

# **Bachelor thesis**

in the subject area of

## **Differential raytrace**

Classical raytrace uses single rays and therefore gives only local information in the image plane. For illumination problems, the photometric properties needs for the consideration of energy densities. Therefore the differential raytrace is proposed, which transports the area of a small element in the object plane. There are several advantages but also problems with differential raytrace. This work should implement a simple method and investigate and solve some of the problems.

The work can be structured in the following steps:

1. Read the relevant literature about differential raytrace
2. Write a Matlab tool for differential raytrace
3. Check the program and evaluate the properties of the method by comparison with analytical solutions and classical raytrace with Zemax
4. Write a flexible Matlab program to simulate illumination by differential raytrace
5. Try to optimize illumination tasks by differential raytrace

Please, send your application preferably by email to

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