Optimization of Skinning of Circles*

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Abstract

Interpolation of geometric data sets has special importance in Computer Aided Geometric Design. If the data set is a sequence of circles then a so called skinning curve can be constructed which touches each of the objects. A new technique has been worked out to compute skins by R. Kunkli and M. Hoffmann [2] applying classical geometric methods and a G^1 continuous skin constructed by Hermite interpolation curves. We tried to optimize the result of [2] by segments using Slabaugh's energy minimization technique [1] and approaching on iterative way using gradient descent procedure. Whereas these methods have not been good enough, so new techniques have been tried based on new combinations of energy functions. The experiences can be used for spatial extensions of the problem. The optimization techniques play an important role in spatial modeling, for example the modeling of the human head [3].

Keywords: skinning, optimization, minimization, energy function

MSC: 65D17

References

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* This research was supported by the TÁMOP-4.2.2.C-11/1/KONV-2012-0001 project. The project has been supported by the European Union, co-financed by the European Social Fund.

The research was also supported by the European Union and the State of Hungary, co-financed by the European Social Fund in the framework of TÁMOP-4.2.4.A/ 2-11/1-2012-0001 'National Excellence Program'.