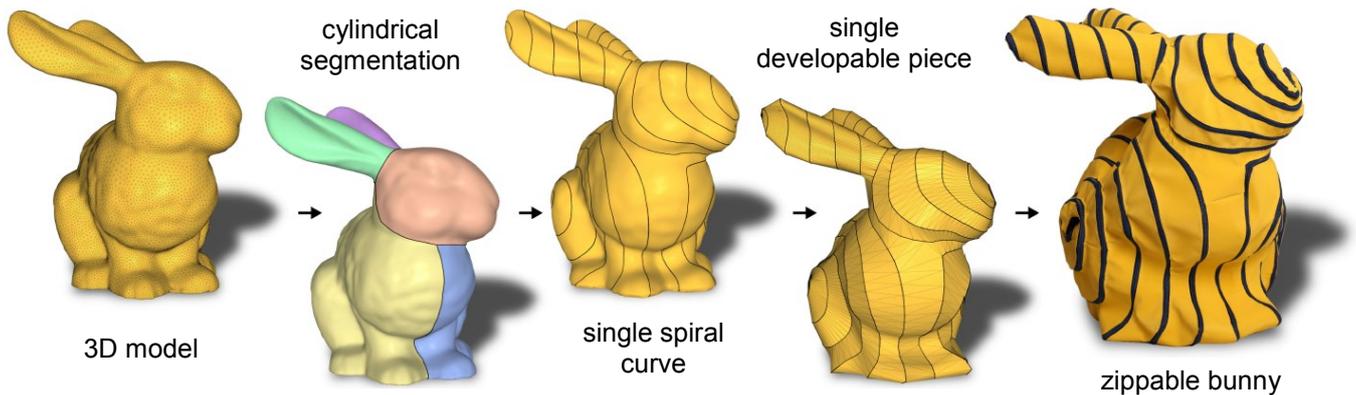


Licensing Opportunity

Design and fabrication tools for zippable models



Summary

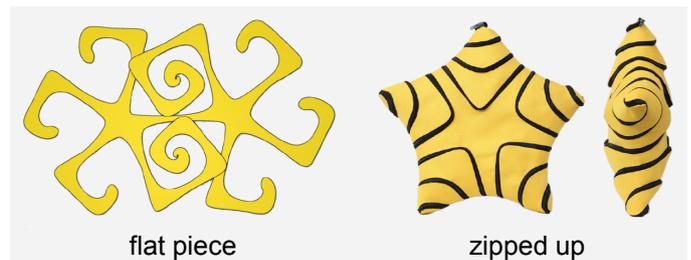
The tools can be used to design a zippable version of a given 3D object. The method facilitates the work of designers and artists.

Background

A “zippable” is a flat piece of fabric with a zipper around its boundary that can be quickly zipped up to form a 3D object. Designing such an object is virtually impossible without the assistance of a computer. A technology is sought that makes the modelling process simple and allows for extensive creative freedom.

Invention

The proposed algorithm aids in the design of zippables for arbitrary 3D objects. The cut pattern for the zippable is found by first drawing a long, spiralling curve over the 3D object, using an intuitive user interface. The tool is easy to use and allows for artistic choices for enhancing visual effects. The shape is then approximated by a developable surface (e.g. a surface that can be flattened without straining), and then accurately modified to account for the zipper itself. Finally, a cut pattern for the zippable and a corresponding “fastening rig” for easily attaching the zipper, are computed. These can be cut using a laser cutter, for example.



Features & Benefits

- Work with arbitrary 3D shapes, highly intuitive
- Fabrication with the fastening rig requires little training

Fields of Application

- Building hollow 3D structures from flat material
- Design of toys, fashion accessories, complex cover coats or shells

Patent Status

- Patent pending

Publication

- Schüller C., Poranne R., Sorkine-Hornung O., “Shape representation by zippable ribbons”, ACM Transactions on Graphics (Proceedings of ACM SIGGRAPH) 2018

Technology Readiness Level



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