

Combining and extending the features of circle skinning algorithms

Kinga Kruppa^a, Roland Kunkli^a, Miklós Hoffmann^b

^aFaculty of Informatics, University of Debrecen, Debrecen, Hungary
kruppa.kinga@inf.unideb.hu, kunkli.roland@inf.unideb.hu

^bInstitute of Mathematics and Informatics, Eszterházy Károly University, Eger, Hungary
hoffmann.miklos@uni-eszterhazy.hu

Abstract

In the last few years there has been a growing interest in the topic of skinning of circles, i.e. computing a pair of envelope-like curves touching a predefined set of circles. Skinning of spheres also plays an important role in computer graphics; it can be applied in several areas, such as medical and biological applications or character animation.

An efficient method has been worked out by Kunkli and Hoffmann [1], and Bastl et al. also provided a simple yet effective algorithm [2] for skinning circles in the plane. In this talk, we present a novel approach which combines the advantages of the two aforementioned methods but also gives a solution to the the major deficiencies of them. Our improved technique guarantees smooth transition in the designing phase and also provides better results at the construction of the skinning curves in extreme cases.

Keywords: circle, interpolation, skinning

MSC: 65D17

References

- [1] KUNKLI, R., HOFFMANN, M., Skinning of circles and spheres, *Computer Aided Geometric Design* Vol. 27 (8)(2010), 611–621.
- [2] BASTL, B., KOSINKA, J., LÁVIČKA, M., Simple and branched skins of systems of circles and convex shapes, *Graphical Models*, 78 (2015), 1–9.