

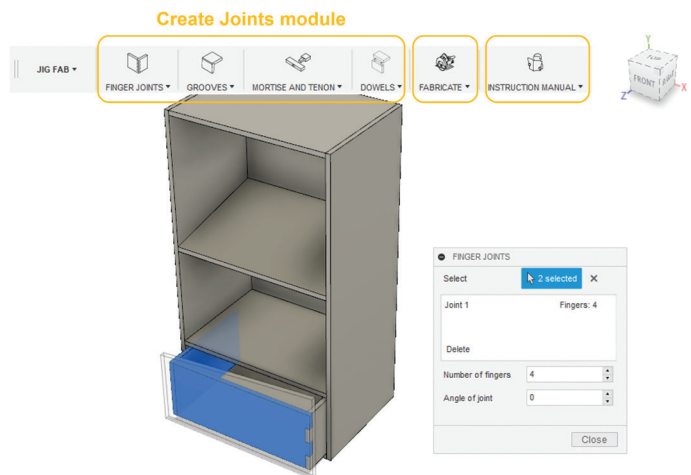
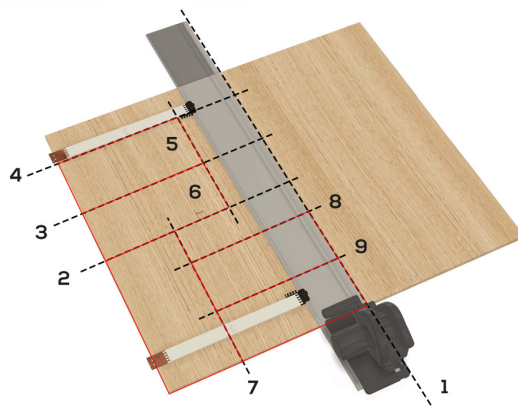
LICENSING OPPORTUNITY

JigFab: Computational fabrication of constraints to facilitate woodworking with power tools

INTRODUCTION

Woodworking is a cherished craft that takes years of training and skill to master. One of the most challenging steps of any woodworking project is making jigs for specialized cuts on your work piece. In fact, these jigs will often take just as much artistry, time, and ingenuity to create as the piece itself.

We saw this as an opportunity to augment this traditional hand craft with the best that digital fabrication has to offer, and so we made JigFab: a computational tool that automates the design and construction of woodworking jigs. JigFab consists of a digital tool that offers support for craft projects by augmenting the tool with laser cut constraints. The current version of JigFab offers jigs to support the user in every operation required to go from raw material to the final work piece. Unlike commercially available generic jigs, our laser cut constraints are custom to the work piece and therefore do not require complex setups and fine-tuning.



KEY FEATURES

JigFab is a tool that offers support in woodworking projects. This support starts with the JigFab design environment (to be used as a plugin for Autodesk Fusion 360), that allows the creation of custom designs, including woodworking joints between parts. Once a design is finished and ready for realization, custom laser cut constraints are generated, including an interactive 3D step-by-step instruction manual, offering guidance in every step to go from a pile of raw material to the desired work piece.

Jigfab's design environment:

- supports the design and fabrication of custom artefacts, such as furniture
- supports constraints for making 16 types of joints between parts
- generates custom laser cut constraints
- generates an interactive 3D step-by-step instruction manual
- is a plugin for Autodesk Fusion 360

ADVANTAGES

JigFab speeds up and facilitates the workflow for using popular power tools by:

- replacing user's measurements with laser cut constraints that configure the power tools
- embedded toolpaths that restrict power tools to only valid movements

OUTSTANDING OPPORTUNITY

Patent application available for licensing. Hasselt University, LUCA School of Arts and KULeuven are searching for interested parties to complete commercialization.

MORE INFORMATION

Scientific publication: D. Leen, T. Veuskens, K. Luyten, R. Ramakers, CHI 2019

Website: www.raframakers.net/wiki/Main/JigFab

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