

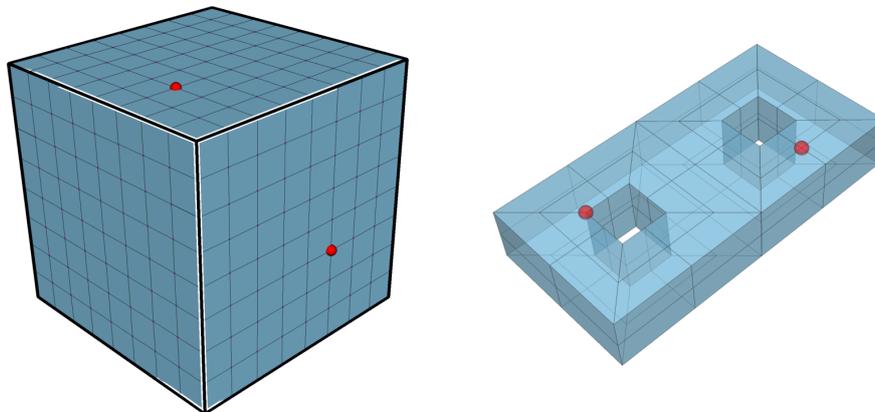
Scientific Visualization – Homework 8

Submission: July, 2nd, 2020, 10:15 am, via email

1. Exercise

(6 points)

- 1.) For the cube shown below (left image) find and sketch two straightest discrete geodesics connecting the two highlighted points, one of them being a shortest, the other one not being a shortest geodesic. Justify your solution.
- 2.) Consider the quadrangulated surface of genus 2 (right image). Find and sketch three straightest geodesics connecting the two highlighted points.



Please turn over.

2. Exercise

(5 points)

Let \mathcal{M} be a simplicial surface and assume a straightest geodesic g approaches a vertex $p \in \mathcal{M}$ with total vertex angle $\Theta(p) > 2\pi$. By definition, g will be extended as a straightest geodesics such that $\Theta_l(p, g) = \frac{1}{2}\Theta(p) = \Theta_r(p, g)$.

Discuss which other polygonal extensions at p will have both angles $\Theta_l(p, g) \geq \pi$ and $\Theta_r(p, g) \geq \pi$ (thus are locally shortest geodesics). Sketch your results.

3. Exercise

(5 points)

Create exactly five slides (in PowerPoint) presenting the current state of your programming project. Therefore, summarize what is already working of the expected tasks and give a brief overview on what has to be managed until submission in table form. You may take some screenshots showing your results.

Remark: The submission of this exercise is mandatory.

Total: 16