Designing interactively with elastic splines

We present an algorithm for designing interactively with C1 elastic splines. The idea is to design the elastic spline using a C1 cubic polynomial spline where each polynomial segment is so close to satisfying the Euler-Lagrange equation for elastic curves that the visual difference becomes negligible. Using a database of cubic Bézier curves we are able to interactively modify the cubic spline such that it remains visually close to an elastic spline.

General information
Publication status: Published
Organisations: Department of Applied Mathematics and Computer Science, Mathematics, Image Analysis & Computer Graphics
Corresponding author: Fisker, A.
Contributors: Brander, D., Bærentzen, J. A., Fisker, A., Gravesen, J.
Number of pages: 11
Pages: 181-191
Publication date: 2018
Peer-reviewed: Yes

Publication information
Journal: Computer-Aided Geometric Design
Volume: 62
ISSN (Print): 0167-8396
Ratings:
BFI (2018): BFI-level 2
Scopus rating (2018): CiteScore 1.67 SJR 0.736 SNIP 1.186
Web of Science (2018): Impact factor 1.421
Web of Science (2018): Indexed yes
Original language: English
Keywords: Elastic curves, Cubic splines, Computer-aided design, Hot-blade cutting
DOIs:
10.1016/j.cagd.2018.03.007
Source: PublicationPreSubmission
Source ID: 145297151
Research output: Contribution to journal › Journal article – Annual report year: 2018 › Research › peer-review