Drawing Machines

Automated Drawing as Sculptural Object / Installation

Drawing Machines

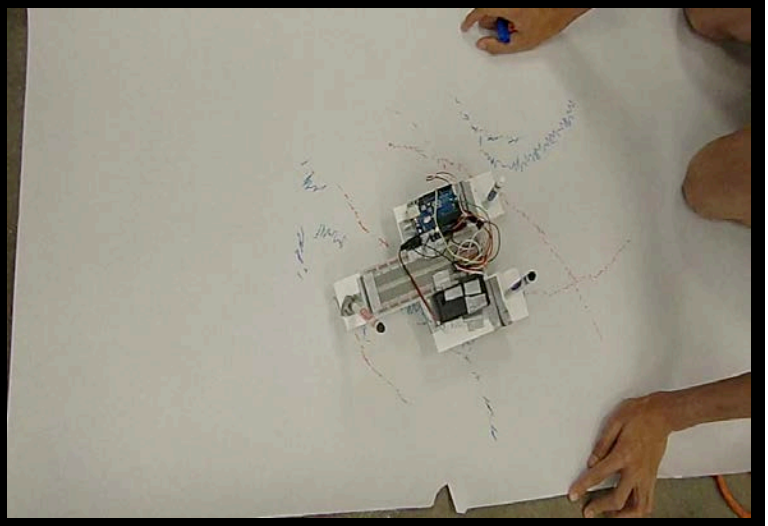
Automated Drawing

- Drawings made with mechanisms
  - Repeatable?
  - Controllable?
  - Editionable?
- Based on data?
  - Or made to be as random as possible?

Mike Lyon, Kansas City, MO
http://mlyon.com/

This Talk…

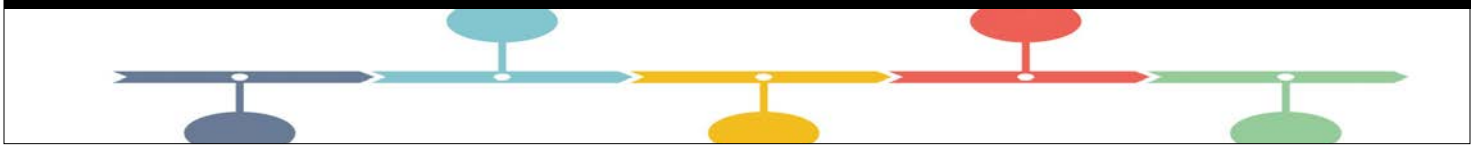
- Time Line:
  - historical, computer age, and contemporary
  - Not intended to be comprehensive
- End with some examples of workshop machines



Student from Trinity Valley School workshop

Time Line

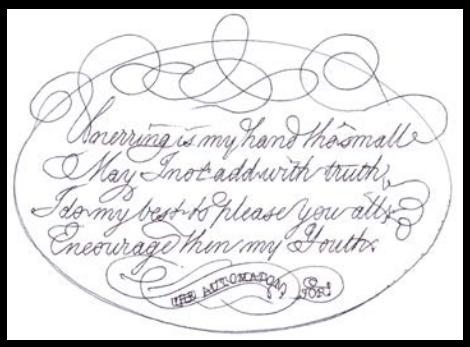
- Historical: 18th and 19th centuries (automata)
- Early Modern: 1950's (Metamatics)
- Computer Age: 1960's – 1970's (printers/plotters)
- Contemporary: 1990's to Now (lots of artists!)



Maillardet's Automaton, 1810

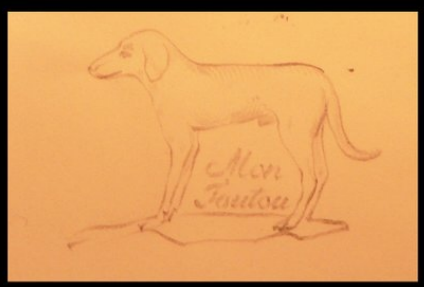
http://www.fi.edu/learn/sci-tech/automaton/automaton.php?cts

Maillardet's Automaton, 1810



Jaquet-Droz Automata

- 1768-1774
  The Draughtsman



Cam-Follower Mechanism

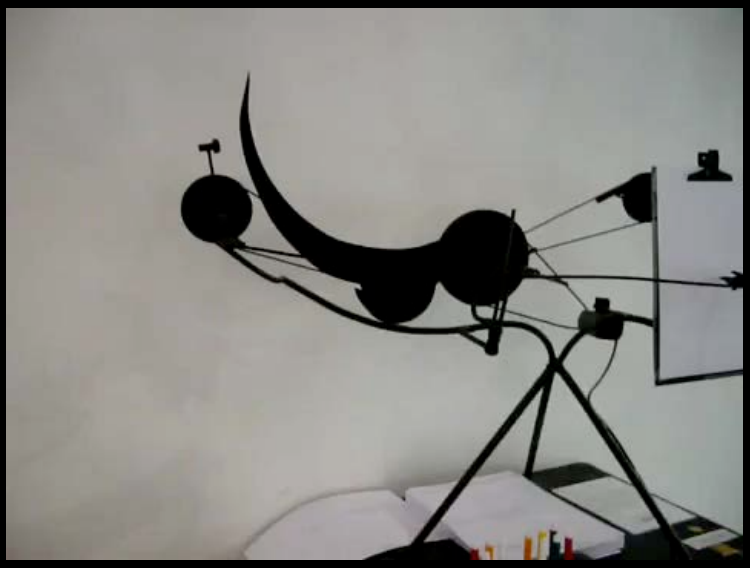
Cam-Follower Mechanism

Cam-follower tin toy ~1895

http://blog.dugnorth.com/2009/07/tin-clown-artist-picture-drawing.html

Cam-follower tin toy ~1895

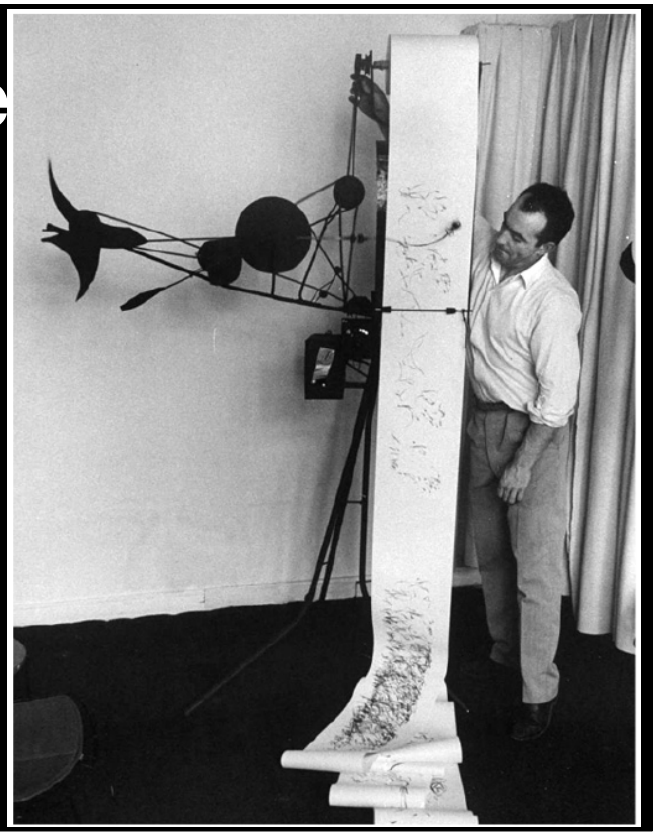
Jean Tinguely (1925 – 1991)



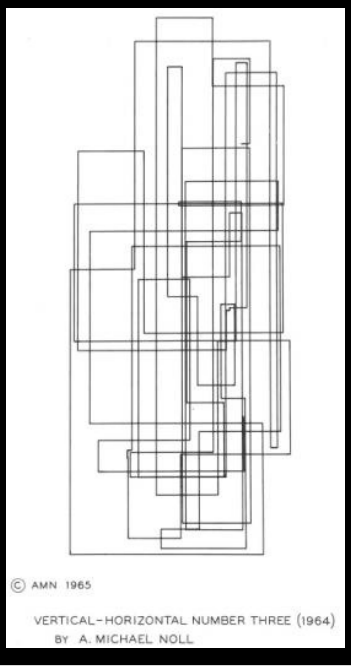
Metamatics

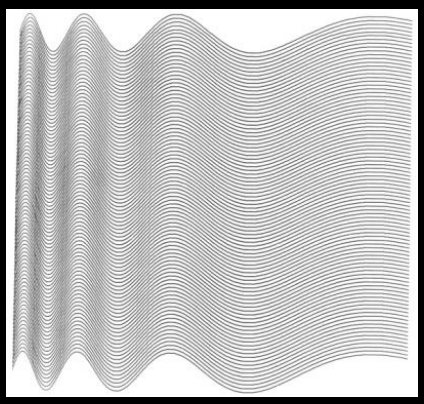
Jean Tingue

Metamatics



A. Michael Noll, Bell Labs, ‘62–‘65

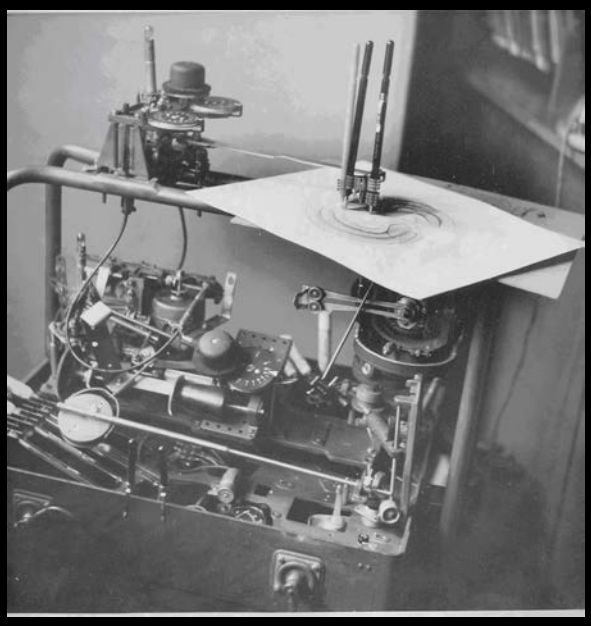




noll.uscannenberg.org

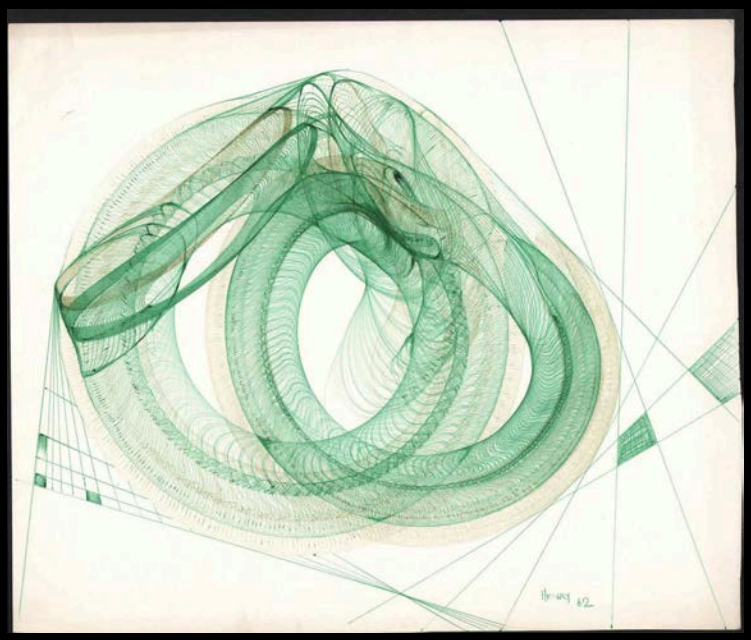
Stromberg-Carlson 4020 microfilm printer

Desmond Paul Henry: 1962

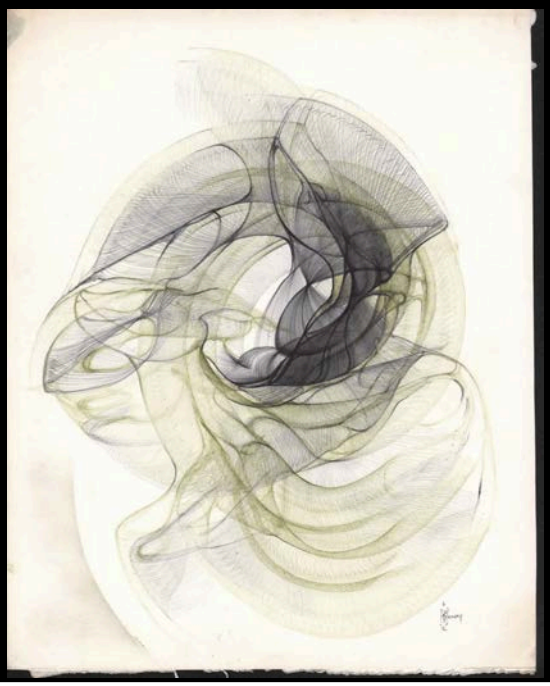


http://www.desmondhenry.com/index.html

Desmond Paul Henry



Desmond Paul Henry



Desmond Paul Henry

Huge jump to the 2000's...

Taxonomy

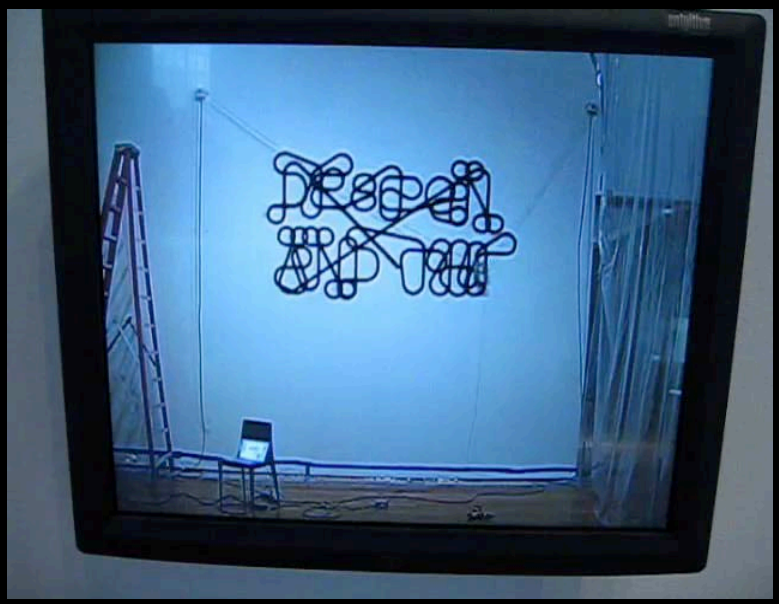
Control / Image	Analog (mechanical)	Digital (electronic)
Random	*Random marks with direct control of the drawing tool*	*Computer control, often using environmental input*
Deterministic	*Mechanical drive of the drawing tool*	*Computer programmed control*

Taxonomy

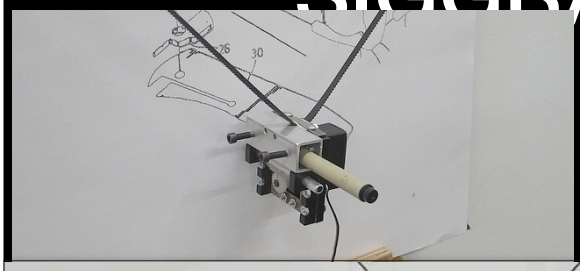
Image \ Control	Analog	Digital
Random	Tinguely Horn Knowles Grossman Houlding	Bowen Robbins Raaf Tresset
Deterministic	Henry Maillardet Jaquet-Droz Hawkinson Rex	Lyon Noll Hektor Twomey

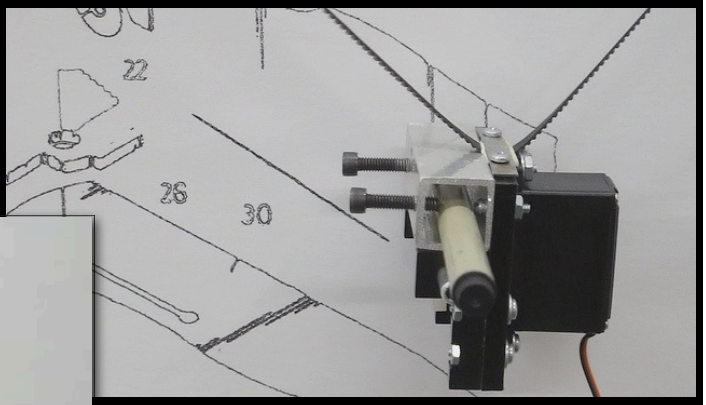
Hektor - 2002

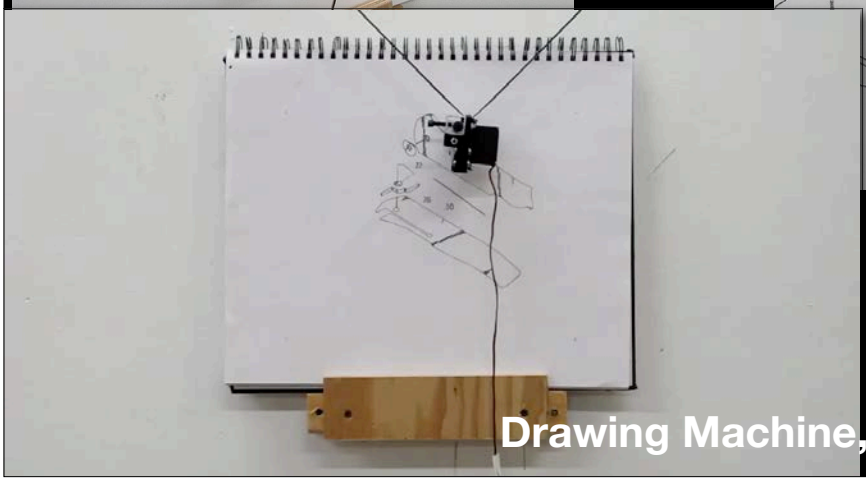
Uli Franke, Jürg Lehni



SIGGRAPH Art Gallery

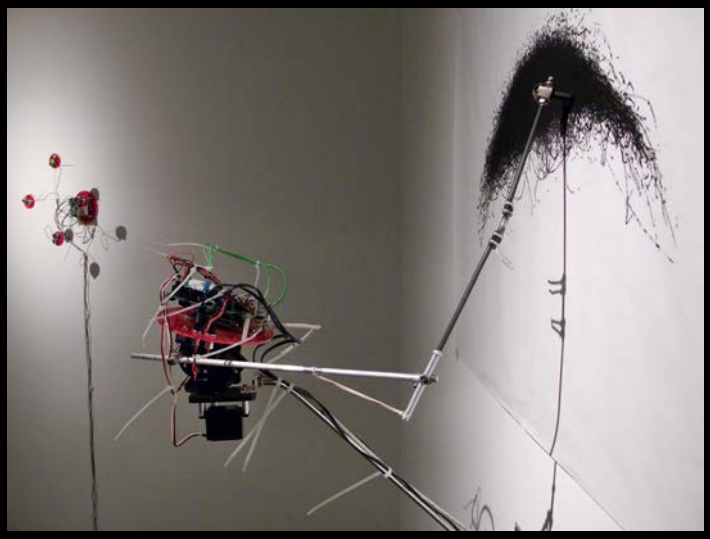




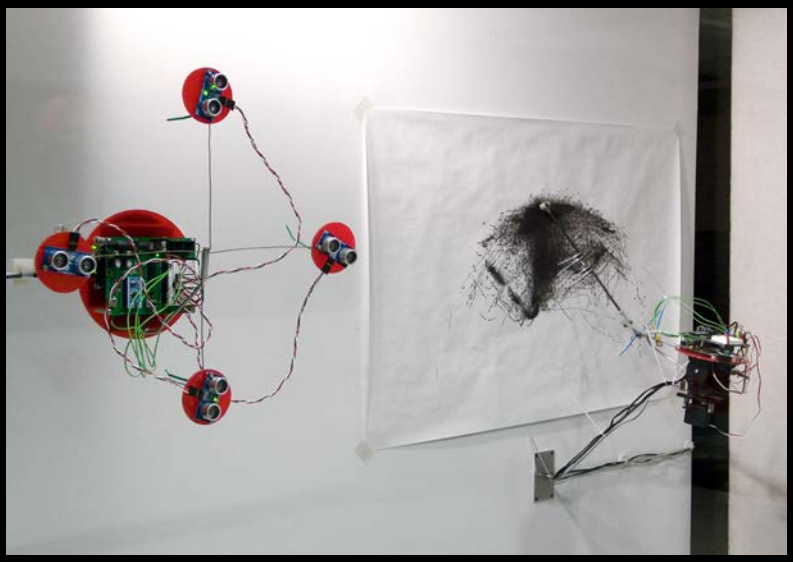


Drawing Machine, Robert Twomey, 2013

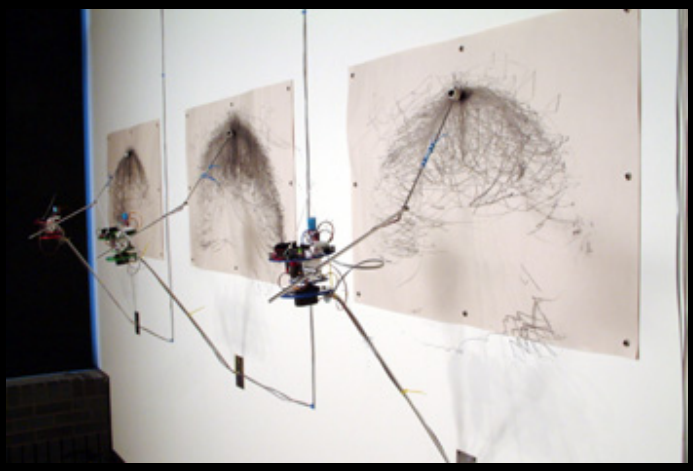
David Bowen



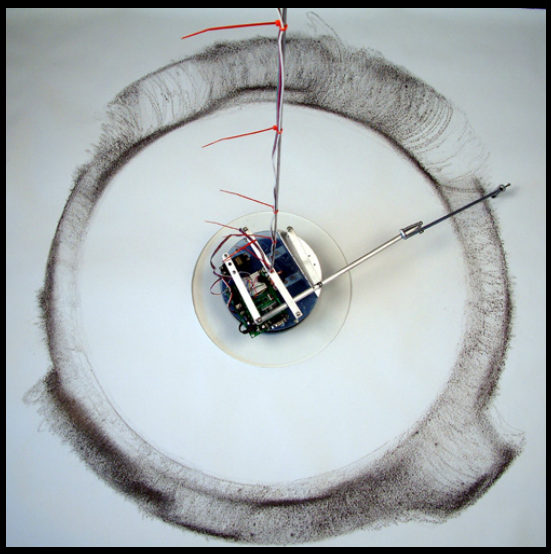
David Bowen

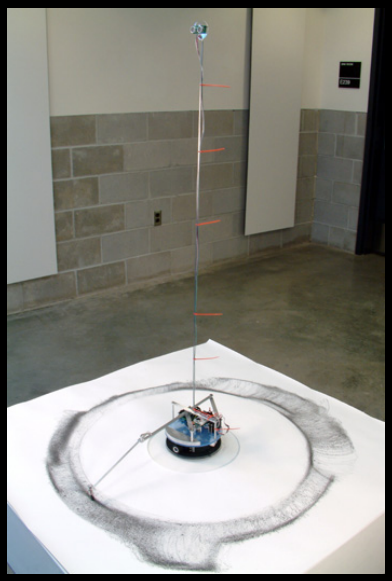


David Bowen

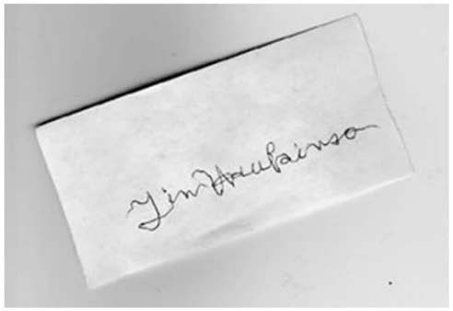


David Bowen





Tim Hawkinson (1960 -)

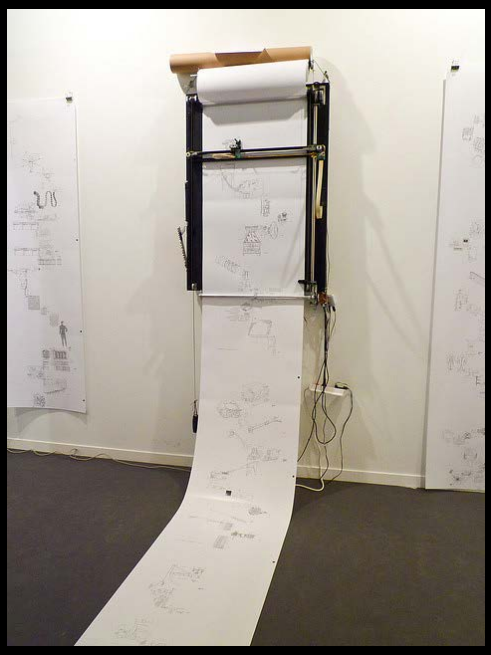


Tim Hawkins

(1960 -)

Rebecca Horn (1944 -)

Perpetual Storytelling Apparatus



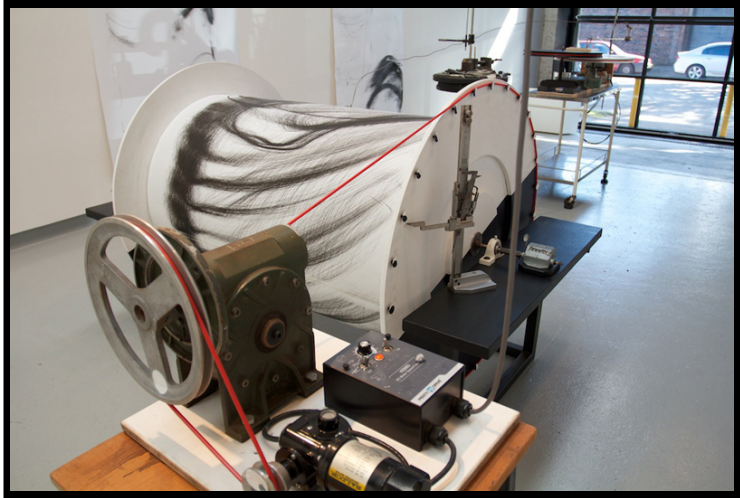
Perpetual Storytelling Apparatus

JULIUS VON BISMARCK & BENJAMIN MAUS, 2009

Joseph L. Griffiths

Patrick Tresset

Cameron Robbins, Australia



cameronrobbins.com/artwork/

Cameron Robbins, Australia

cameronrobbins.com/artwork/

Sabrina Raaf

Translator II: Grower
2004-2006

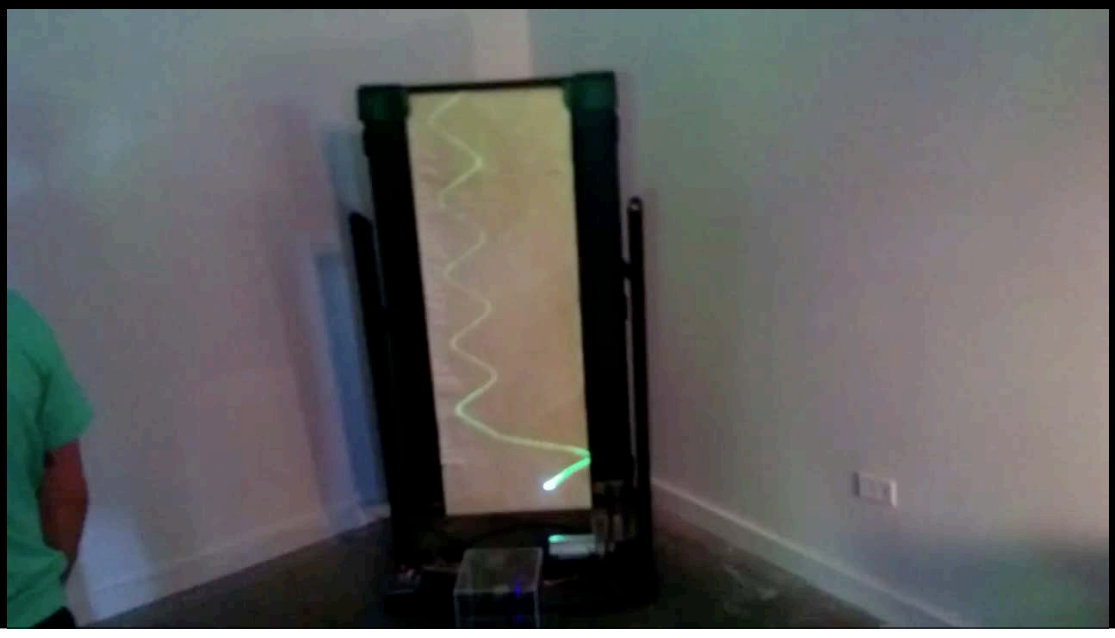
Kinetic Art @ UofU 2010

HTTP://WWW.ENG.UTAH.EDU/~CS5789/INVISIBLELOGIC/INDEX.HTML

Kinetic Art @ UofU

Kinetic Art @ UofU

DARRIN STOKER, ERIC HAIR, PATRICK CHARLES, 2015

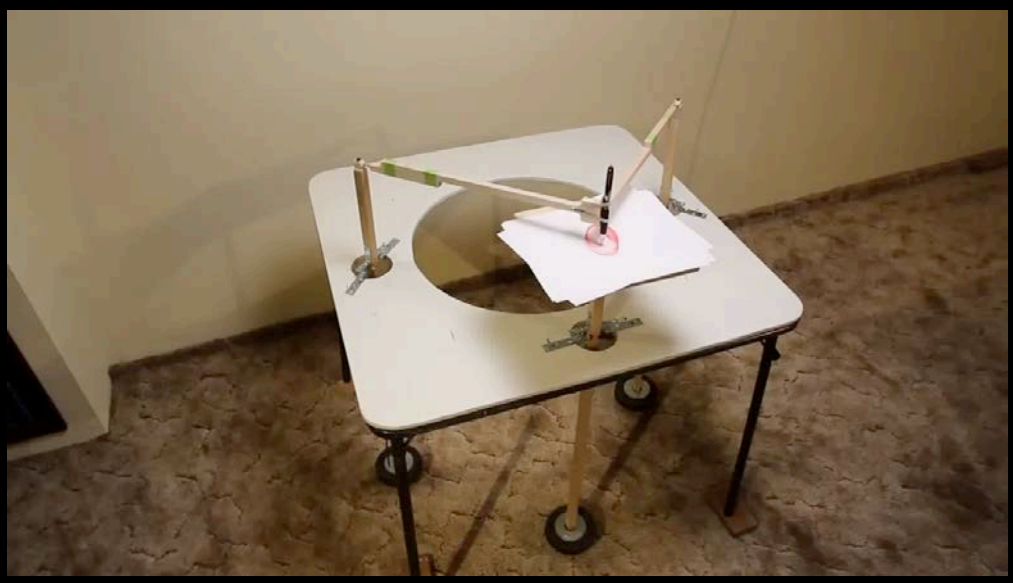


Kinetic Art @ UofU

Eske Rex - Denmark 2011

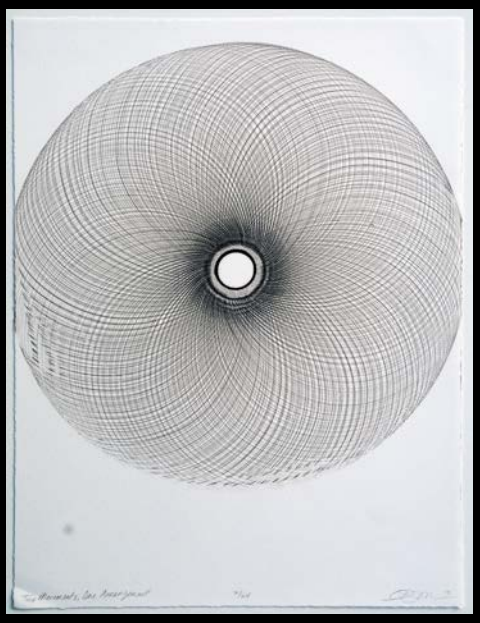
http://www.youtube.com/watch?v=5yumD0ezoVE

Harmonograph

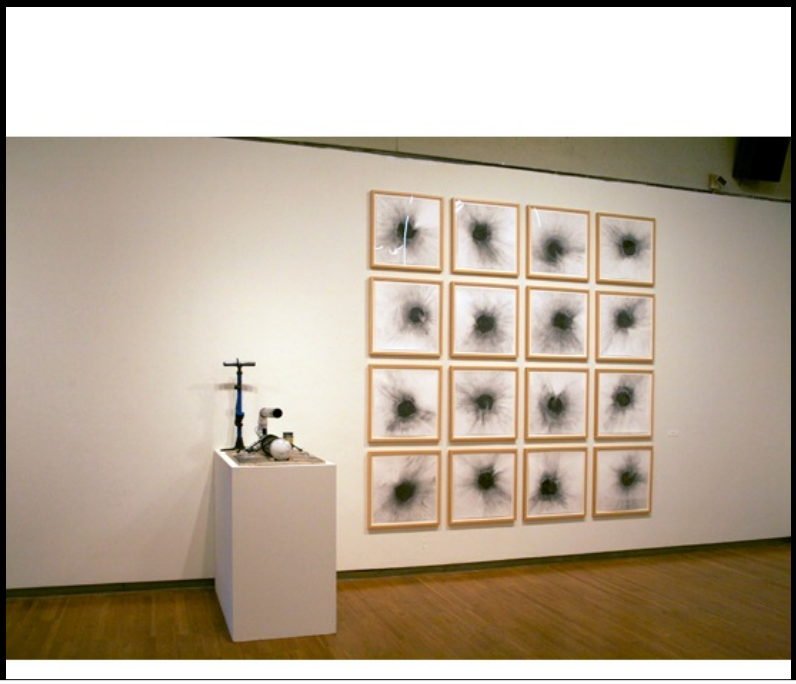


Wayne Schmidt: https://www.youtube.com/watch?v=HJYvc-fSrf8

Leslie A. Grossman 2012



Leslie A. Grossman 2012



leslieagrossman.com/

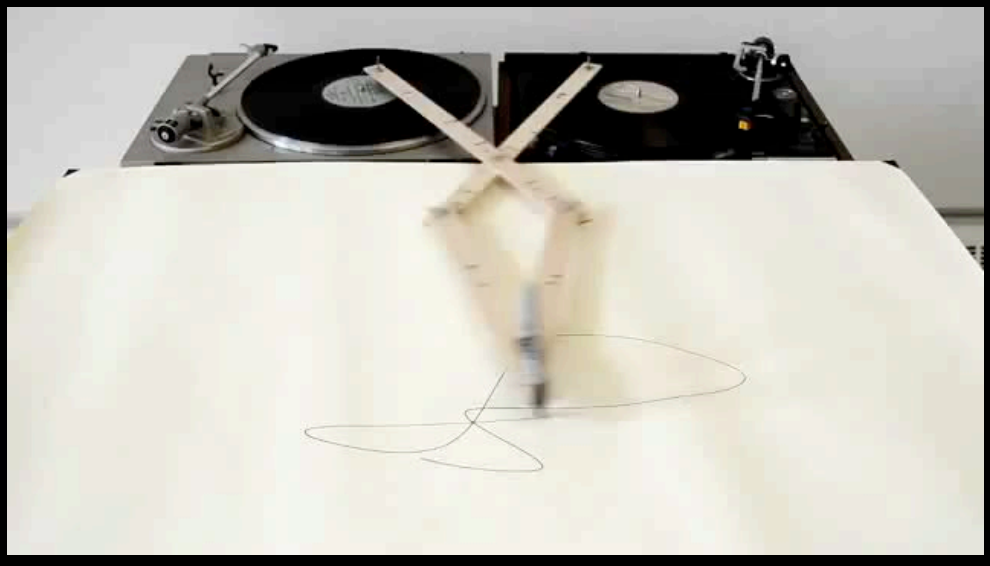
Leslie A. Grossman 2012

leslieagrossman.com/

Alfred Hoehn

http://www.alfredhoehn.ch/

Robert Howsare



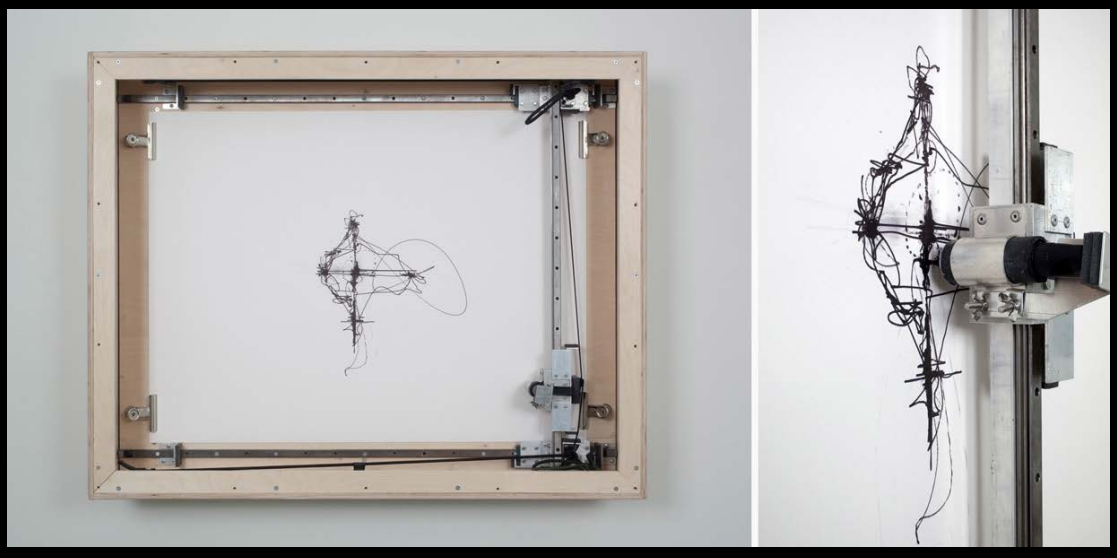
https://www.youtube.com/watch?v=EB_e5gx5b3I

Tim Knowles 2006

http://www.bitforms.com/tim-knowles-gallery.html

www.timknowles.co.uk

Tim Knowles 2006



www.timknowles.co.uk

http://www.bitforms.com/tim-knowles-gallery.html

Tim Knowles

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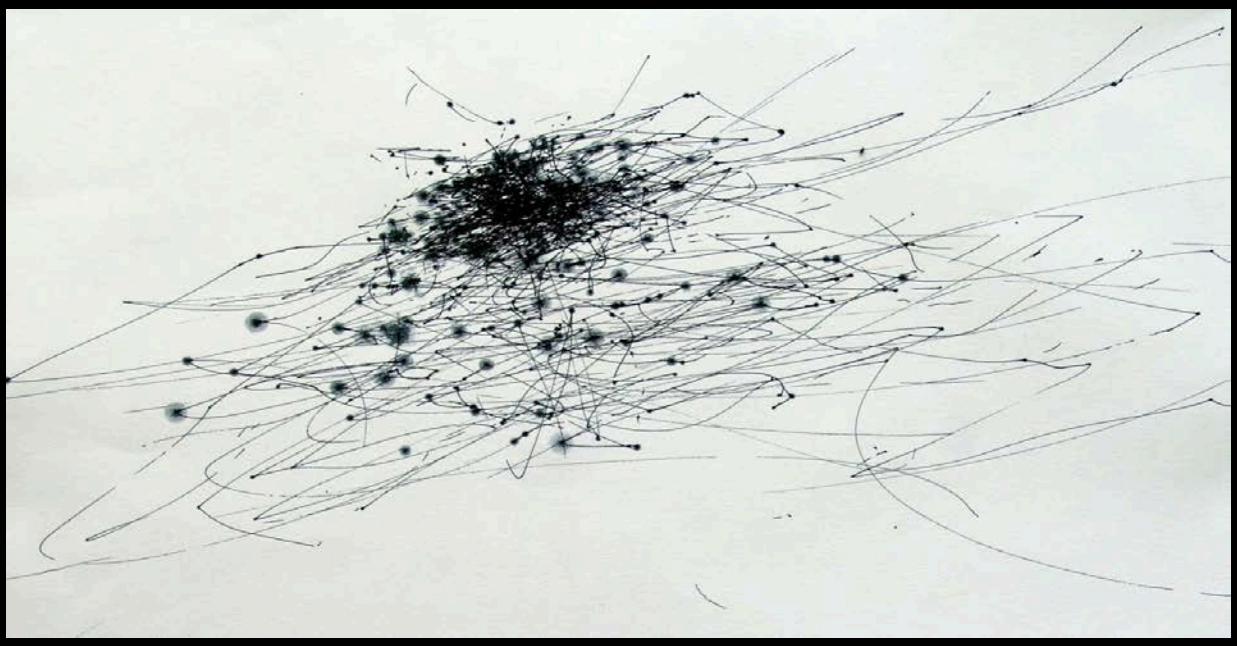
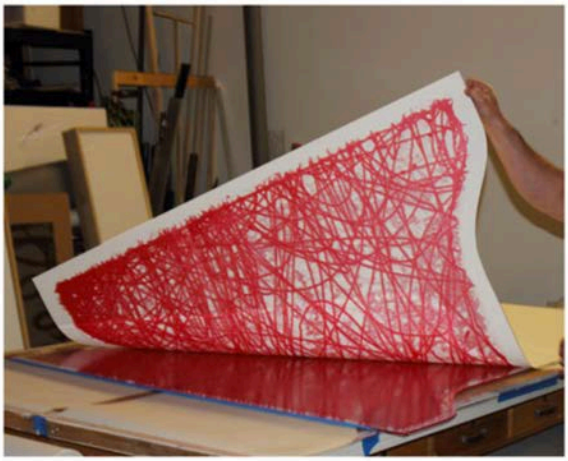


Jesse Houlding

Jesse Houlding



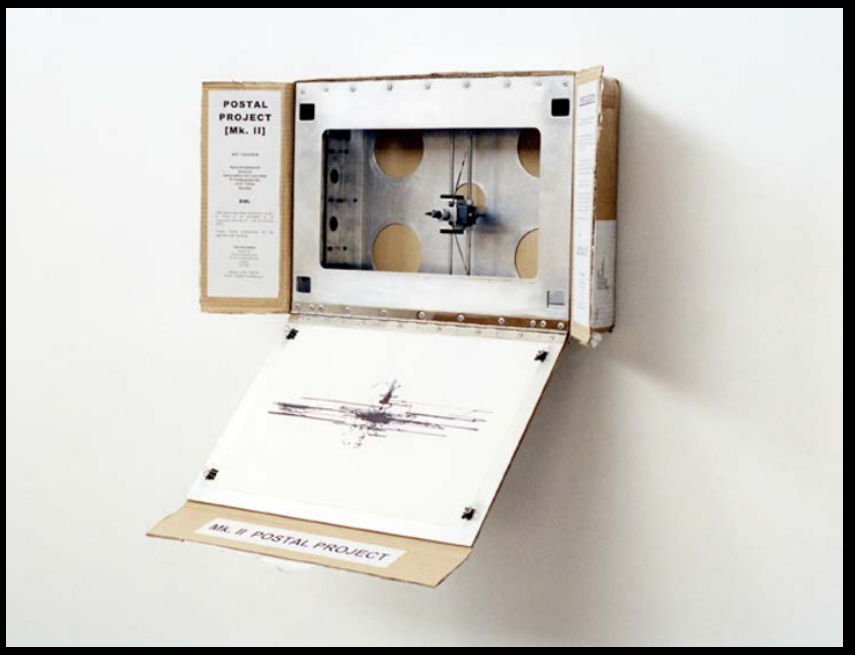
TRUCK DRAWING, 2014

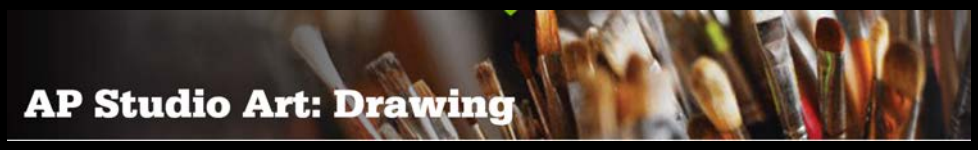
Jesse Houlding

TRUCK DRAWING, 2014

Example High School Curriculum

- Based on the Postal Project by Tim Knowles
  - Katie Campbell
    Alta High School
    Salt Lake City, UT





- Katie Campbell
  Alta High School
  Salt Lake City, UT

- Objectives:
  - Each student is given a postal box
  - Each student chooses a drawing medium
  - Each student puts drawing paper as well as their drawing medium inside the postal box
  - Each student seals the postal box
  - Each student is required to carry the postal box for a period of one day, from sun up to sun down, without opening the box

Example High School Curriculum

Katie Campbell, Alta High School, Salt Lake City, UT

Example High School Curriculum

Katie Campbell, Alta High School, Salt Lake City, UT

Example High School Curriculum

Katie Campbell, Alta High School, Salt Lake City, UT

Example High School Curriculum

Drawing Machines (Erik Brunvand 2014)

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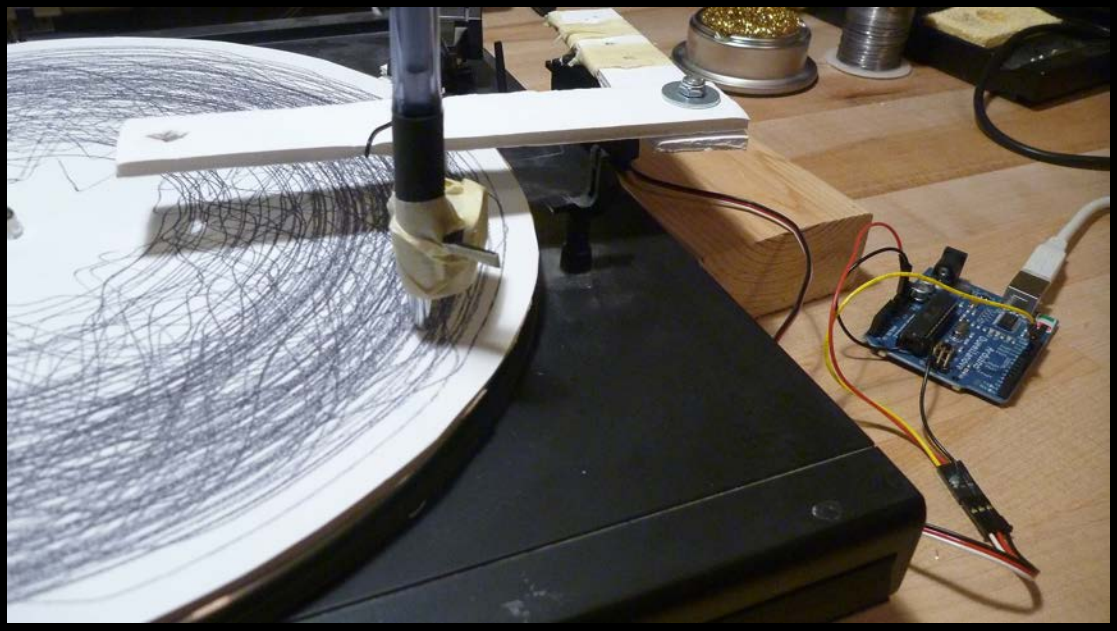
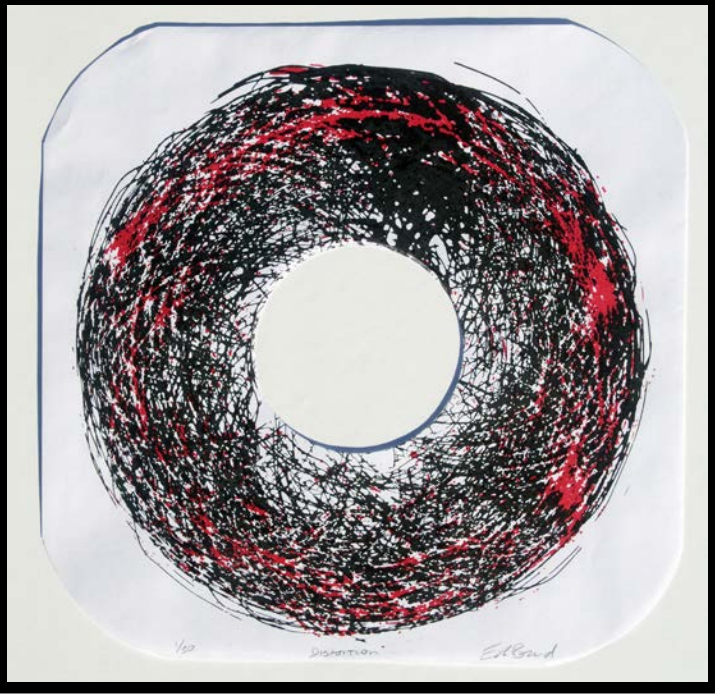
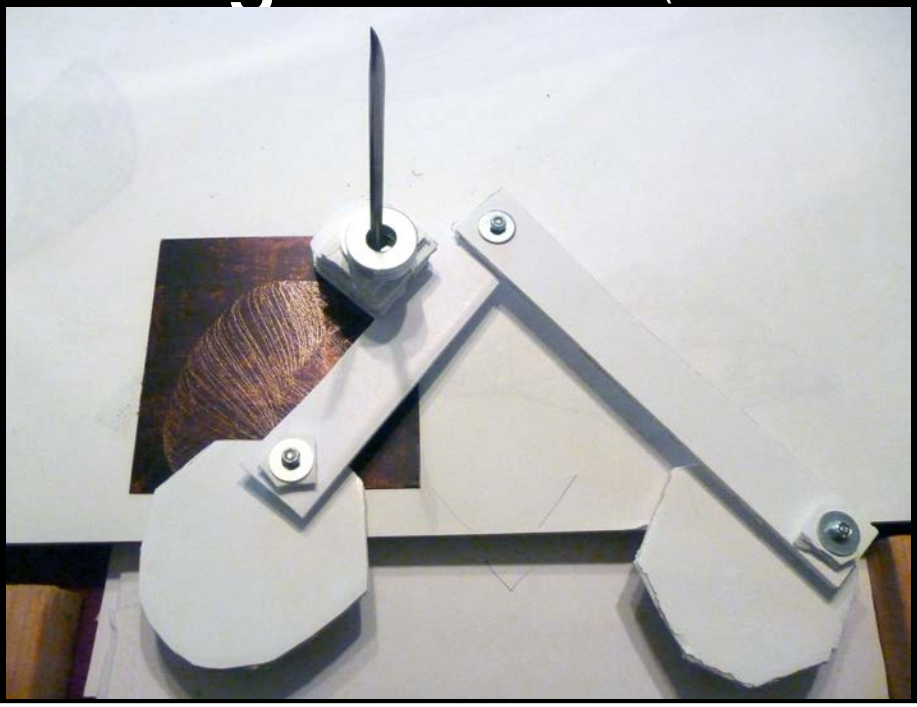


Distortion (Erik Brunvand 2014)



Etching Machine (Erik Brunvand 2014)



Etching Machine (Erik Brunvand 2014)

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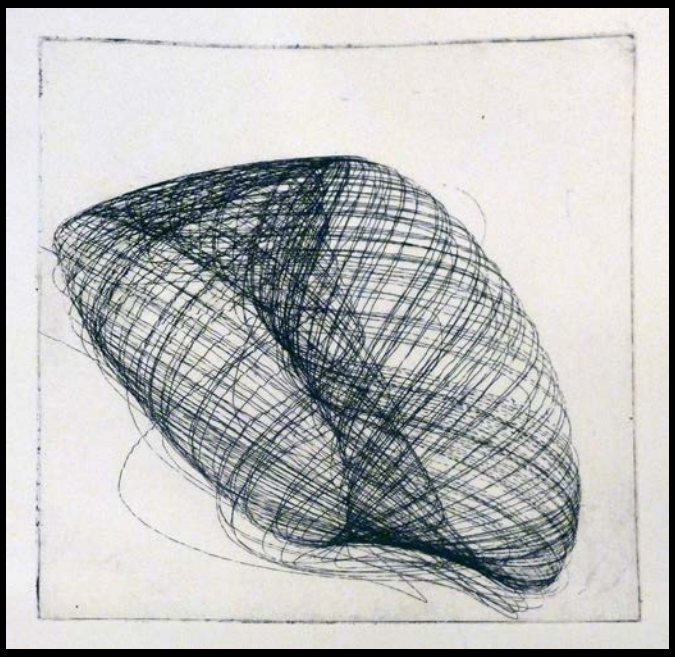
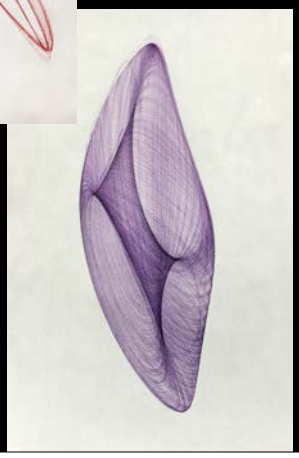


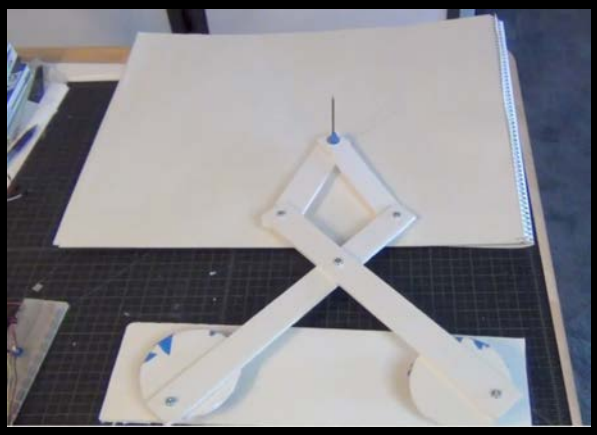
Conclusions (of history/overview)

- Drawing Machines are an intriguing way to combine art and engineering
  - Long and interesting history
  - Fascinating kinetic sculptures
  - Potential for collaboration
- Art students are introduced to engineering
- Engineering students are introduced to art

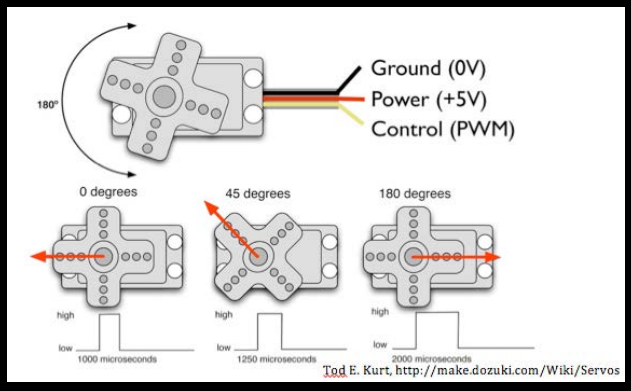


Workshop Project

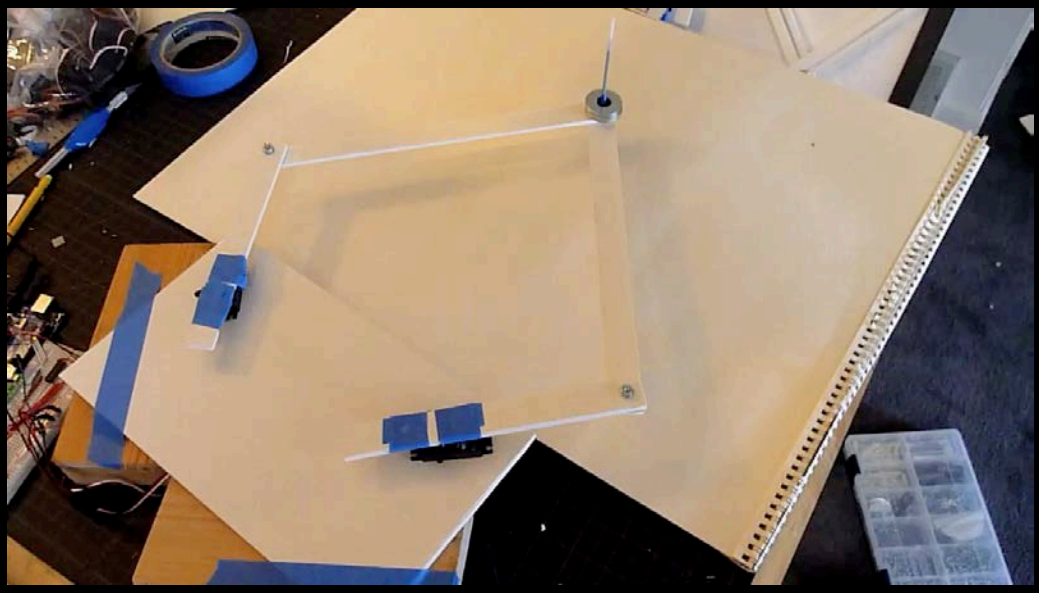
- A fun drawing machine that is easily prototyped
  - Introduces engineering in an arts context
  - Introduces art in a engineering context
- Great for interdisciplinary groups
- Details… http://www.cs.utah.edu/~elb



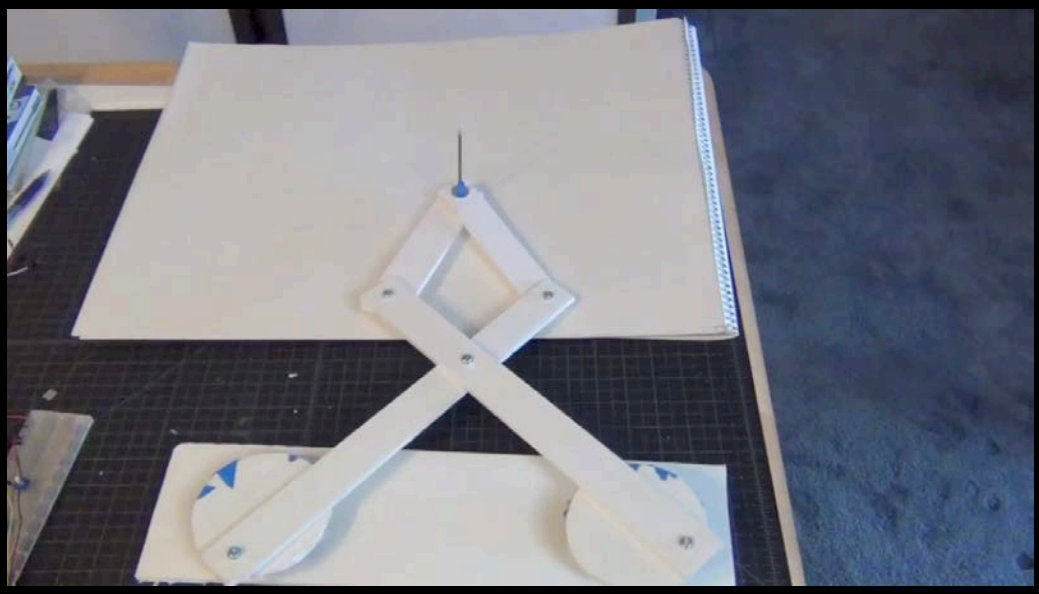
Hobby Servos

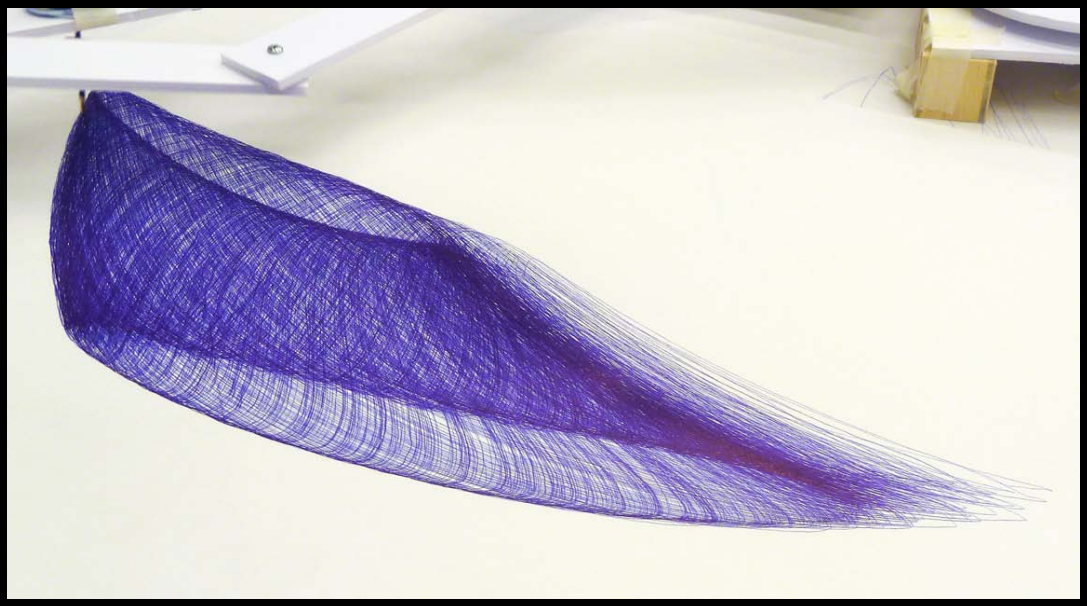


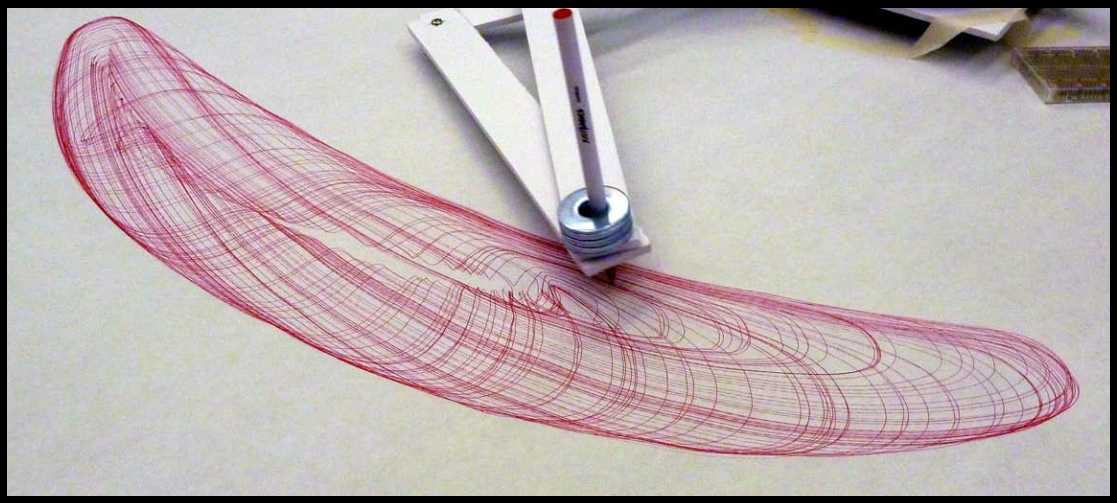
The Dancing Arms Drawing Machine

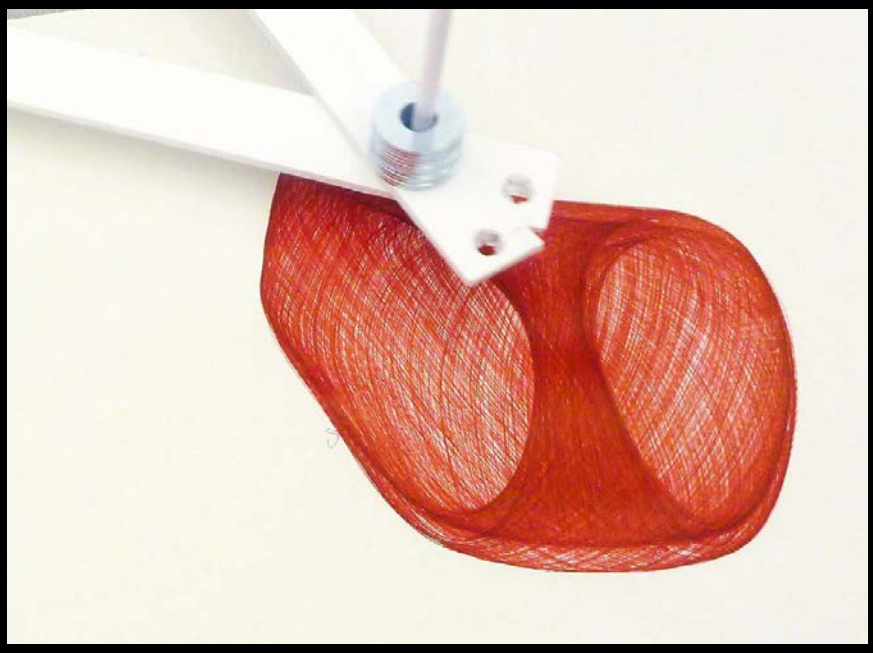


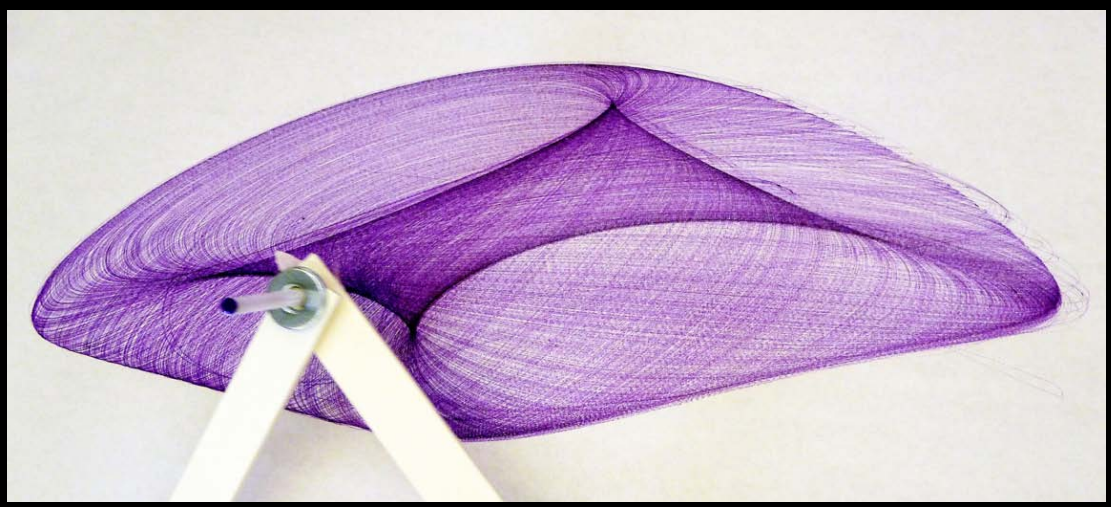
The Harmonograph







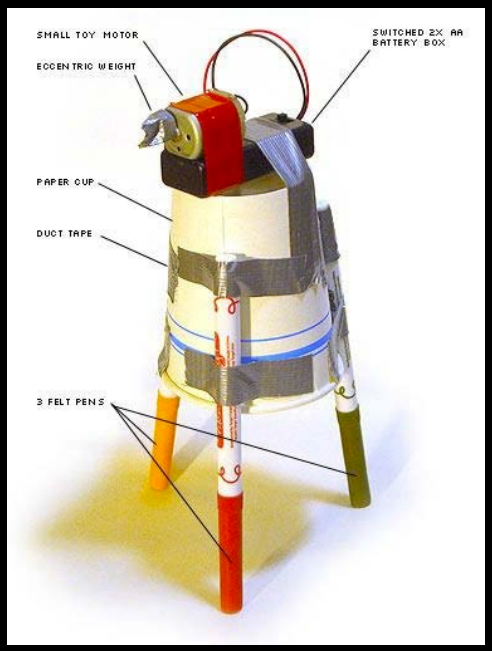




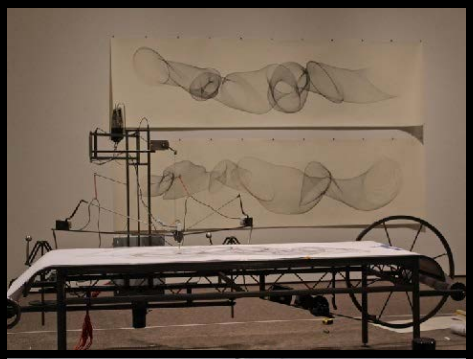
Workshop

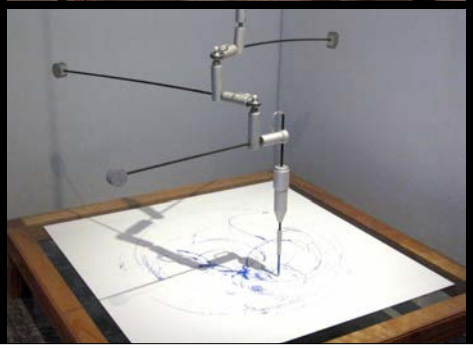
- Have fun!
- Build cool machines!
  - Prelude to more refined sculptures?
  - Explore what types of movements and marks can be made.
  - Long duration drawings are often much cooler than short-time drawings

DrawBots!

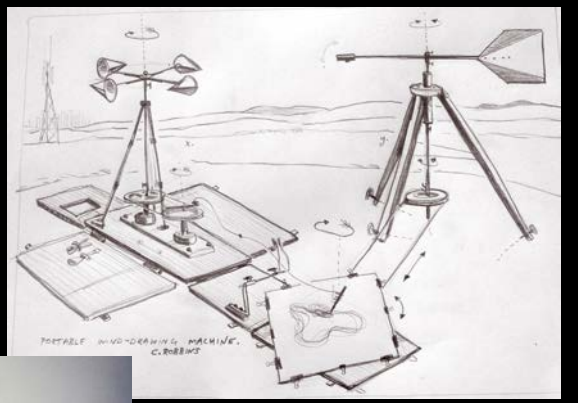


Let's Try to be a Little More Sculptural…





Let's Try to be a Little More Sculptural…



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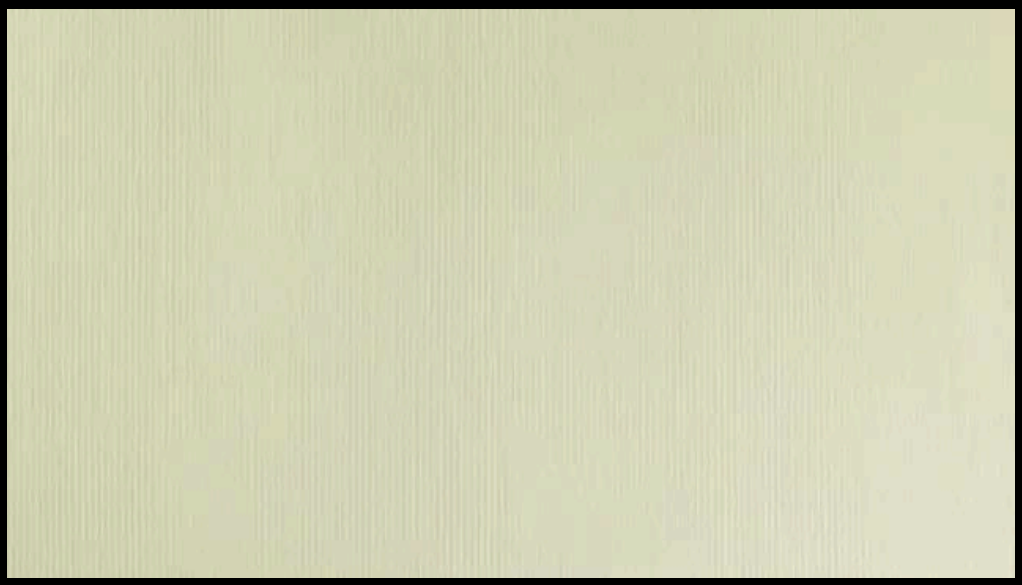
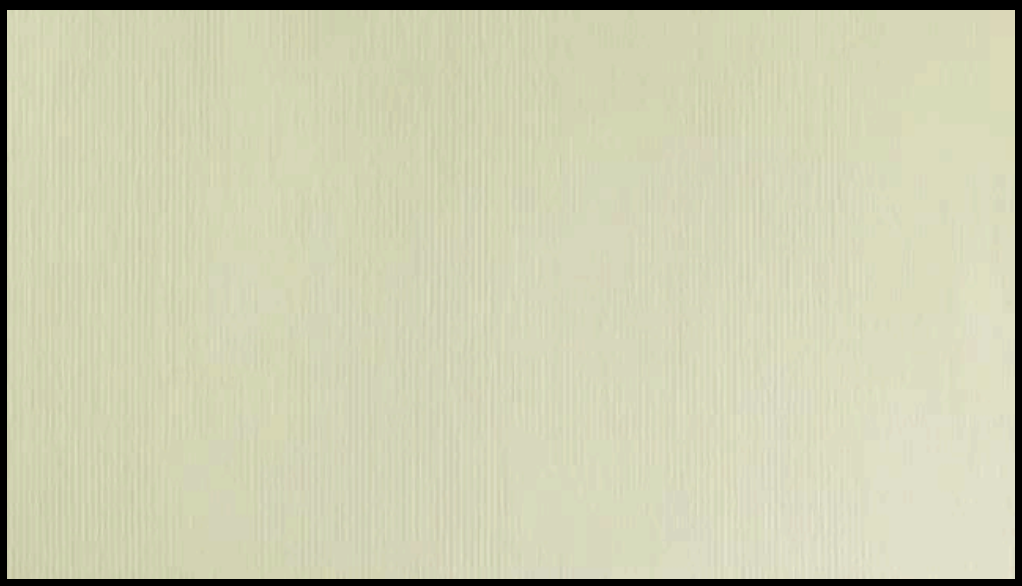
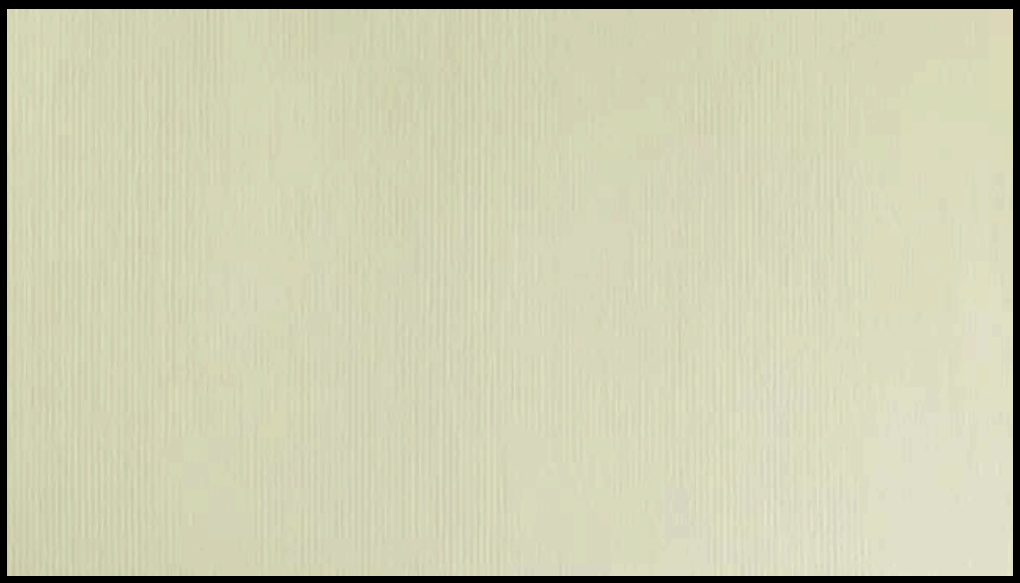
Examples of Student Projects



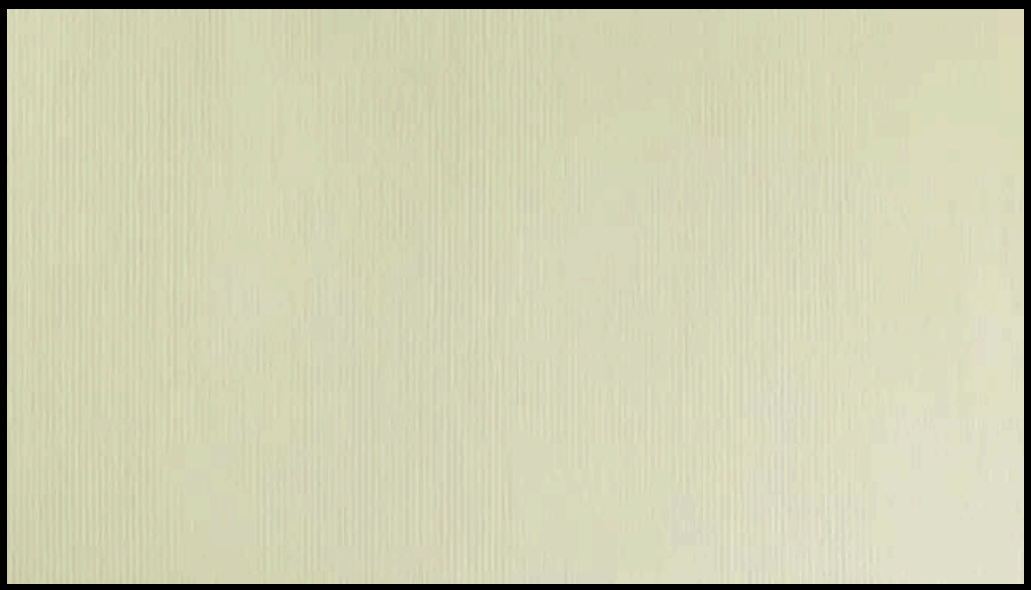
Examples of Student Projects



Examples of Student Projects



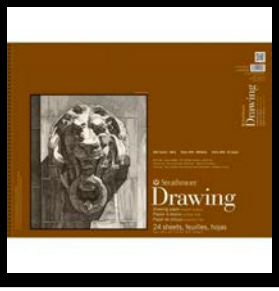
Examples of Student Projects



Your Materials…





Critiques on 1/29 & 1/31

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