

The Applications of Wire Print in Composite Material Research and Fabrication Process

Authors : Hsu Yi-Chia, Hoy June-Hao

Abstract : FDM (Fused Deposition Modeling) is a rapid proofing method without mold, however, high material and time costs have always been a major disadvantage. Wire-printing is the next generation technology that can more flexible, and also easier to apply on a 3D printer and robotic arms printing. It can create its own construction methods. The research is mainly divided into three parts. The first is about the method of parameterizing the generated paths and the conversion of g-code to the wire-printing. The second is about material attempts and the application of effects. Third, is about the improvement of the operation of mechanical equipment and the design of robotic tool-head. The purpose of this study is to develop a new wire-print method that can efficiently generate line segments and paths in three- dimensions space. The parametric modeling software transforms the digital model into a 3D printer or robotic arms g-code, this article uses thermoplastics/ clay/composites materials for testing. The combination of materials and wire-print process makes architects and designers have the ability to research and develop works and construction in the future.

Keywords : parametric software, wire print, robotic arms fabrication, composite filament additive manufacturing

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