

# Efficient Distance Computation in the Isogeometric Analysis

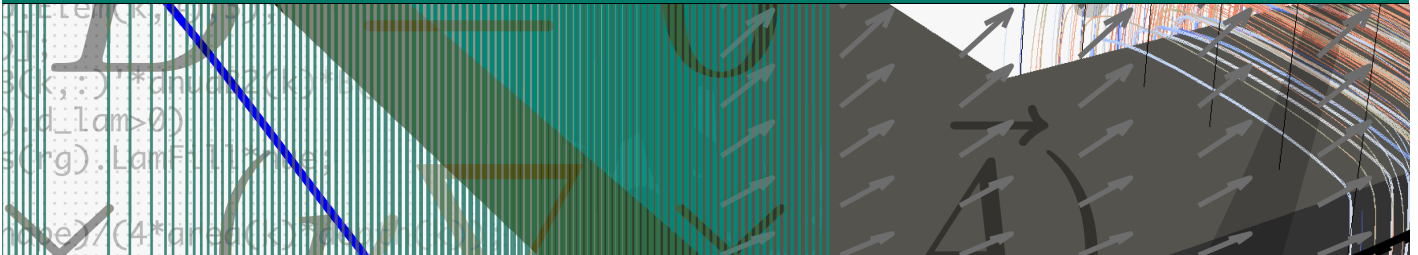


TECHNISCHE  
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Proposal for a Bachelor's thesis

Study field: Computational Engineering | Computer Science | Electrical Engineering | Mathematics

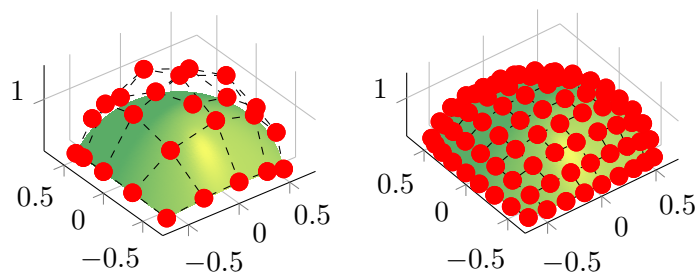
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## Description

When assembling the system matrices of the boundary element method, the distance between two objects must be determined in an efficient way. At the moment, a very rudimentary but fast method is used.

However, one could also use geometric quantities such as the control points and the knot insertion algorithm from isogeometric analysis, as shown below, to do this more accurately. The implementation is carried out in the C++ library Bembel, see [www.bembel.eu](http://www.bembel.eu).



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Figure 1: Bembel Logo

## Work plan

- Study of Bembel and its software architecture, with the help of the libraries authors.
- Brief study of isogeometric analysis and implementation of the method according to coding guidelines.

## Prerequisites

A strong affinity to programming and experience with C/C++ (or the motivation to learn it on short term). Basic understanding of numerical schemes for the solution of partial differential equations.

