 2$. Solve the recurrence for $D = \frac{16}{3}$ by the means of the lecture! That is, compute the closed form for x_k!