

Systems, Methods, And Media For Controlling Support Structures And Build Orientation In Manufacturing

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The Invention

In accordance with some embodiments, systems, methods, and media for controlling support structures and build orientation are provided. In some embodiments, a method for additive manufacturing a part using a three dimensional (3D) printing system, the 3D printing Qsystem including a print head and a build plate is provided, the method comprising: receiving a plurality of physical constraints associated with the part; optimizing a build orientation of the part to identify an optimized build orientation * for the part with respect to a design domain defined by the physical constraints based on the plurality of physical constraints, and a plurality of design constraints using at least one variable associated with build orientation as an optimization variable, the plurality of design constraints comprising: an initial build orientation 0; and a critical surface slope angle •; and generating a part model based on the optimized build orientation *

Tech Fields

- Engineering : Additive manufacturing
- Information Technology : Computing methods, software & machine learning

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