

# *AUTOMATED FREEFORM FABRICATION*

*A more accessible Non-Planar workflow for the AEC industry.*

Chris Chidiac  
z5165382

# *The Problem*

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"I printed a mountain on my S5. It only took 100 billion years. Still need to sand it though." ...said God.







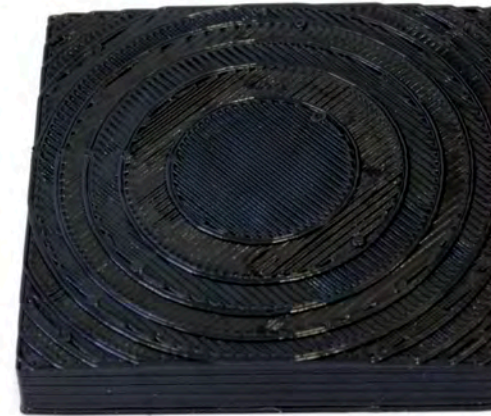
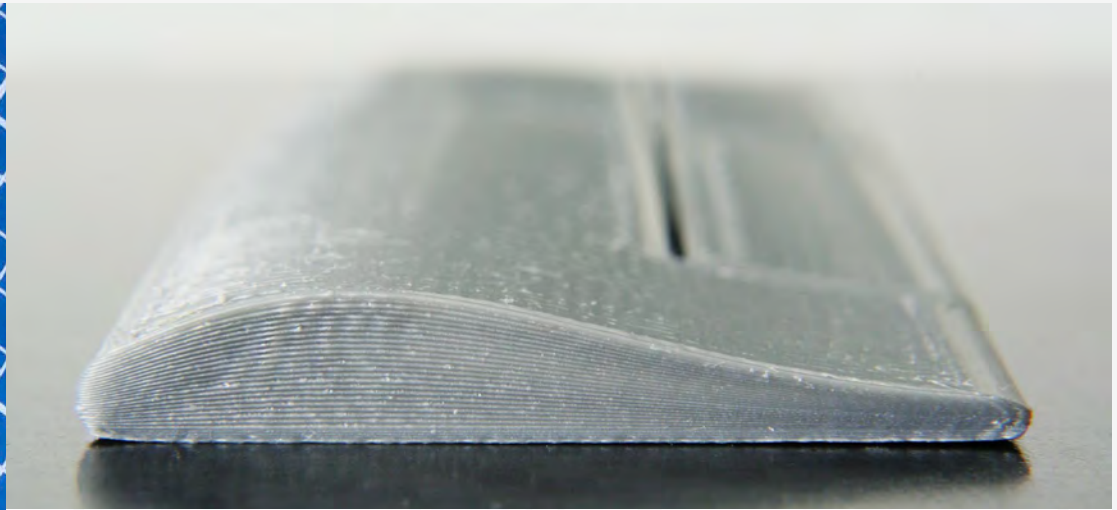
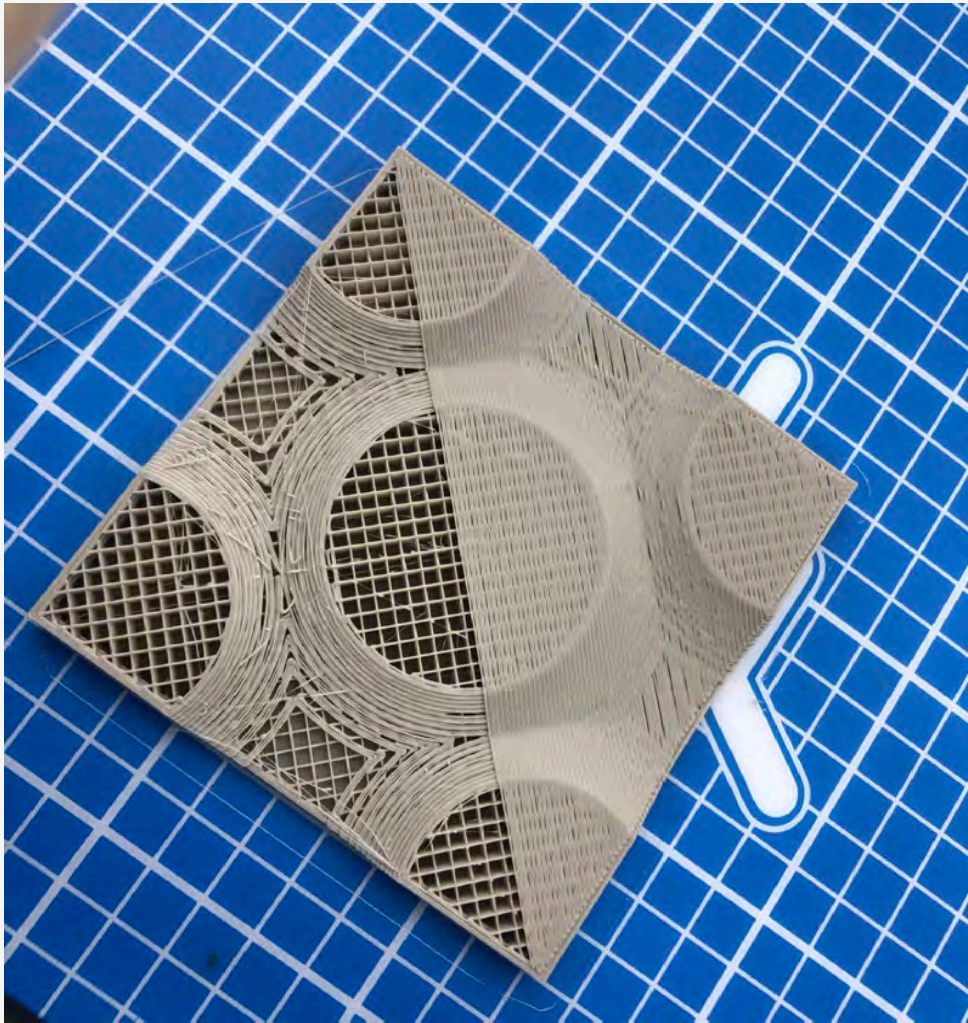




*WHY DOES IT  
MATTER?*







(a)



(b)

# *NON-PLANAR PRINTING*

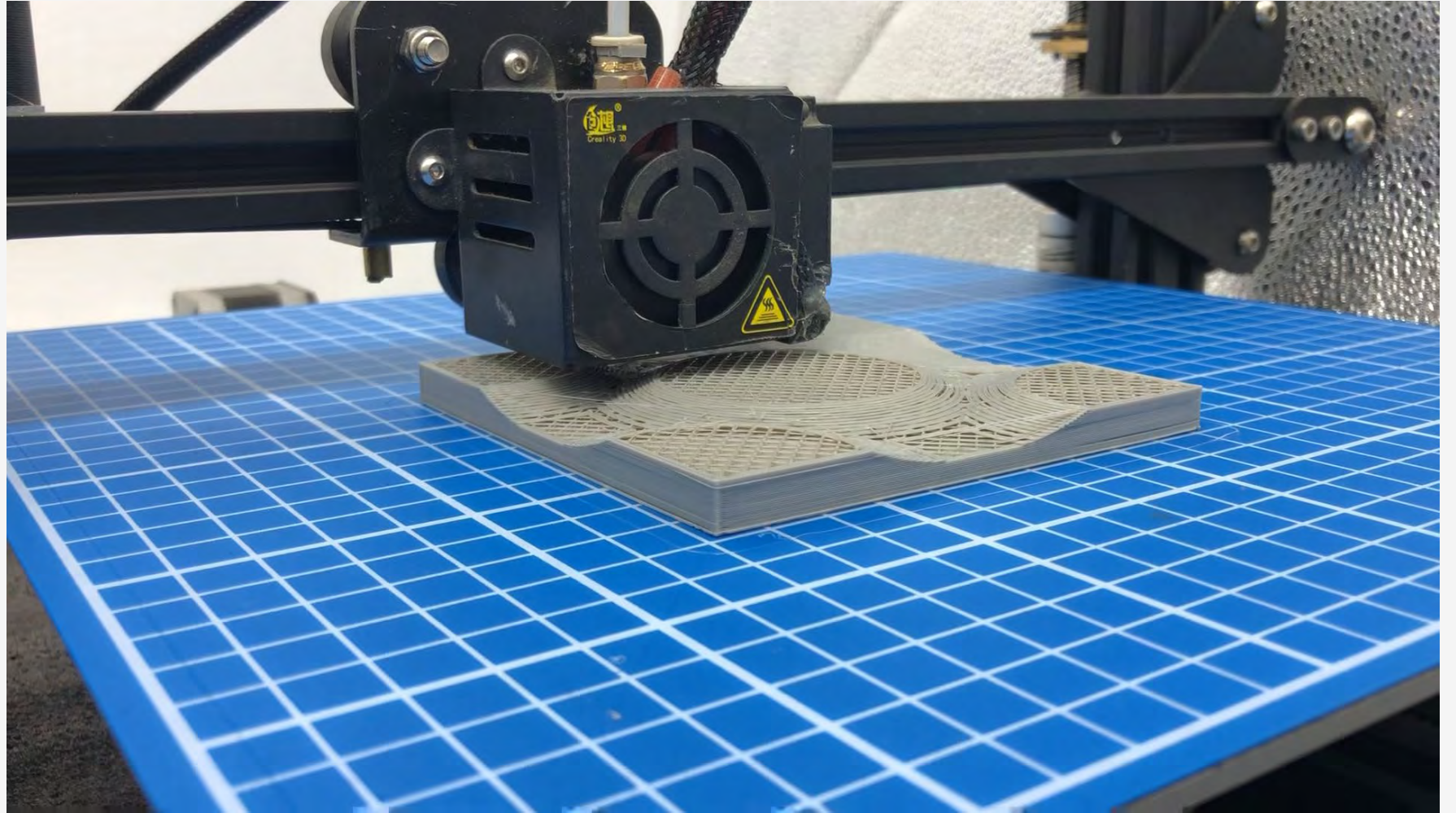
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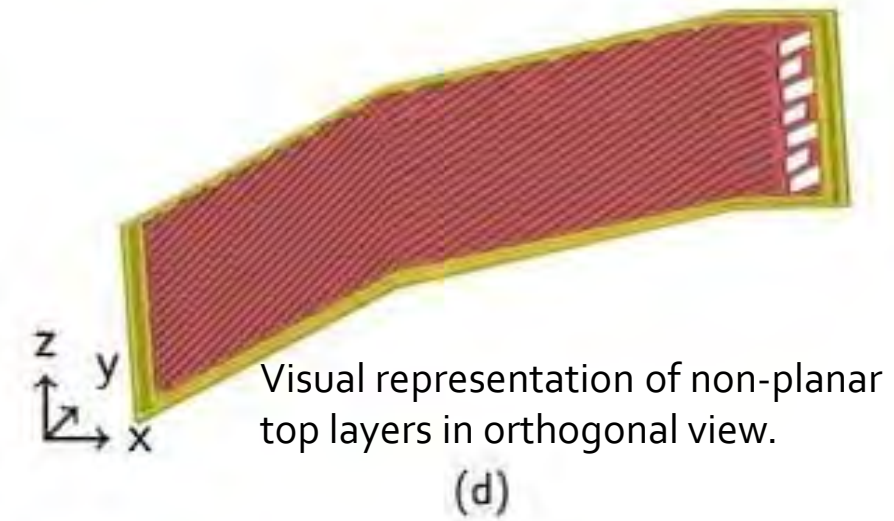
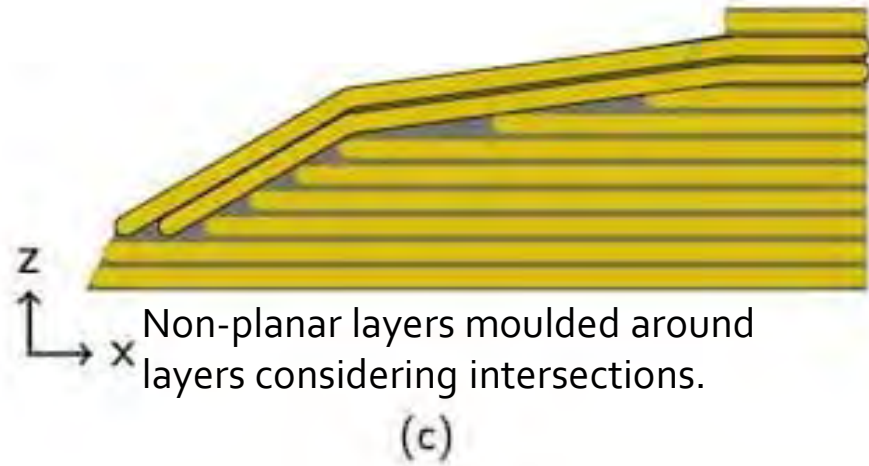
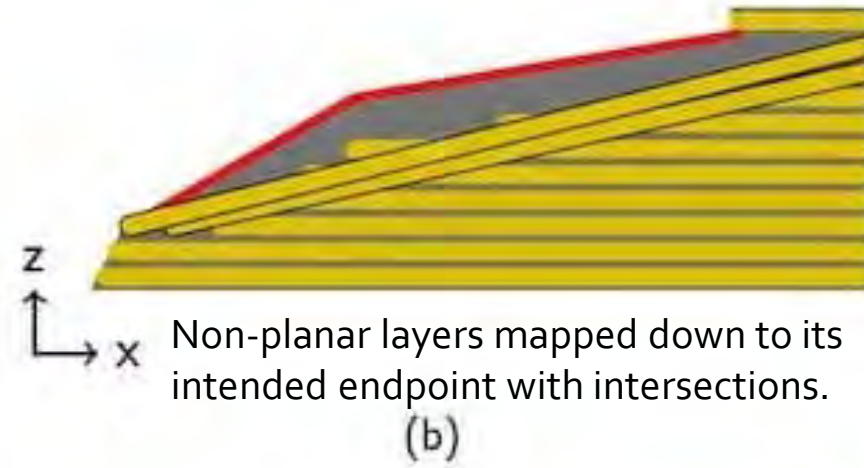
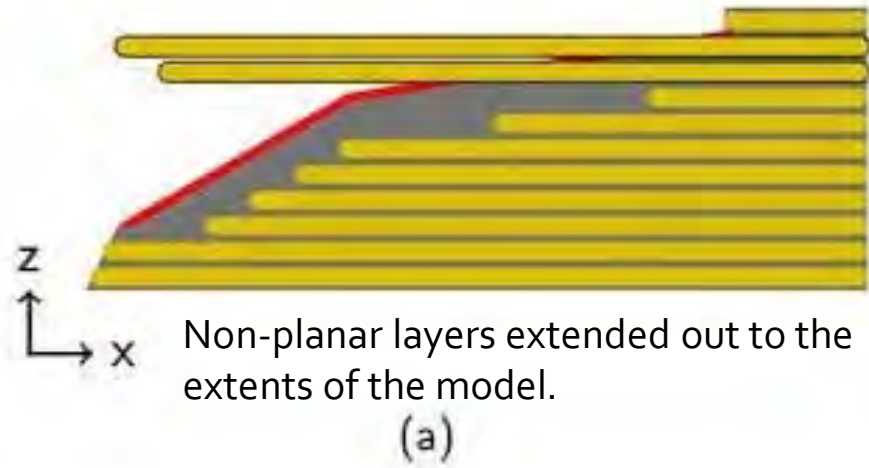
*So what is  
it?*



# *Non-Planar Printing*







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Zip-o-mat / Slic3r  
forked from slic3r/slic3r

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Code Issues 8 Pull requests 0 Projects 0 Security Insights

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Slic3r with integrated electronics and Nonplanar slicer (see branches)

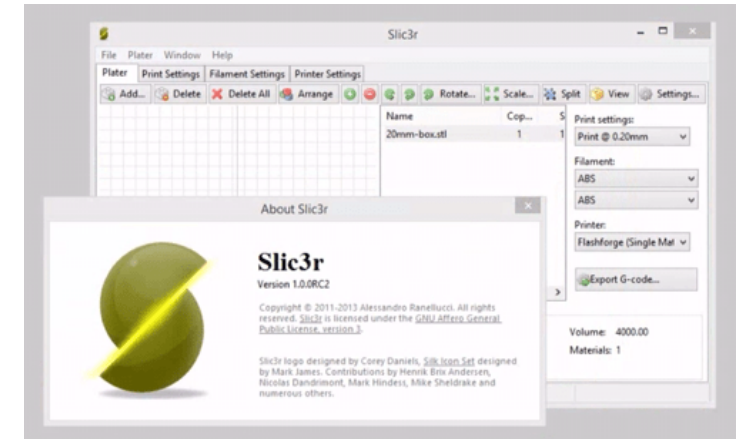
4,875 commits 35 branches 0 packages 54 releases 74 contributors AGPL-3.0

Branch: nonplanar-thes... New pull request Find file Clone or download

This branch is 85 commits ahead, 1556 commits behind slic3r/master.

Zip-o-mat corrected movement on new objects and removed timing prints Latest commit cb46fed on Oct 17, 2018

.github	Added note about not reporting Prusa3d bugs here.	3 years ago
cmake/modules	Adapted CMake Perl implementation by @bubnikv and @CReimer.	2 years ago
doc	Documented the build process	3 years ago
lib	added collision detection for nonplanar surfaces	last year
package	Merge branch 'master' into cmake	2 years ago
share/locale/ja	Allows hiding of the Controller tab (controller tab still defaults to...	2 years ago
src	added different nonplanar surfaces to get more than one nonplanar sur...	last year
t	Fix external perimeter width to nozzle diameter to avoid auto width m...	2 years ago
utils	Added toolchange command strip for dual-on-single applications.	2 years ago
var	Merge branch 'adaptive-slicing' into merge-adaptive	2 years ago



# CURRENT METHODS

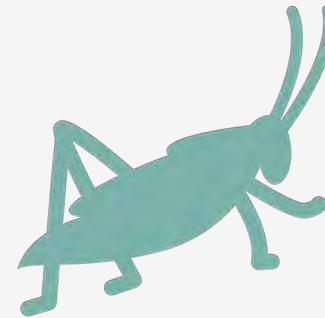


# *Aims*

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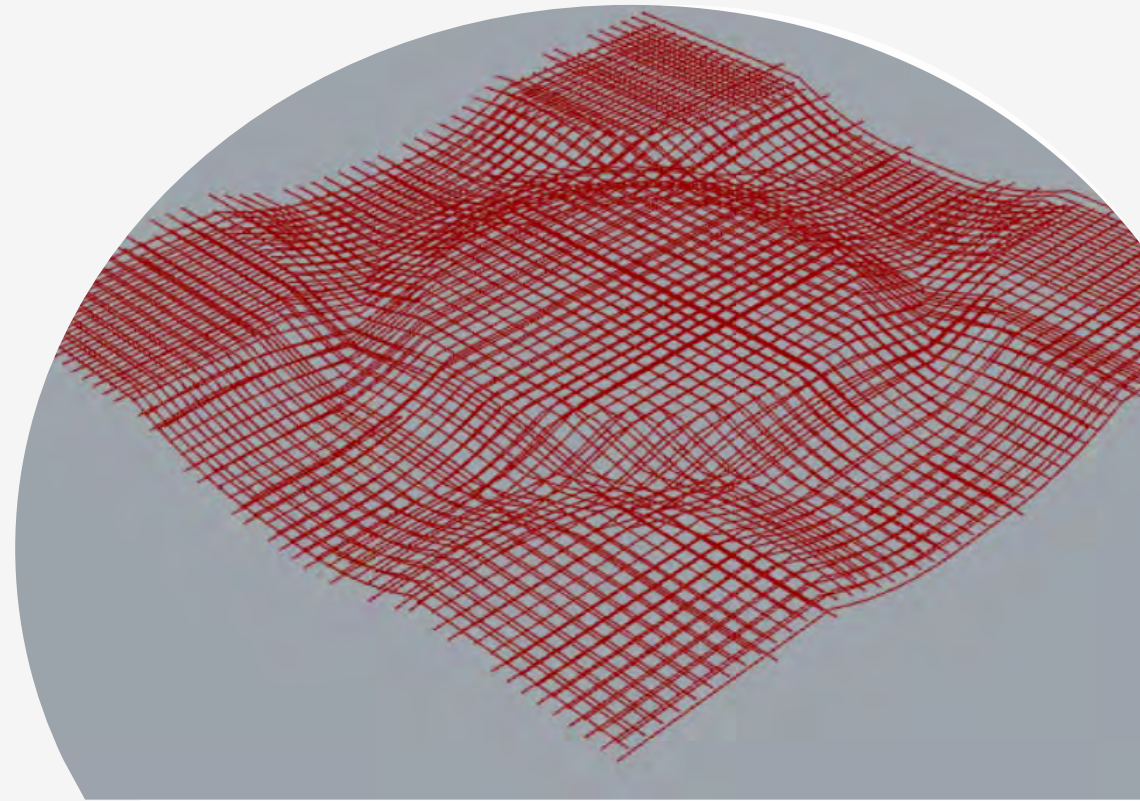
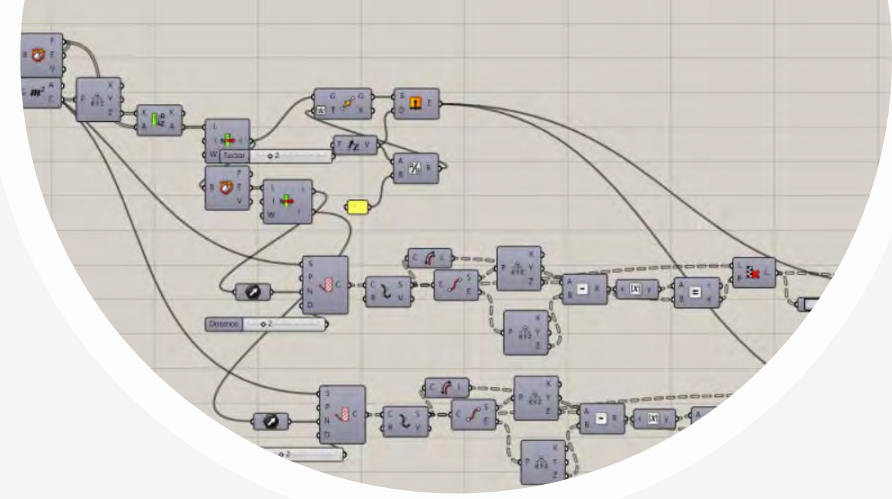
How can a Non-planar workflow can be made more accessible to individuals in the AEC industry with limited computational understanding?



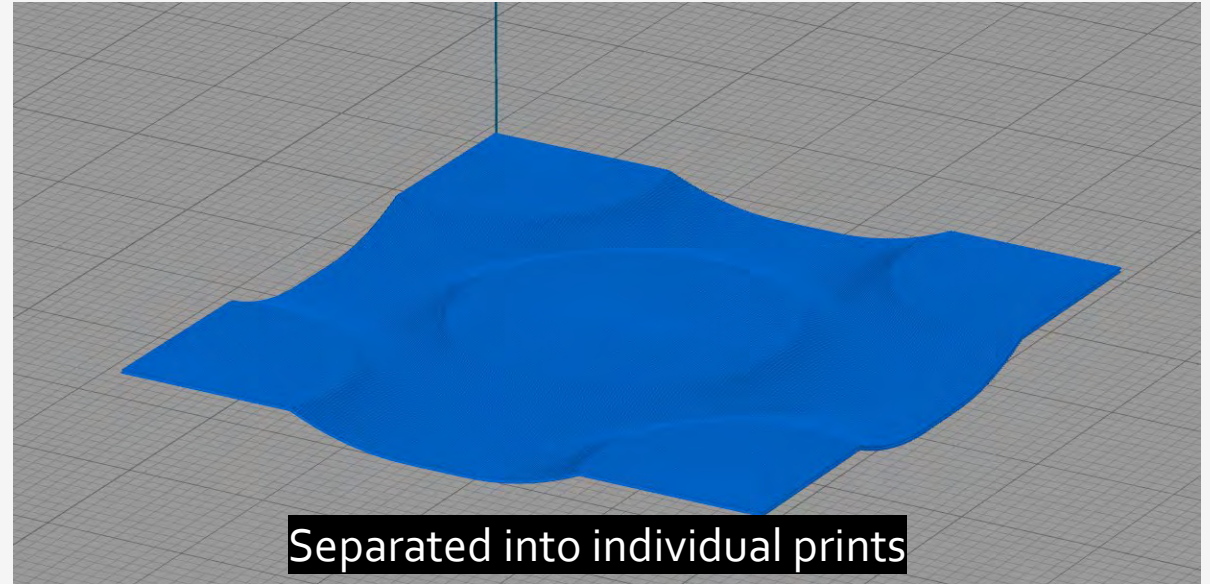
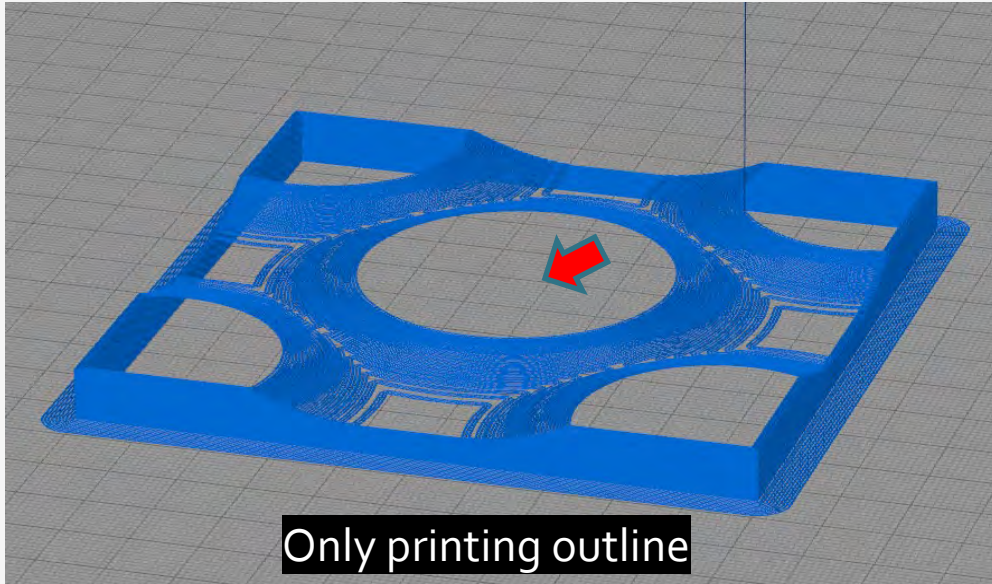
And how are Rhino/Grasshopper able to correct issues that exist in the current non-planar workflow?

# *First Iteration*

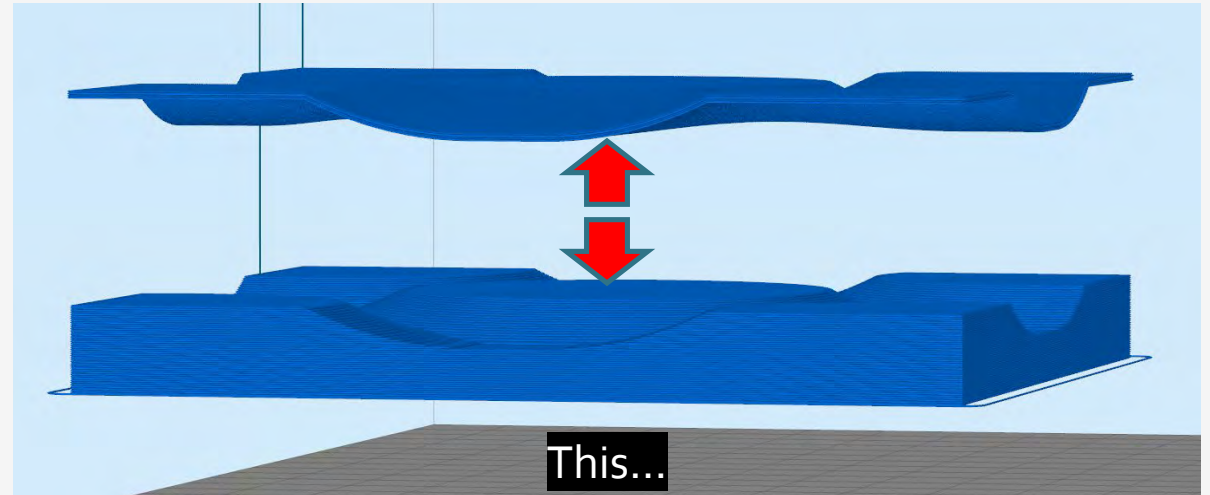
- Contours
- Changing layer direction
- Consistent layer height
- Variable top layers





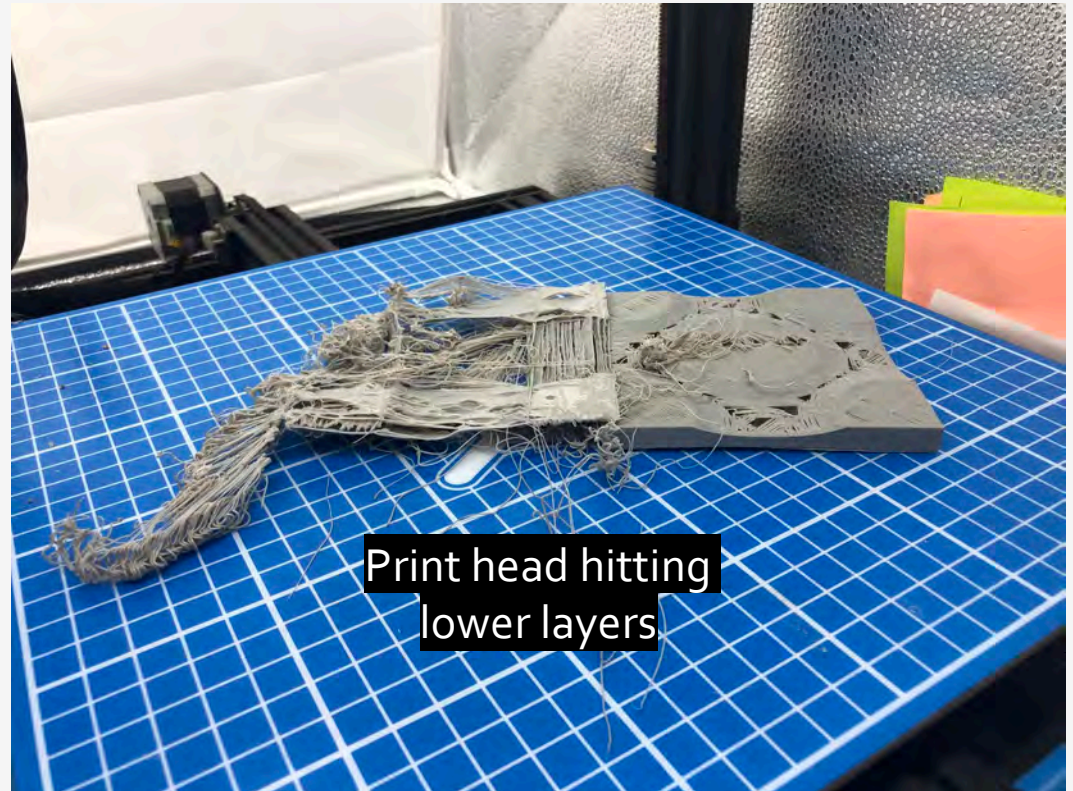
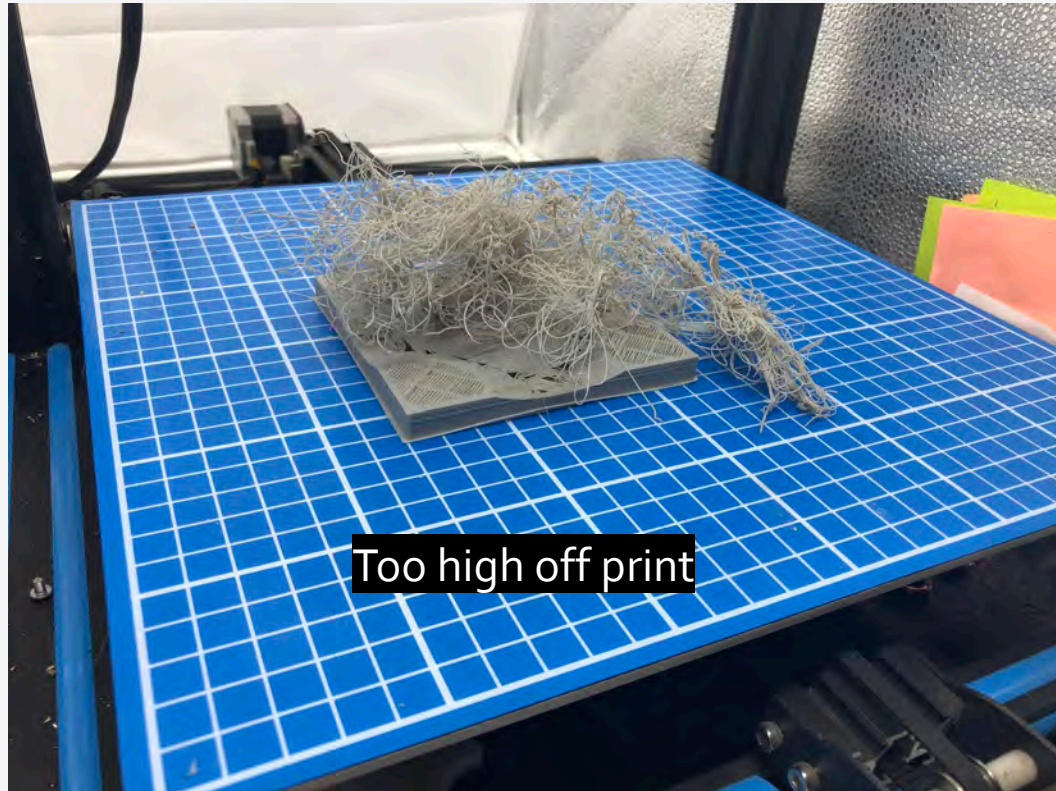


*Iterations*





# *Iterations*

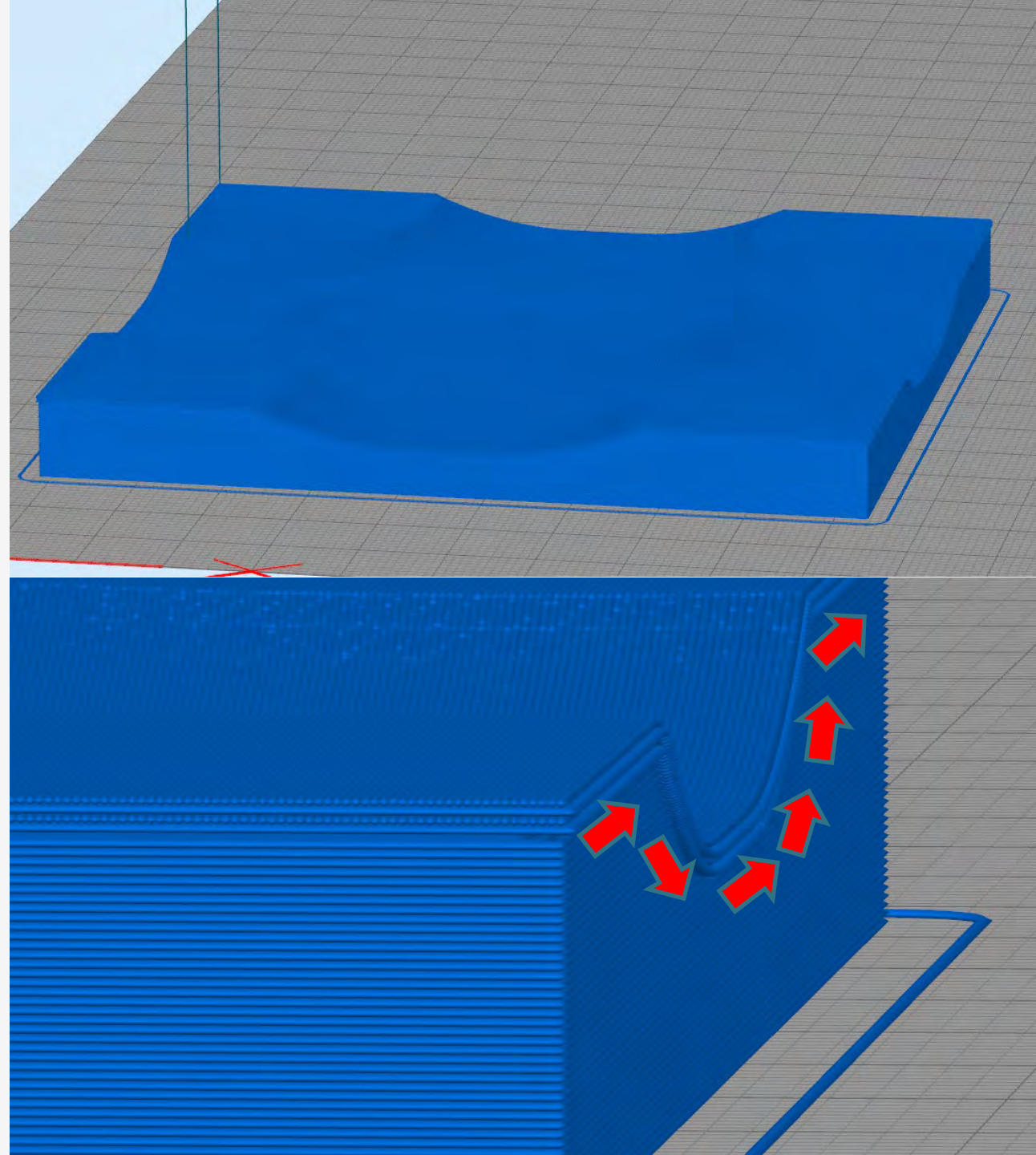




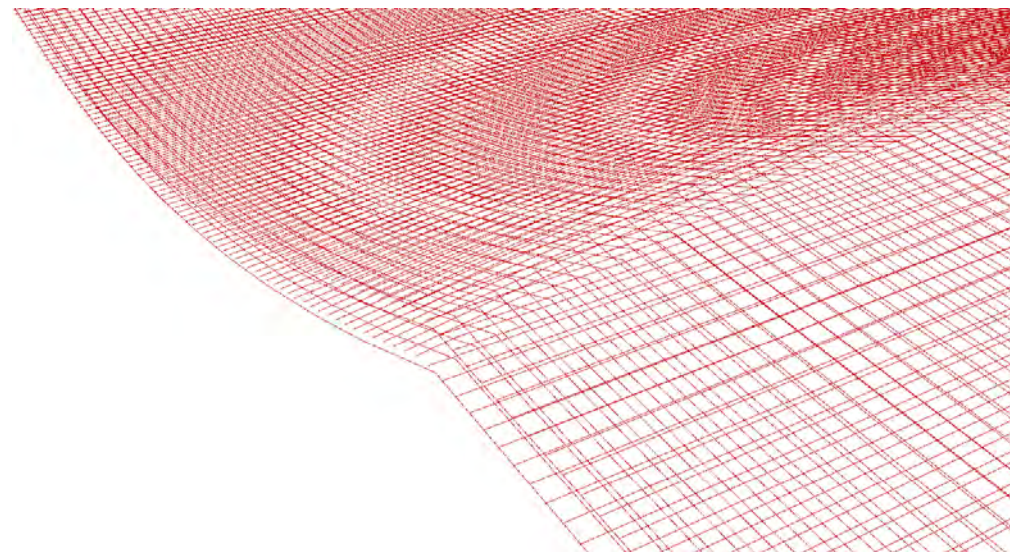
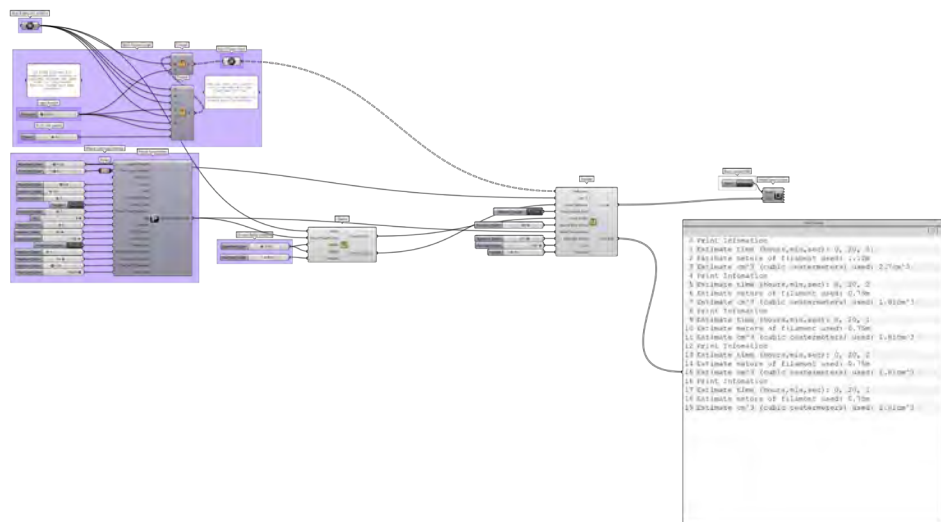
# Iterations

- test\_nonplanar\_print 2.gcode
- test\_nonplanar\_print 2-1.gcode
- test\_nonplanar\_print 4.gcode
- test\_nonplanar\_print 4-1.gcode
- test\_nonplanar\_print 4-2.gcode
- test\_nonplanar\_print 4-3.gcode
- test\_nonplanar\_print 4-4.gcode
- test\_nonplanar\_print 5.gcode
- test\_nonplanar\_print 6.gcode
- test\_nonplanar\_print 7.gcode
- test\_nonplanar\_print 8.gcode


# *CURRENT STATUS*








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Apps for Rhino and Grasshopper

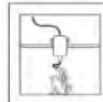
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GRIFFIN (by Chidzzy)



Griffin is a grasshopper definition, created as part of a research project, into creating a more accessible alternative to generate planar and non-planar geometries. This is a work-in-progress script and has a few flaws. This script is made possible with the combination of other plugins, like Droid and Pufferfish, and will require them to be installed on your device to function optimally.

Again, this is a work in progress script and still has some collision detection issues that need resolving, any and all constructive criticism is welcome.

☆☆☆☆☆

Download

Downloads:  
11

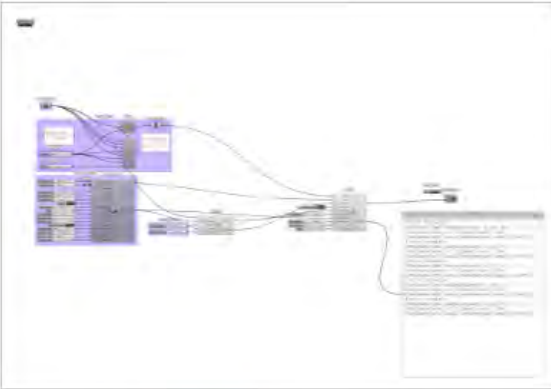
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Resource Type: Grasshopper definition





Reviews

+ Add new review



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*THANK YOU*