

<https://cs448m.github.io/>

Making Making Machines

for

Makers

Pat, Doug, Anh

Audience

You're a maker

Favorite craft or crafts

Favorite material or materials

Something you want to make

Augment your process with technology

Additional goal: Research project in fabrication

Makers

Pat





Doug





Anh

A close-up shot of a person's hands using a Makita orbital sander to finish a piece of wood. The wood features a detailed black silhouette of an alligator. The sander is held firmly, and the person's hands are visible as they guide it across the surface. The background shows a workshop environment.

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CC HD □ []

Gunflint
DESIGNS

Mark, Gunflint Designs

I mentioned that I don't think most fab research doesn't appeal to many makers. Almost everyday I watch a youtube video of someone making something. There are 1000's of makers publishing videos.

Here is the one I watched last night.

<https://www.youtube.com/watch?v=1ujc1ht4c44>

Questions to contemplate as you watch.

1. What motivated him to make the object? Why is it meaningful to him?
2. What materials did he use? How did the choice of the particular material influence the project?
3. How did he design a process to make it? What is unique about the process?
4. How did he iterate as he went to produce something he was happy with in the end?

Pat

Karen James reply

"I think one thing non-makers maybe don't fully appreciate is that for makers it's not the end result that's most important. It's the journey to the completed vision that makes making so fun and rewarding and rich with potential. It's coming up with an idea, looking at what we have to work with, thinking about how we can manipulate those materials into something we envision, and then incrementally solving little problems until we come to some satisfying representation of whatever it was we were trying to make or see or do. The fun is in the surprises we find and small victories we make along the way. 3d printing can distance the maker from that process a bit, I think."

Trades



WHERE WOODWORKERS LEARN

Screenshot

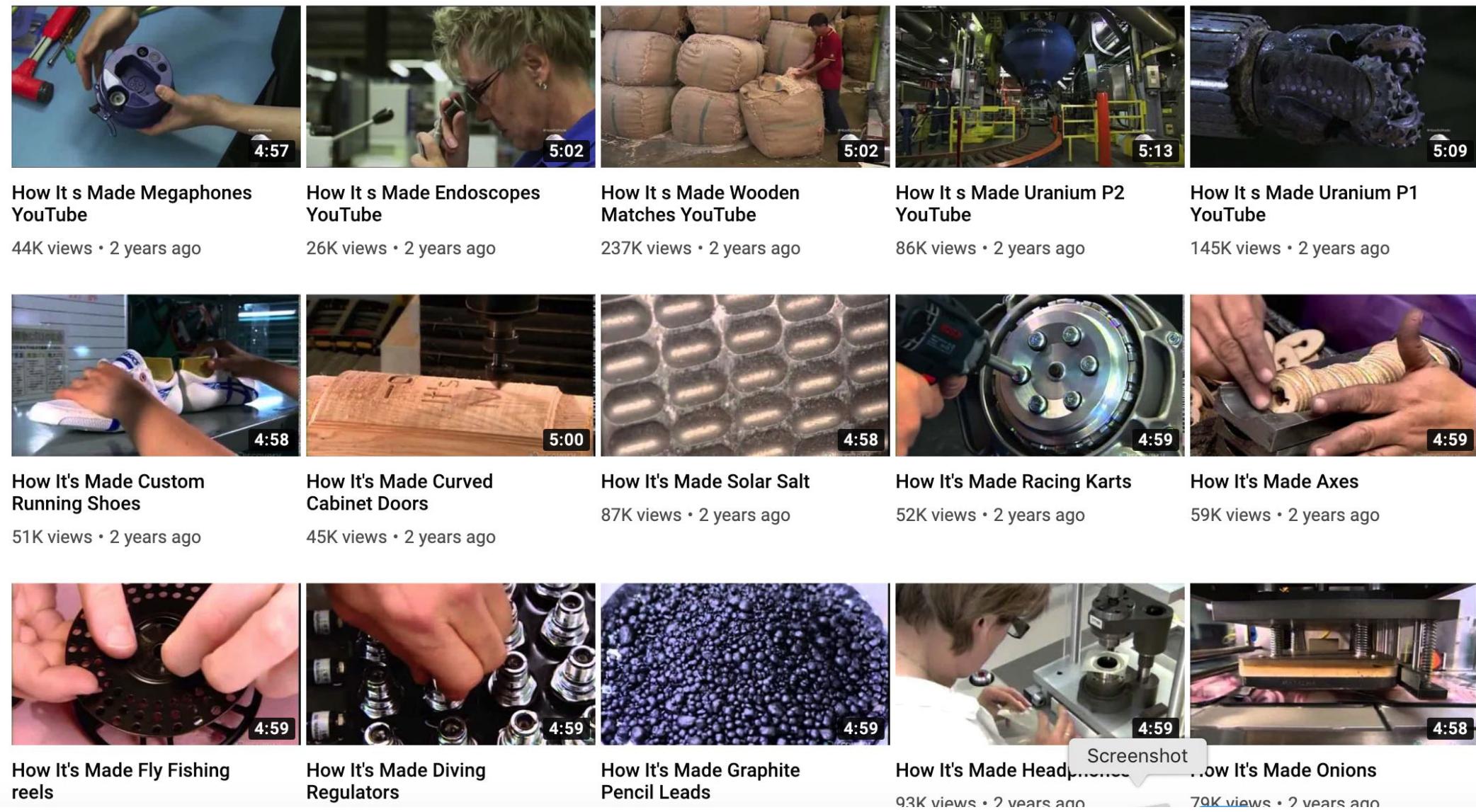
Ron Paulk



Industries

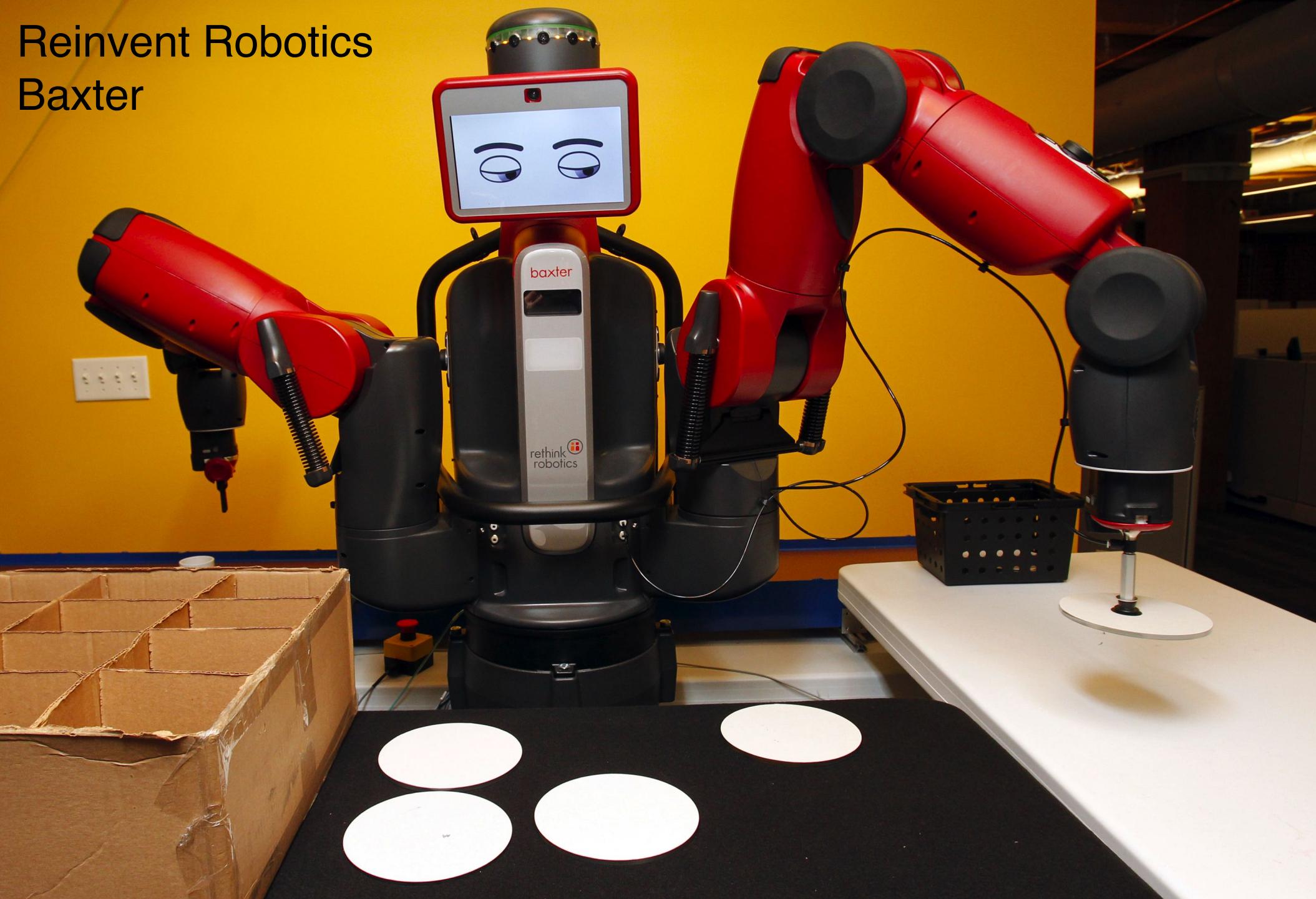
Reinventing Manufacturing

Factory of the Future



Reinvent Robotics

Baxter



Syllabus

- 1 -

Intro to Making

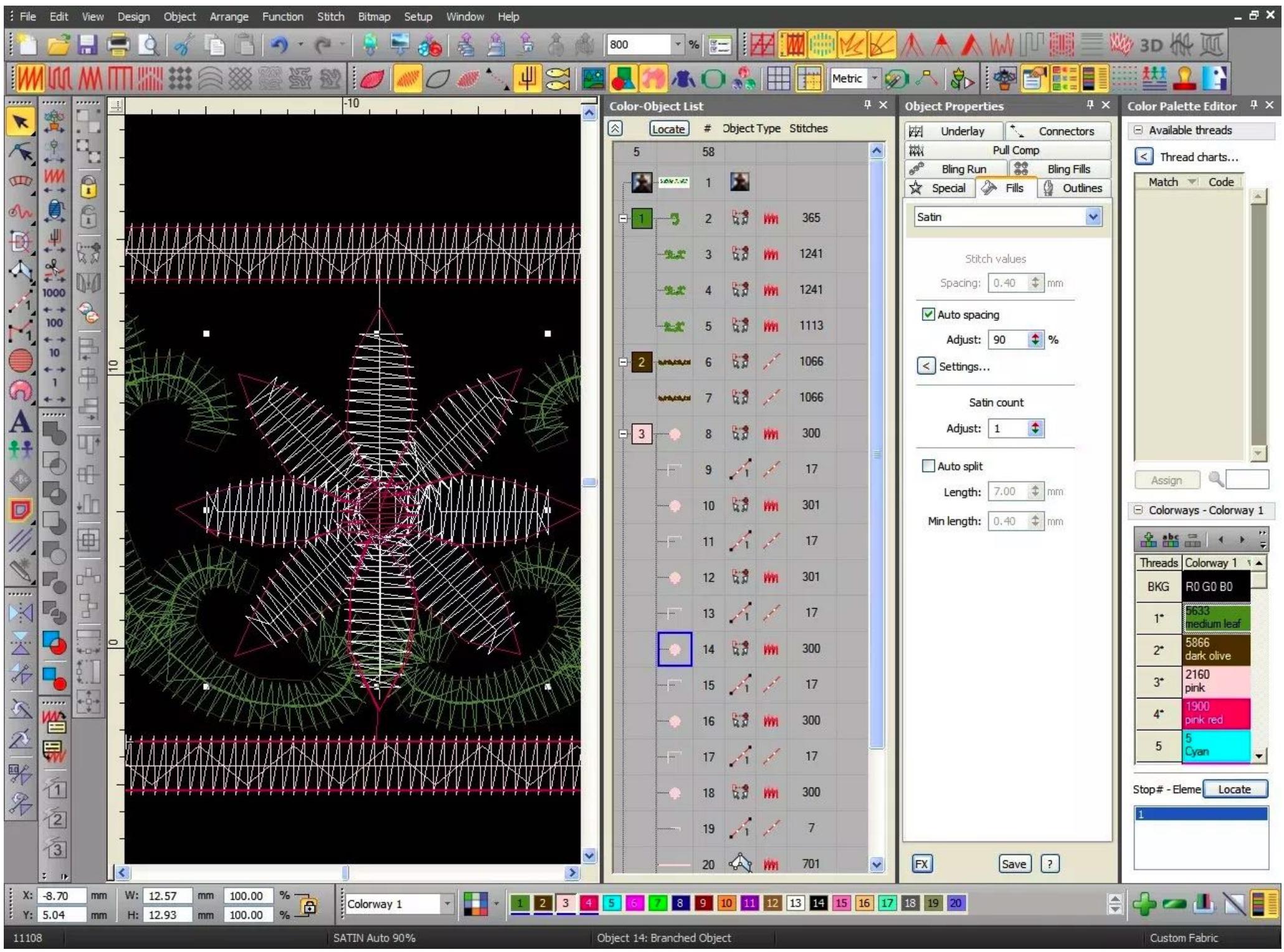


Machine Embroidery



Ecouniverse

<https://www.mrxstitch.com/three-top-digitizing-tips/>





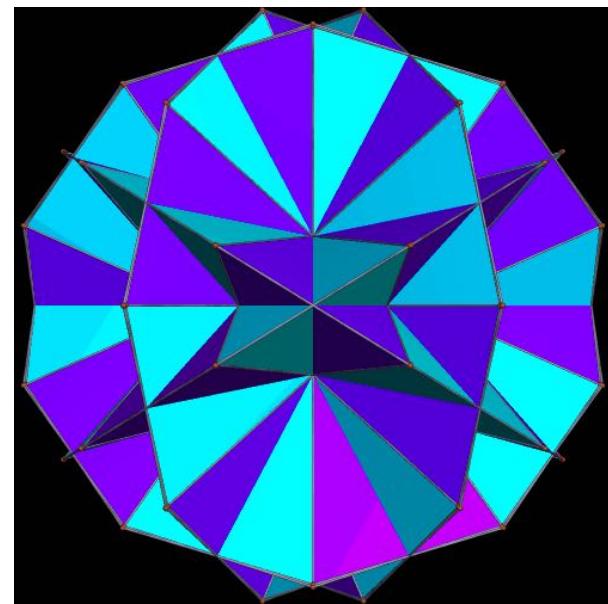
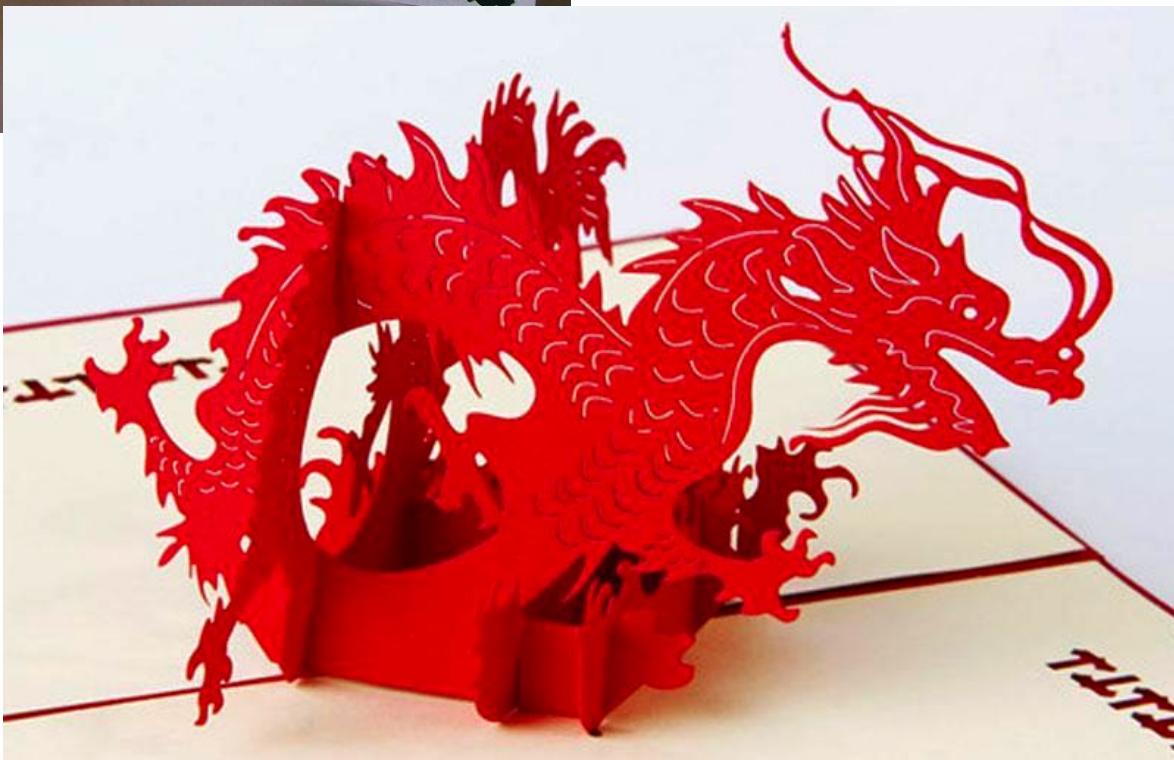
Hand Embroidery



Cricut Maker



Silhouette Cameo

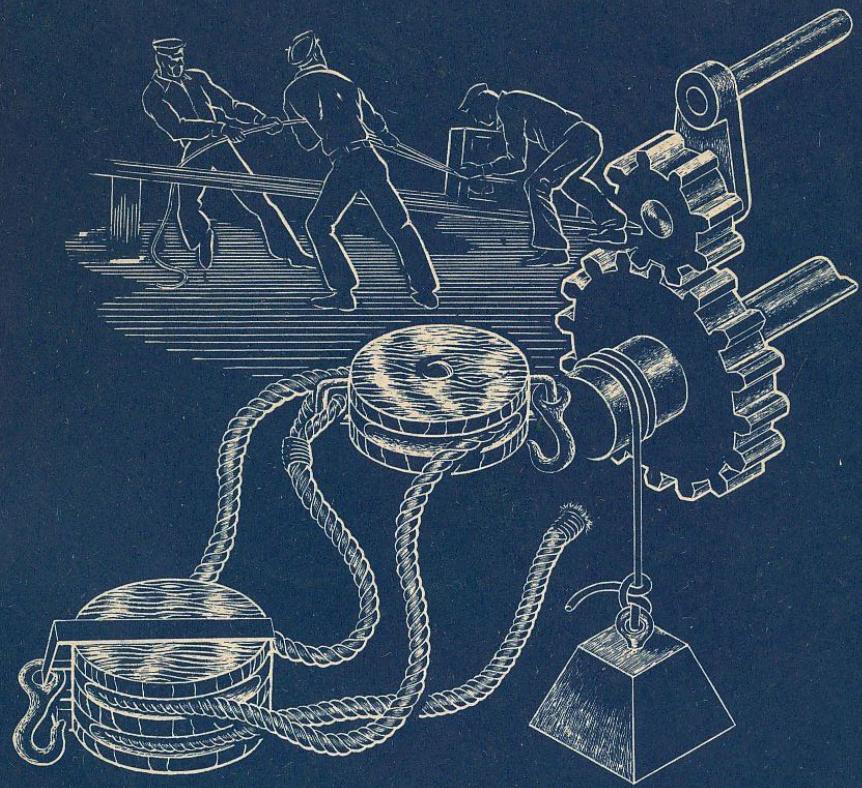




Traditional Japanese Paper Cutting

- 2 -

Introduction to Machines and Machine Tools

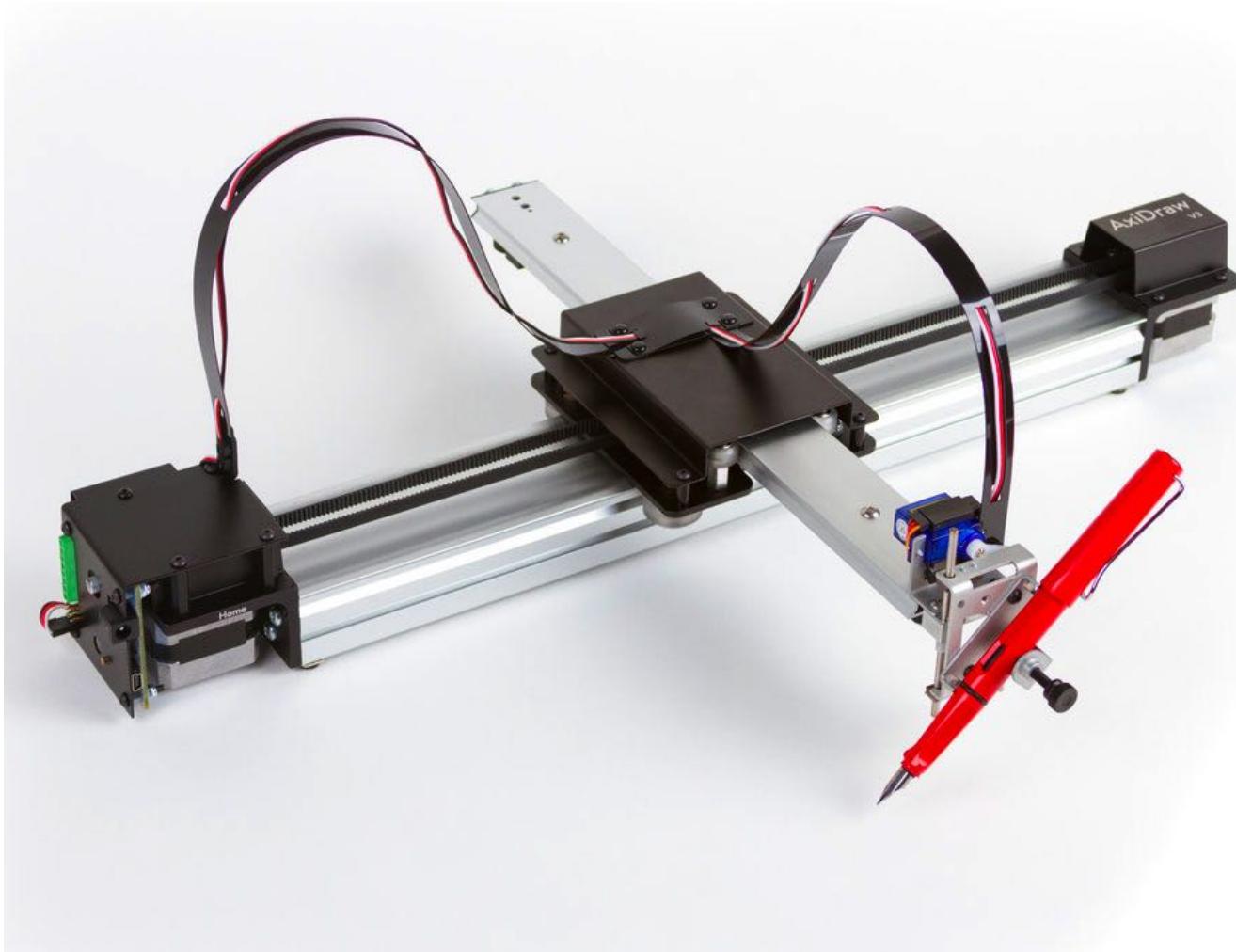


BASIC MACHINES

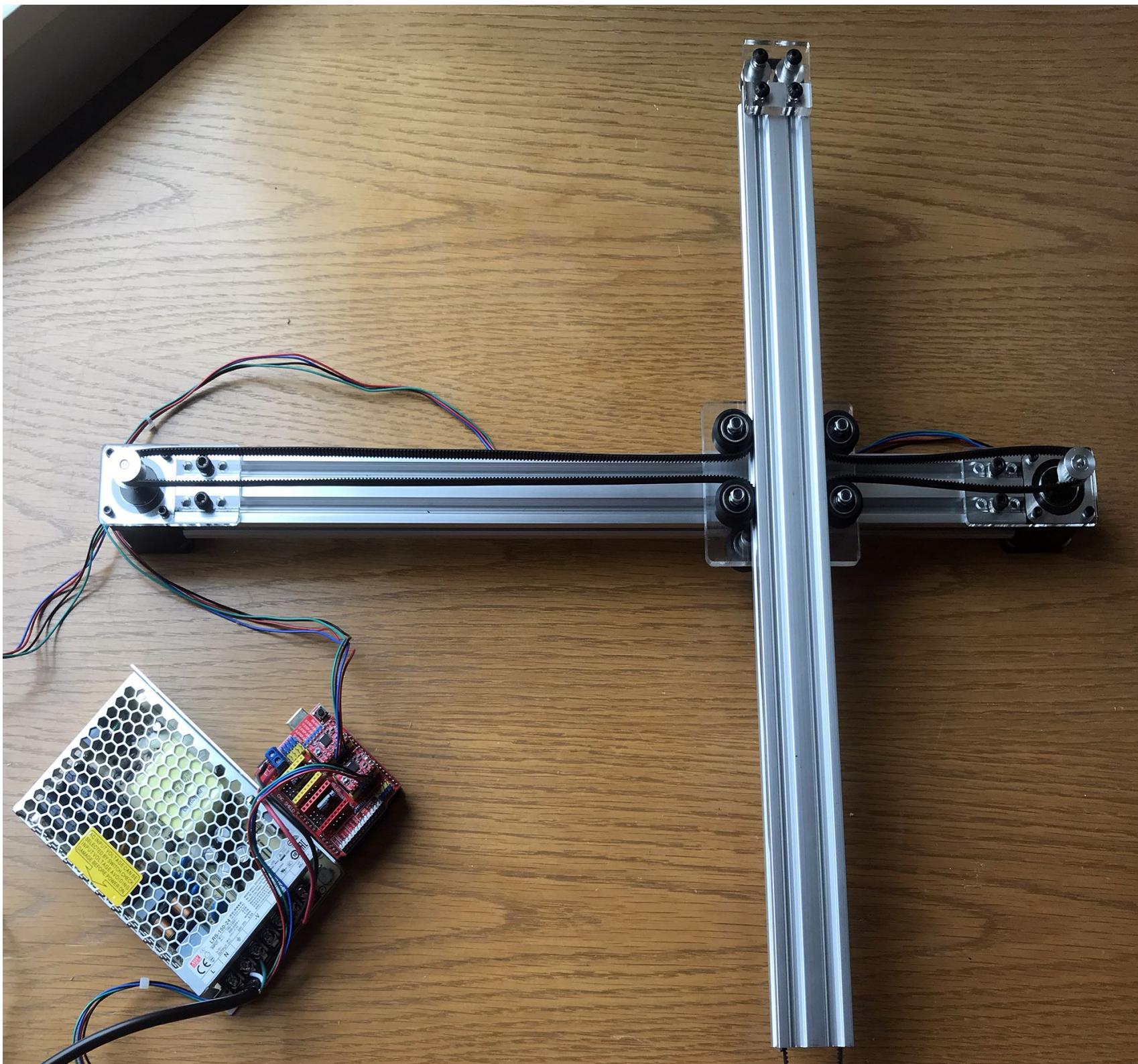
BUREAU OF NAVAL PERSONNEL

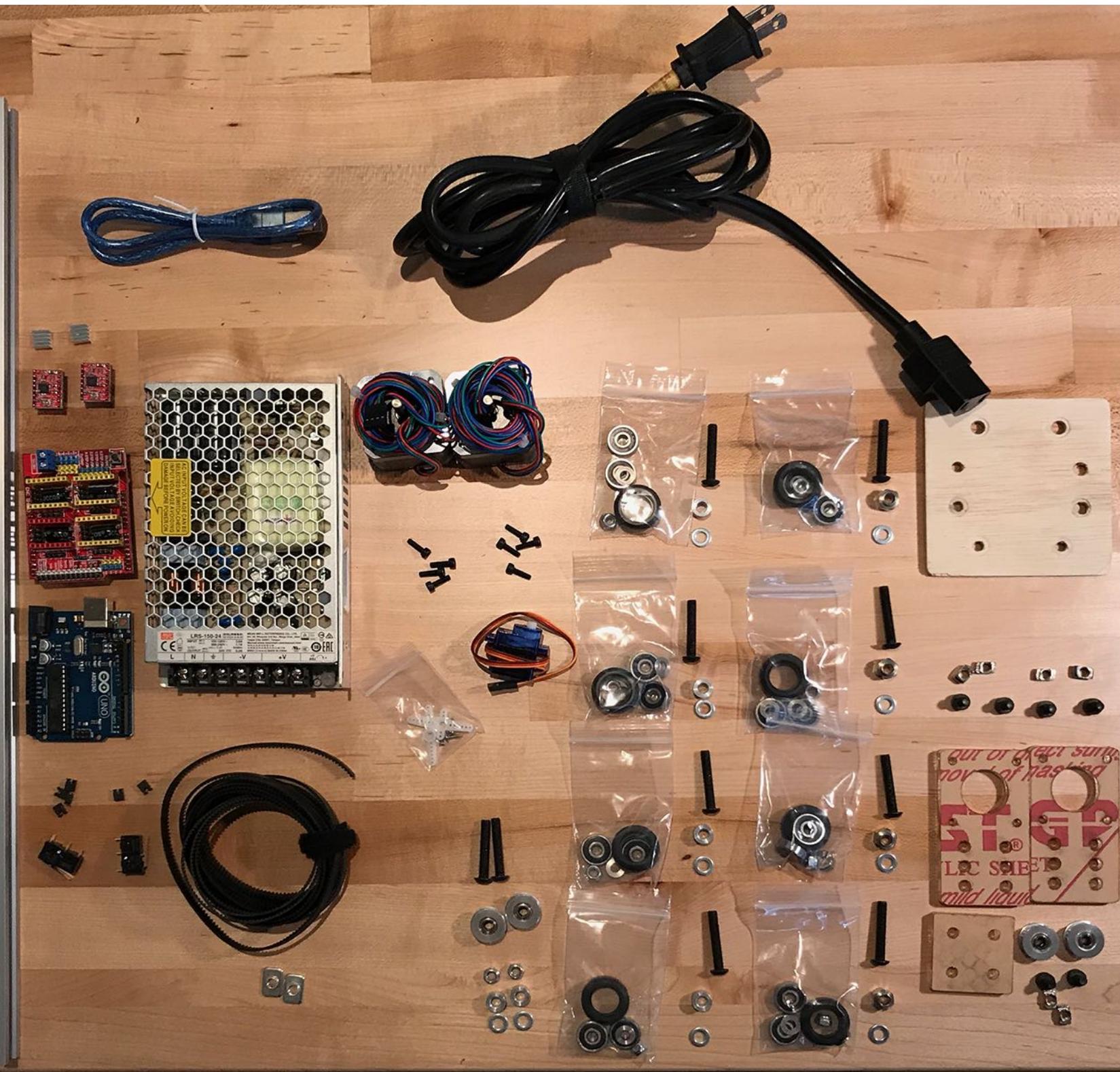
NAVY TRAINING COURSE

NAVPERS 10624-A



AxiDraw





Principles of Operation

Mechanical

- 2040 aluminum extrusion
- v-wheels and linear slides
- shafts and bearings
- belt and pulleys

Motors

- stepper motors

Electrical

- stepper motor driver chips

Computer

- grbl settings
- gcode
- cad / cam

Processes = Algorithms

CAD

- Design object

CAM

- Generate tool paths

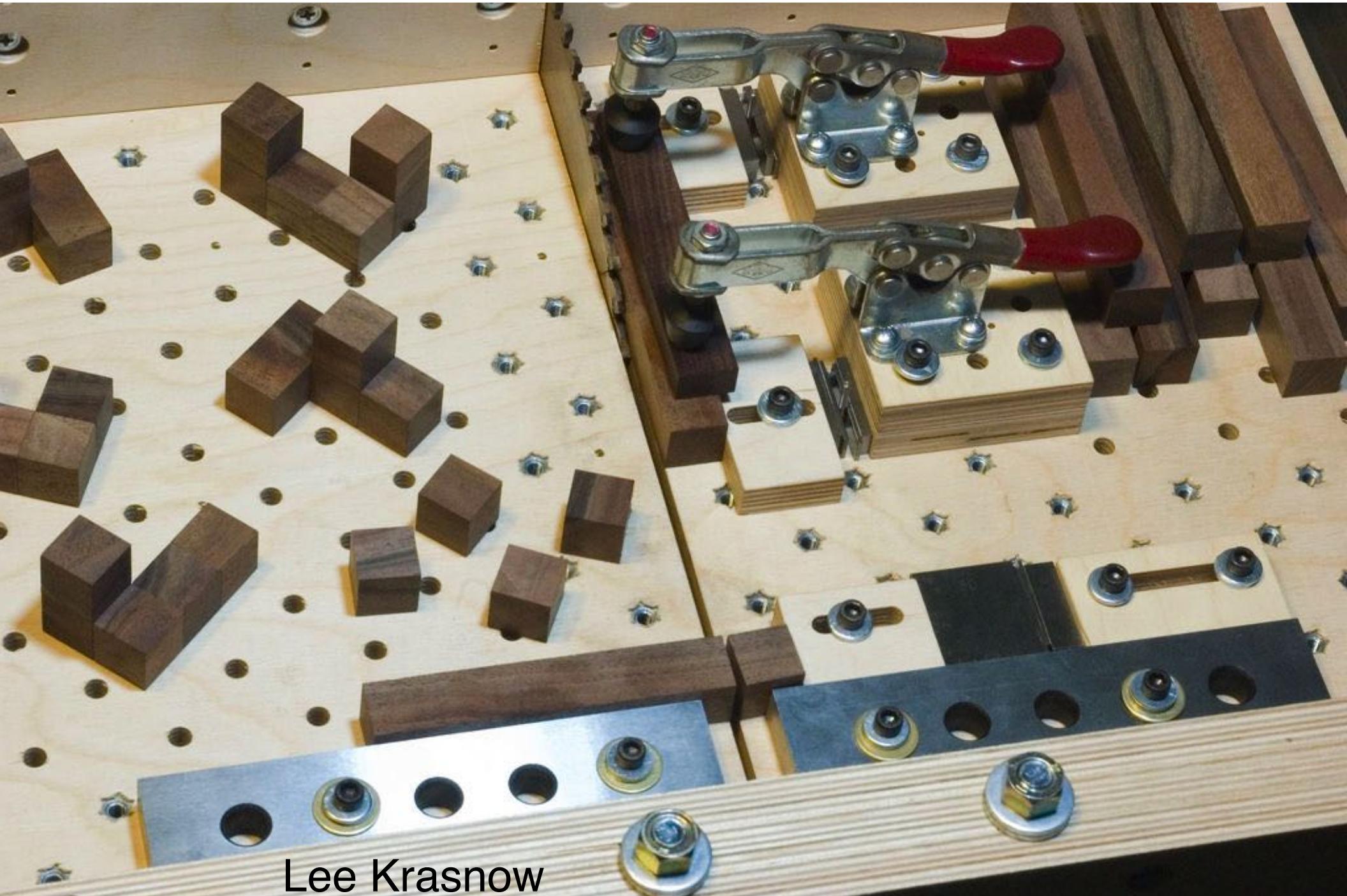
GCODE

- Speeds and feeds
- Trajectory planning
- Control hardware

Interactive Machines



Sewing Machine



Lee Krasnow

i



Woodro Leehyun 만능 목공기계 이현멀티우드머신을 소개합니다!!!

36,194 views

124

7

SHARE

SAVE

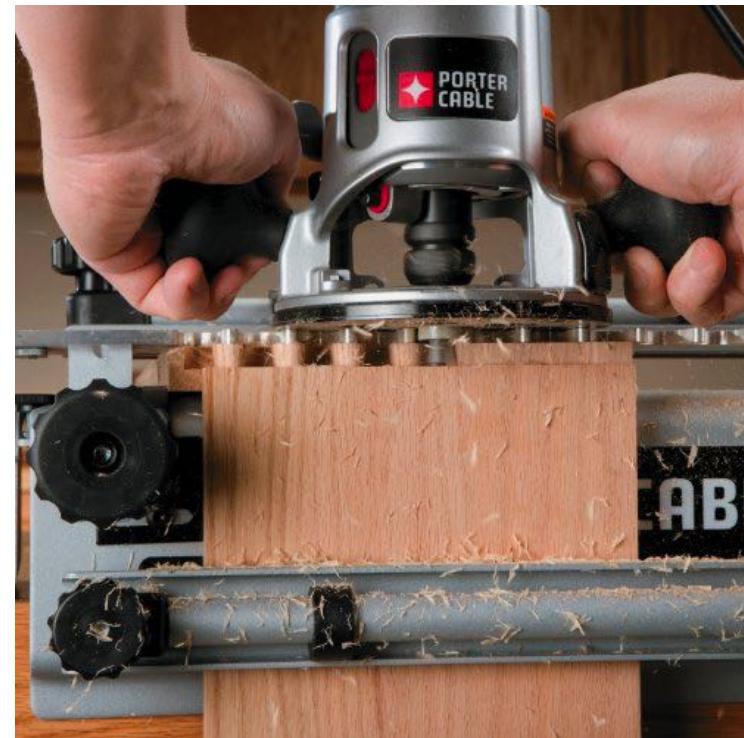
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Jigs and Fixtures

Defn: A **jig** is a type of custom-made **tool** used to control the location and/or motion of parts or other tools.



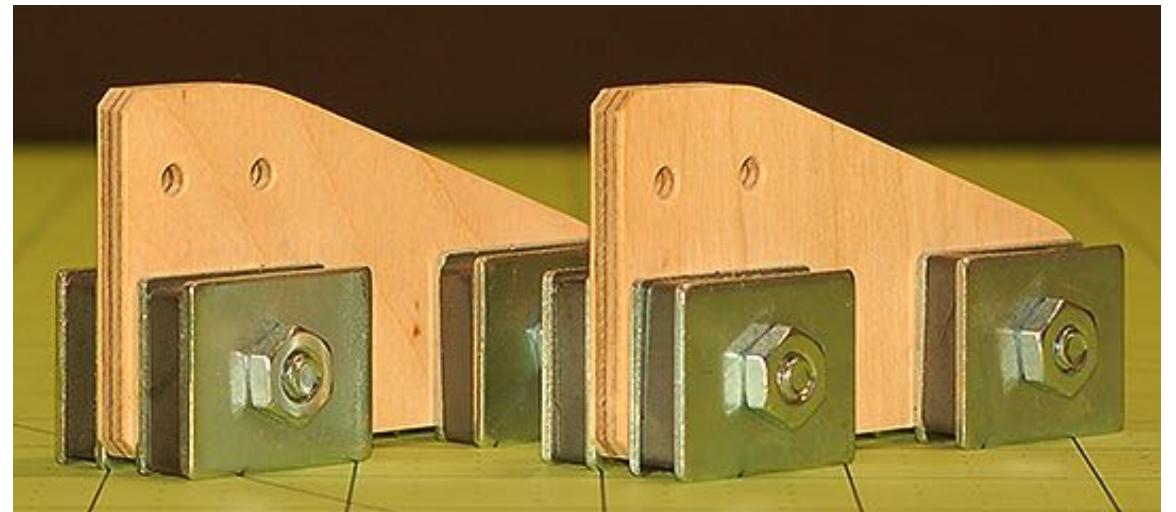
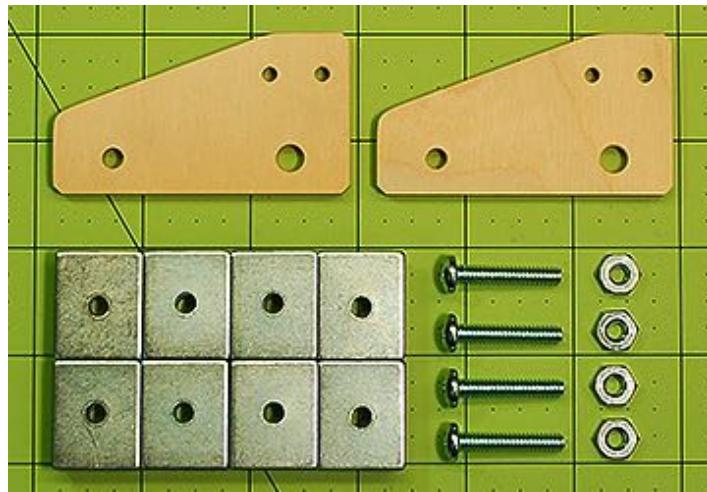
Pocket Hole Jig



Dovetail Jig

Fixtures

Defn: A fixture is a work-holding device



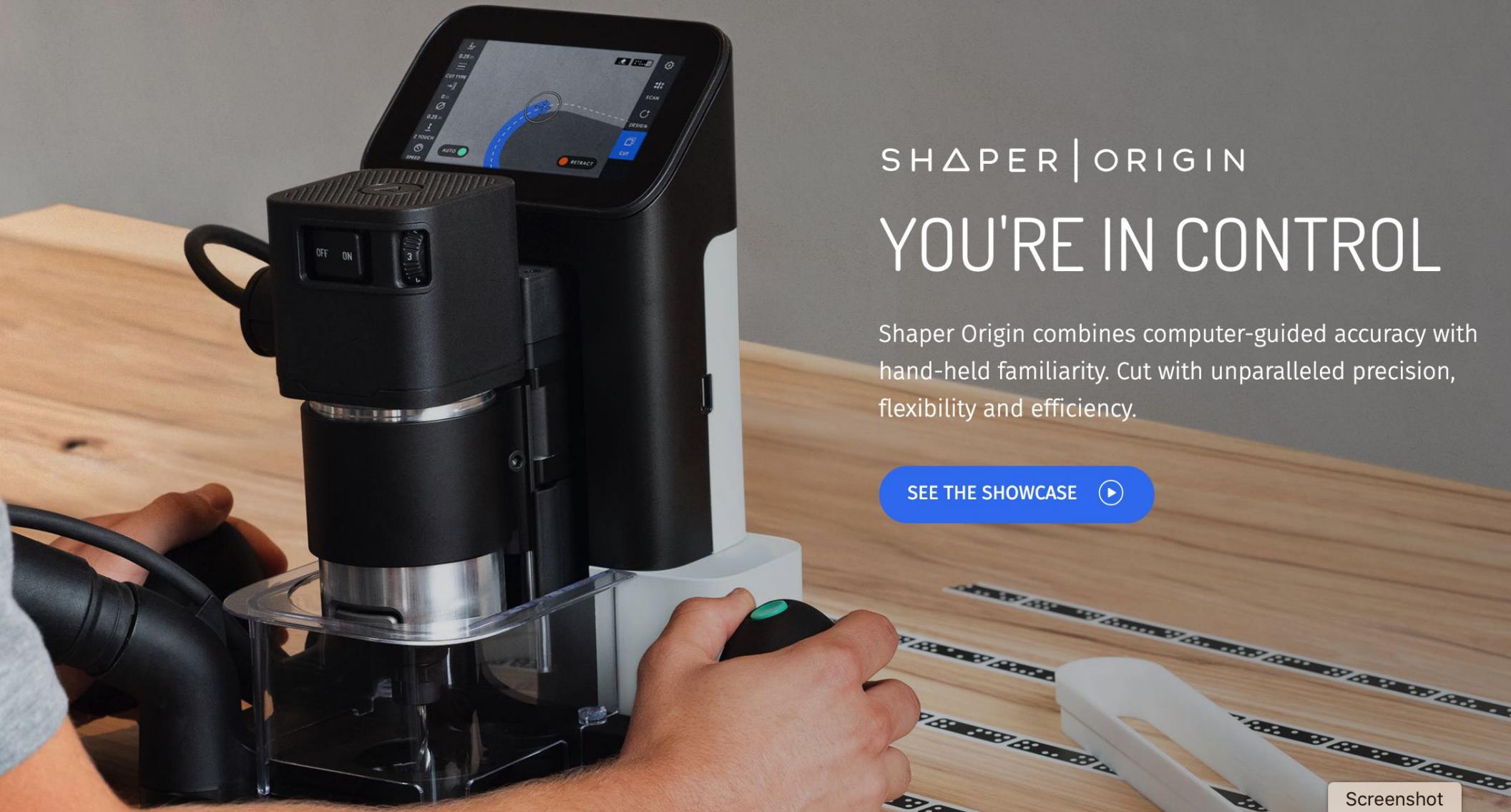
Steel Table with Magnetic Fixtures



Festool MFT/3



Guest Speakers

A close-up photograph showing a person's hands operating a Shaper Origin handheld router. The device has a black and white design with a large touchscreen display on top showing a blue cutting path. A hand holds a black control handle on the left, and another hand holds a black joystick-like controller on the right. The router is positioned over a light-colored wooden workbench. In the background, several black and white track strips are visible, used for guiding the router. The overall aesthetic is modern and professional.

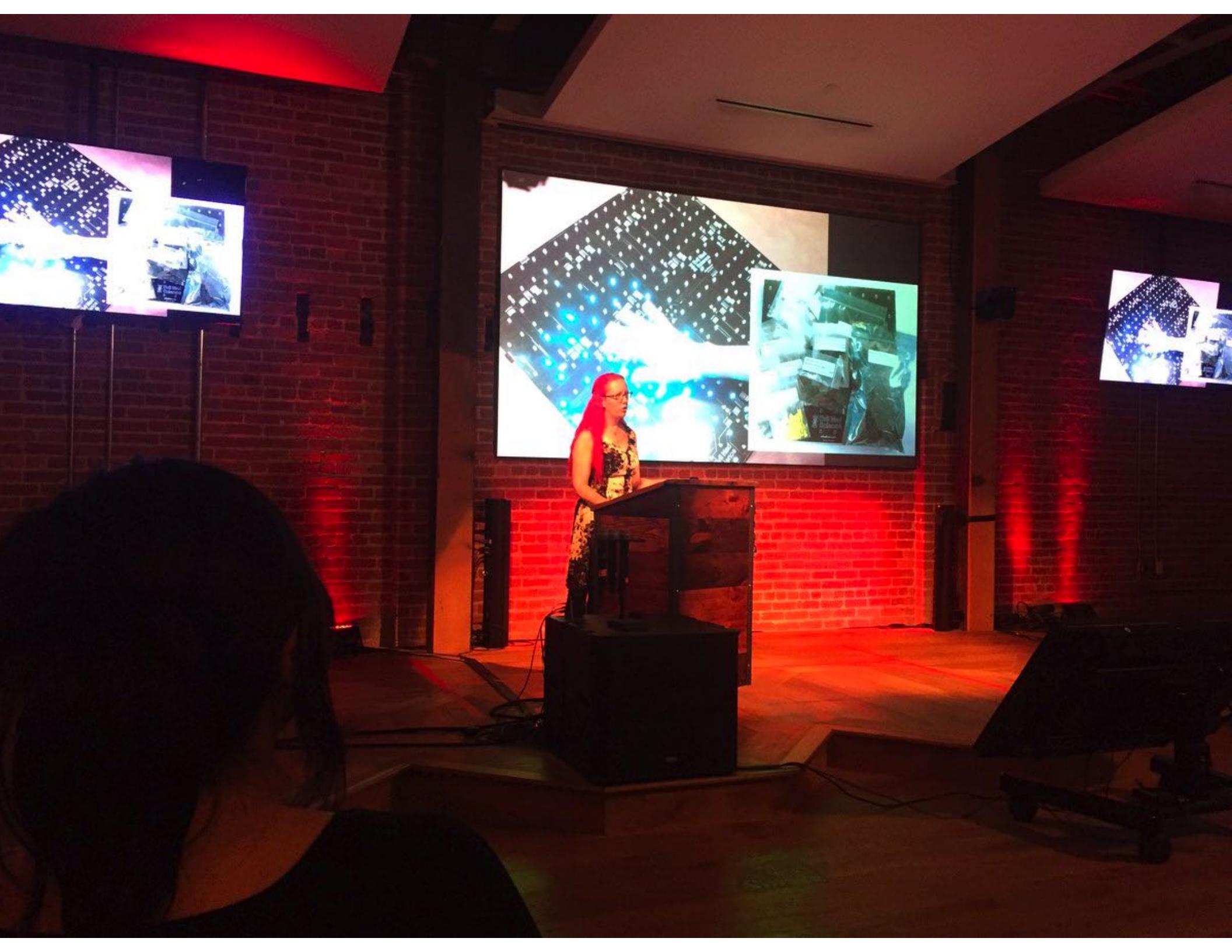
SHAPER | ORIGIN

YOU'RE IN CONTROL

Shaper Origin combines computer-guided accuracy with hand-held familiarity. Cut with unparalleled precision, flexibility and efficiency.

SEE THE SHOWCASE 

Screenshot



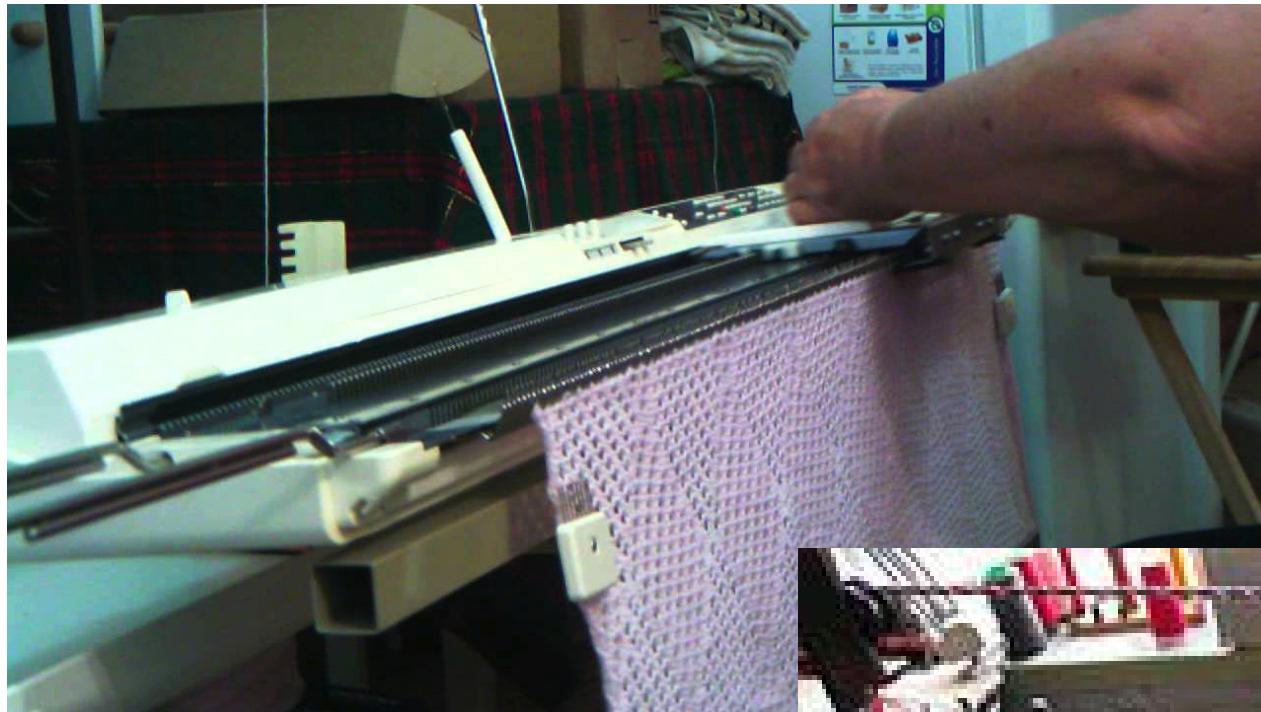
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Final Project





Knitting Machine



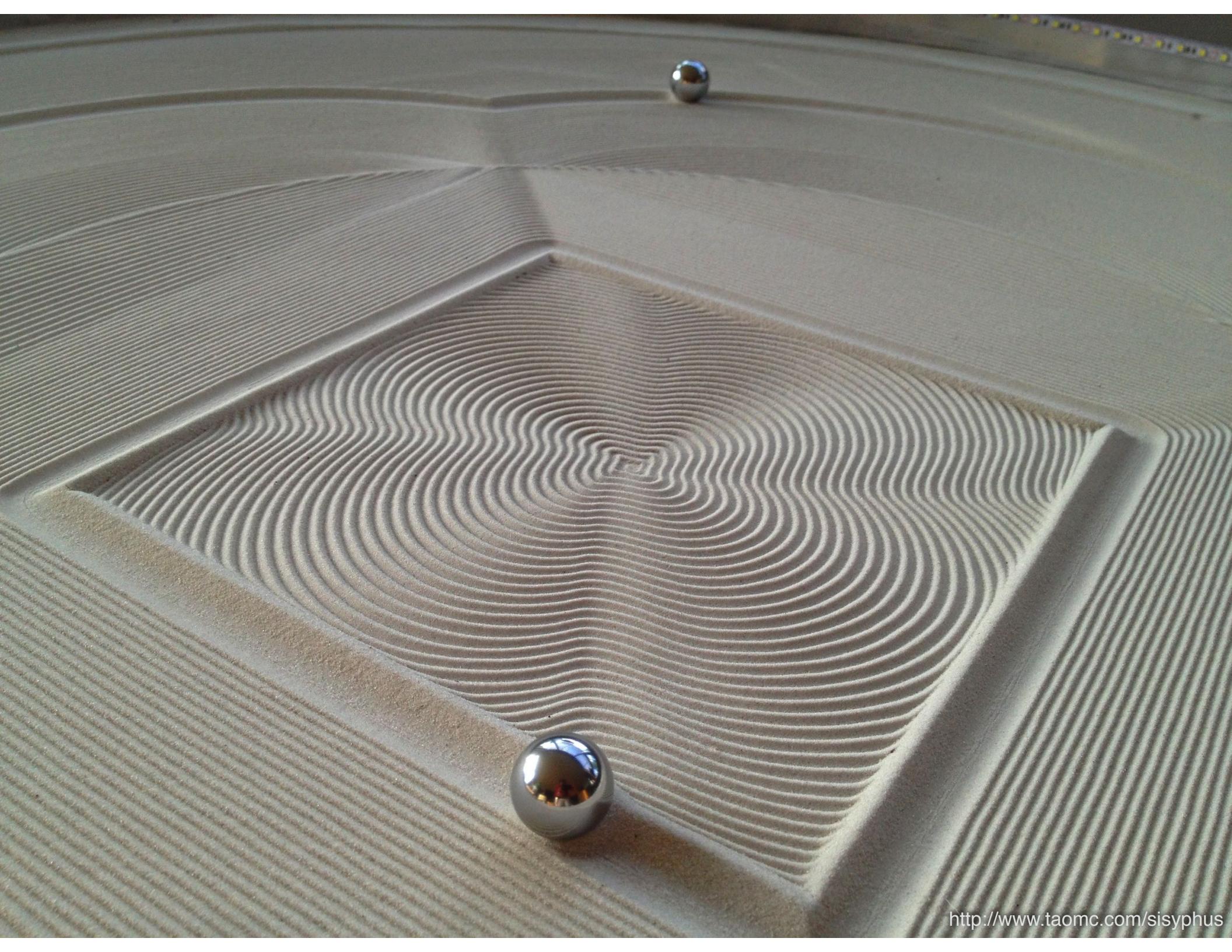
Braiding Machine













Wintergatan

Logistics

Graphics/HCI Lab

Cabinets

- Combination
- Brother SE-400
- Silhouette Cameo
- Materials and Supplies
- Tools

Work at the table in the back, keep clean

Afternoon office hours (Pat, Fri)

Be Safe!

For final project may need to access to other capabilities
(laser cutter, 3D printer) ...

Grading

Class attendances and participation: 20%

Assignment 1: 20%

Assignment 2: 20%

Final Project: 40%

Work in teams, but make your own stuff!