
A preliminary investigation for origami-inspired reconfigurable structure design by 4D printing

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Résumé

This paper presents a preliminary investigation on 4D printed reconfigurable 3D structures. Origami structure and folding mechanism is adopted to help define 2D topology of 3D transformable structures. A special resin hinge is designed and printed to realize the folding function of origami creases. An experimental case study is presented to show the design and implementation of a reconfigurable 3D structures via 4D printing. The investigation shows that, with advanced design and modelling tools, 4D printing has a great potential to fabricate complex 3D transformable structures for different application domains via the use of smart materials.

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