

SUB-FABRICATOR : Exploring Subtractive Fabrication

Fabricate Objects as the Output of Processing Codes

Sub-Fabricator is a framework that enables Processing users to fabricate objects as the output of their Processing codes. The goal of Sub-Fabricator is providing a simple way for Processing users to exhibit their code outputs in form of fabricating prototypes through connecting Processing and Rhino GrassHopper while enabling users to create their desired forms in an interactive or a static way.

Processing has provided users a free and easy programming environment where they can write their own programs or applets for creating digital art, from an image processing program to an interactive webcam applet. Besides, there is a handful of libraries for Processing that enables users create applets which can perform wide range of tasks, such as creating 3d Objects from analysis of sound, simulating generative algorithm and However, it might not be easy for many users to exhibit their code outputs in a real medium such as tangible materials rather than virtual mediums like projections or web-applets.

In the other hand, GrassHopper, a plug-in for Rhino3D, provides a limited programming environment for creating generative art forms which might not be as easy and feasible as learning Processing. In addition creating a generative art out of sound, as an example, in GrassHopper could be a tedious task to do. In despite of that, fabricating art forms created by GrassHopper is as simple as possible.

Taking advantages of both, Sub-Fabricator provides a link between Processing and Grasshopper. Processing users can use Sub-Fabricator by implementing sub-fabricator interface for writing their code. They should provide Sub-Fabricator their code as a class which creates a set of drill paths for CNC router or milling robot. Then they can statically preview the output of their code or interactively create outputs in Sub-Fabricator user interface, which also runs in Processing. After adjusting their desired parameters for fabrication in Sub-Fabricator interface, they can send their desired output to GrassHopper. Additionally, they can, simply, tweak the outputs in GrassHopper Sub-Fabricator definition. From GrassHopper, users can send their file for fabrication.

Sub-Fabricator supports these features:

- Creating drill points or milling paths for one layer and multiple layer fabrication
- Interactive creation of drill points or milling paths
- 3d Environment for previewing outputs in Processing
- One sided and double sided milling or drilling
- Tessellating outputs on surfaces

