# MATERIAL MAKER

CRAFTING MATERIAL INTERFACES     FALL 2011

# QUESTION

HOW CAN ARCHITECTS AND DESIGNERS USE COMPUTATION TO DESIGN AND TEST MATERIALS WITHIN THEIR OWN PRACTICE?
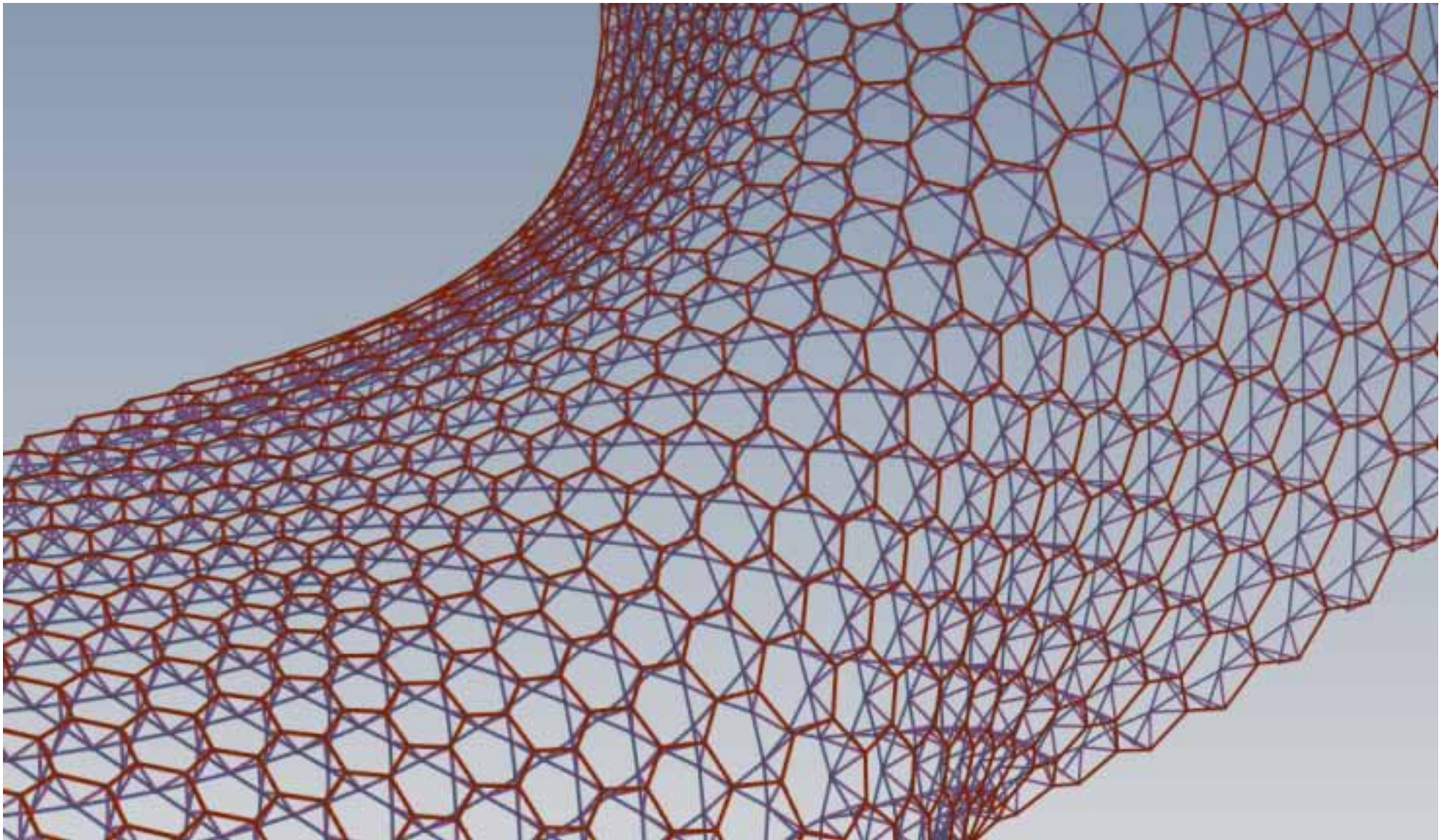
# CONCEPT

## INTEGRATION THROUGH WEAVING AND COMPUTATION

-EXPLORING 3D MODELING AS A TYPE OF TEXTILE INTERFACE

-DEVELOPING A WOVEN MATRIX OF BEND SENSORS TO TEST
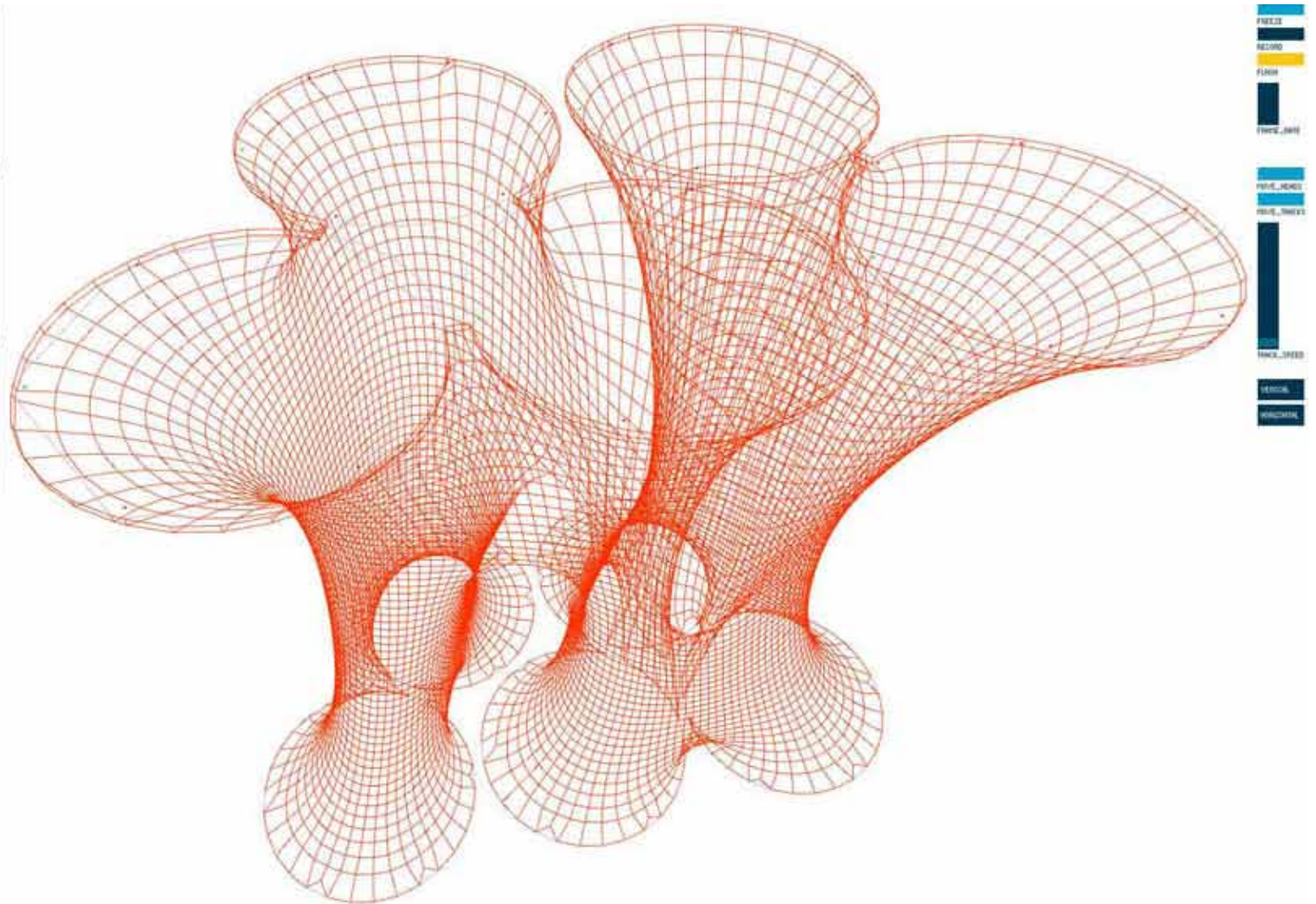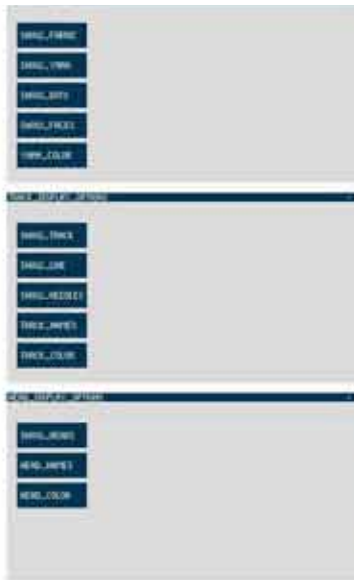
 WHAT INFORMATION CAN BE SIMULATED.

KANGAROO MESH

# INSPIRATION



KNITECTONICS
http://vimeo.com/25829753
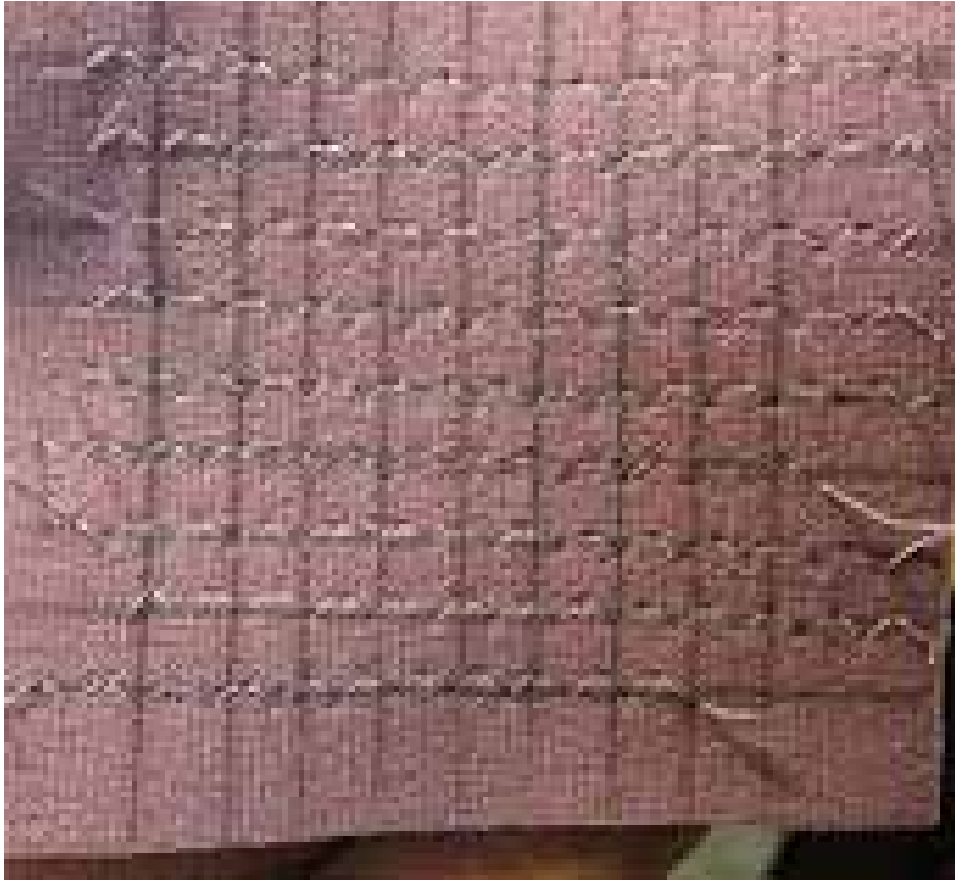
SHAPE TAPE

http://www.measurand.com/products/ShapeTape.html
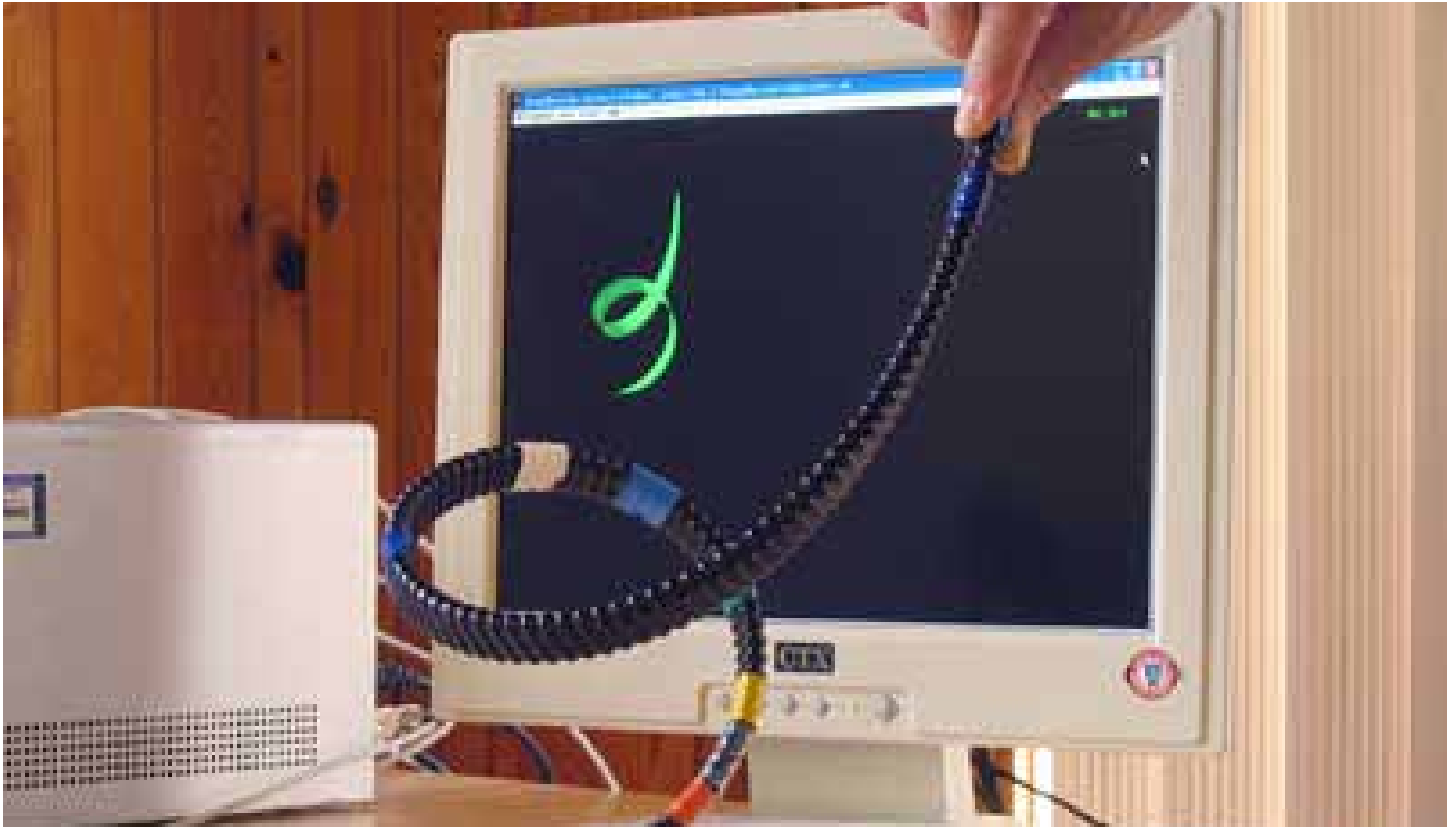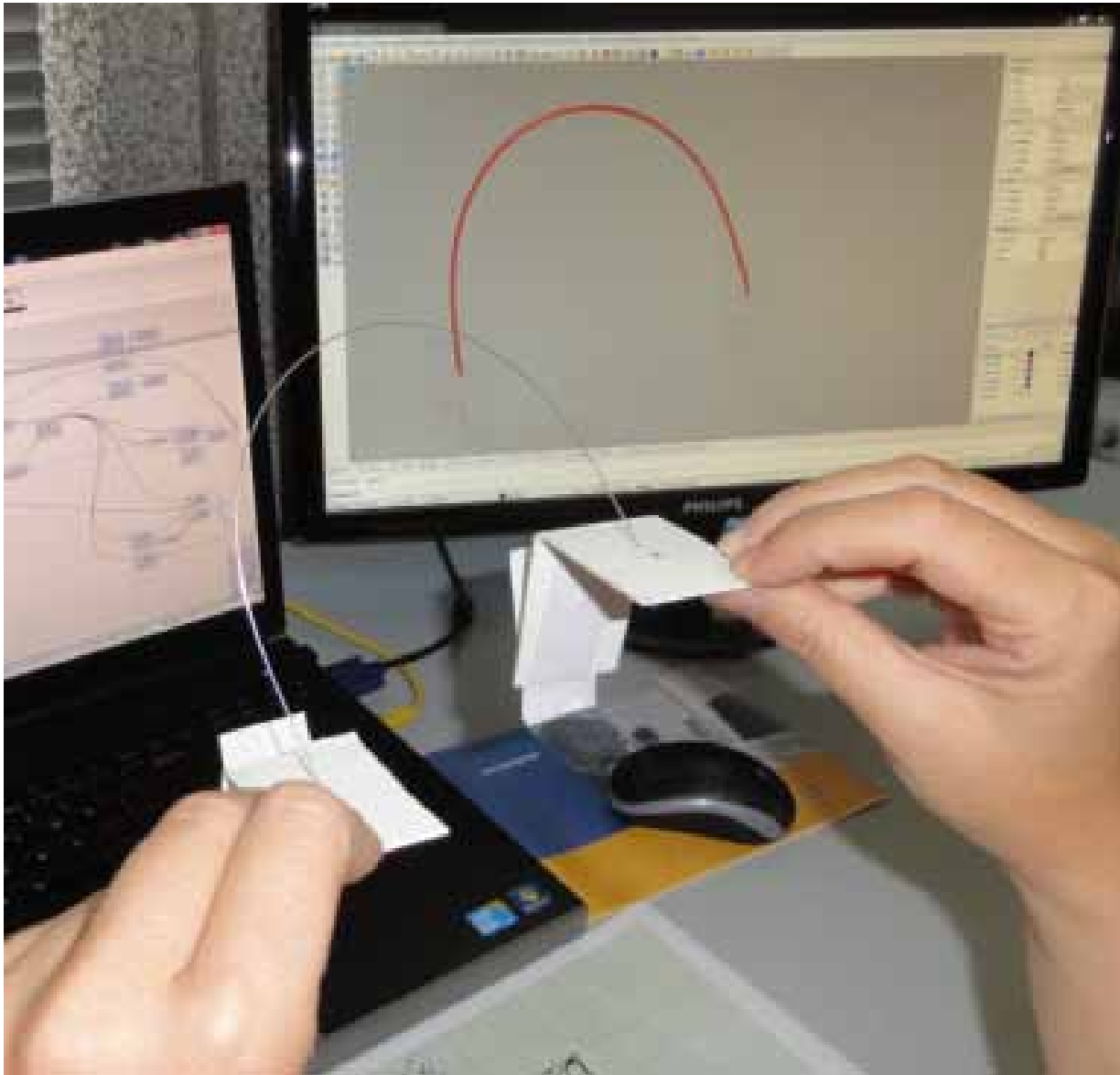
# INSPIRATION TEXTILES INCORPORATING A MATRIX OF SENSORS
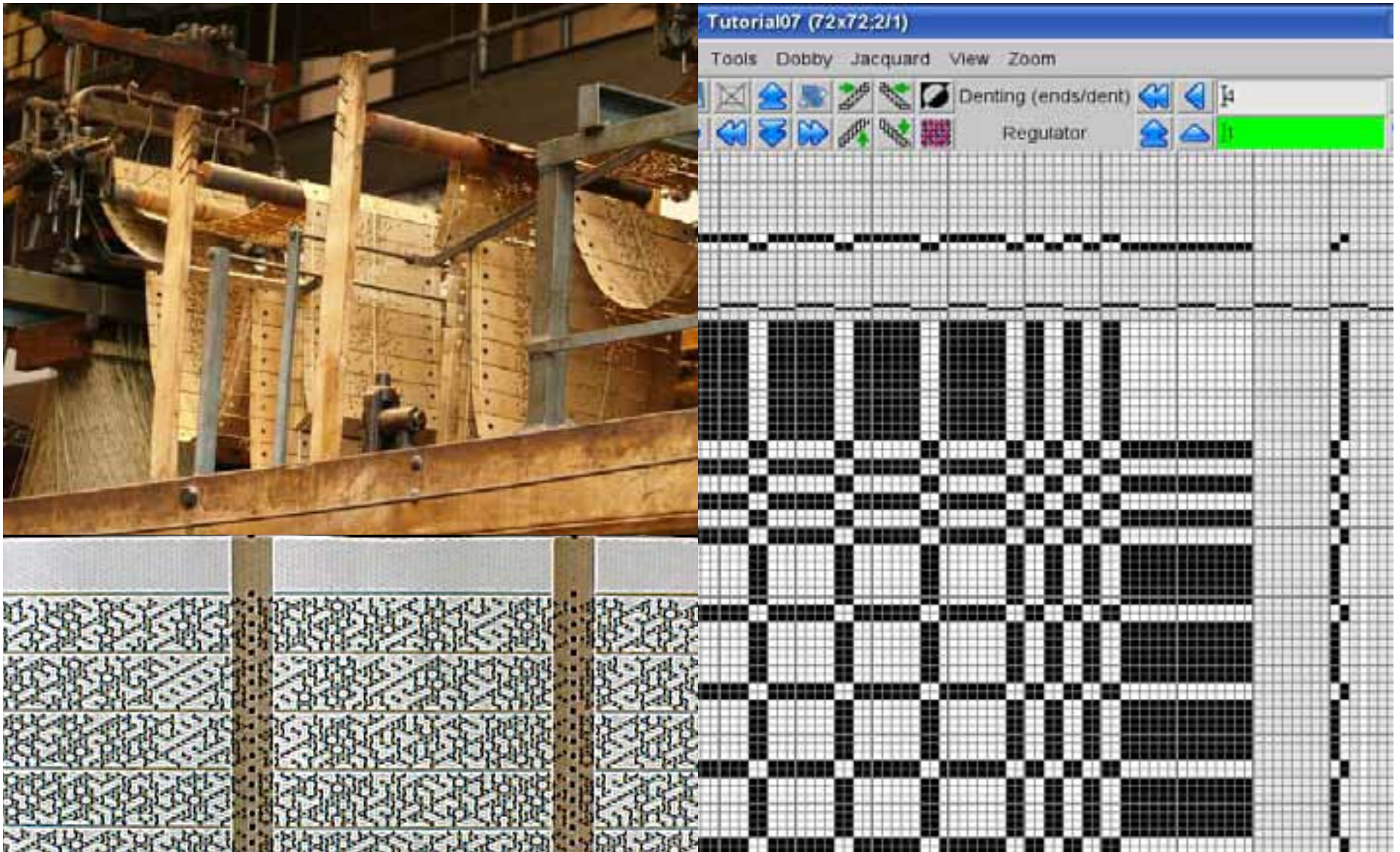


HANNAH PERNER WILSON

ROBOT SKIN

# INSPIRATION SIMULATION USING ARDUINO AND FIREFLY



BENDING STEEL WIRE WITH FIDUCIAL MARKERS ATTACHED ON BOTH ENDS.
FIREFLY READS THE POSITION OF THE FIDUCIAL MARKERS AND KANGAROO SIMULATES THE BENDING OF THE STEEL
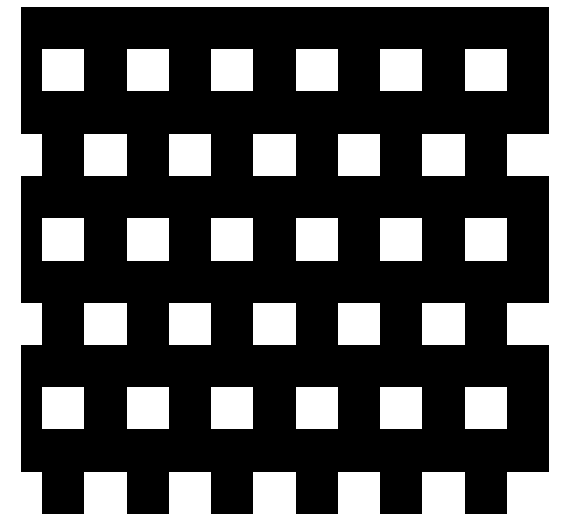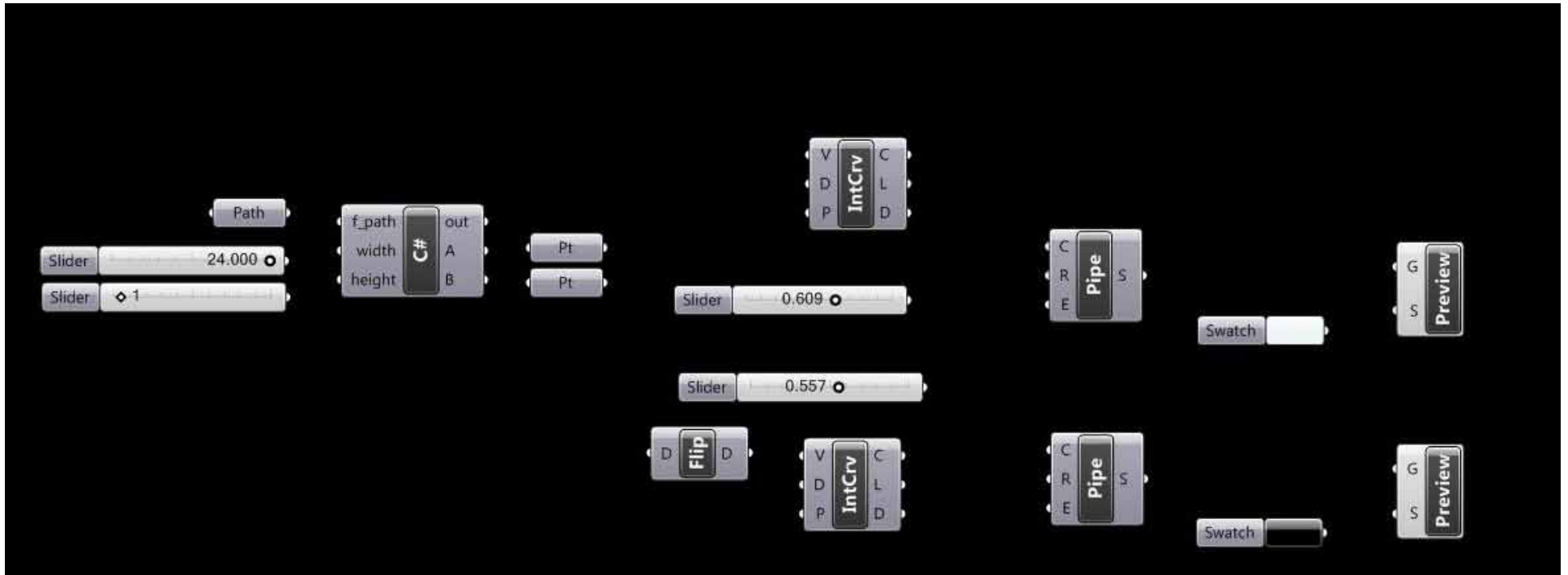
# PROCESS TEXTILE DESIGN



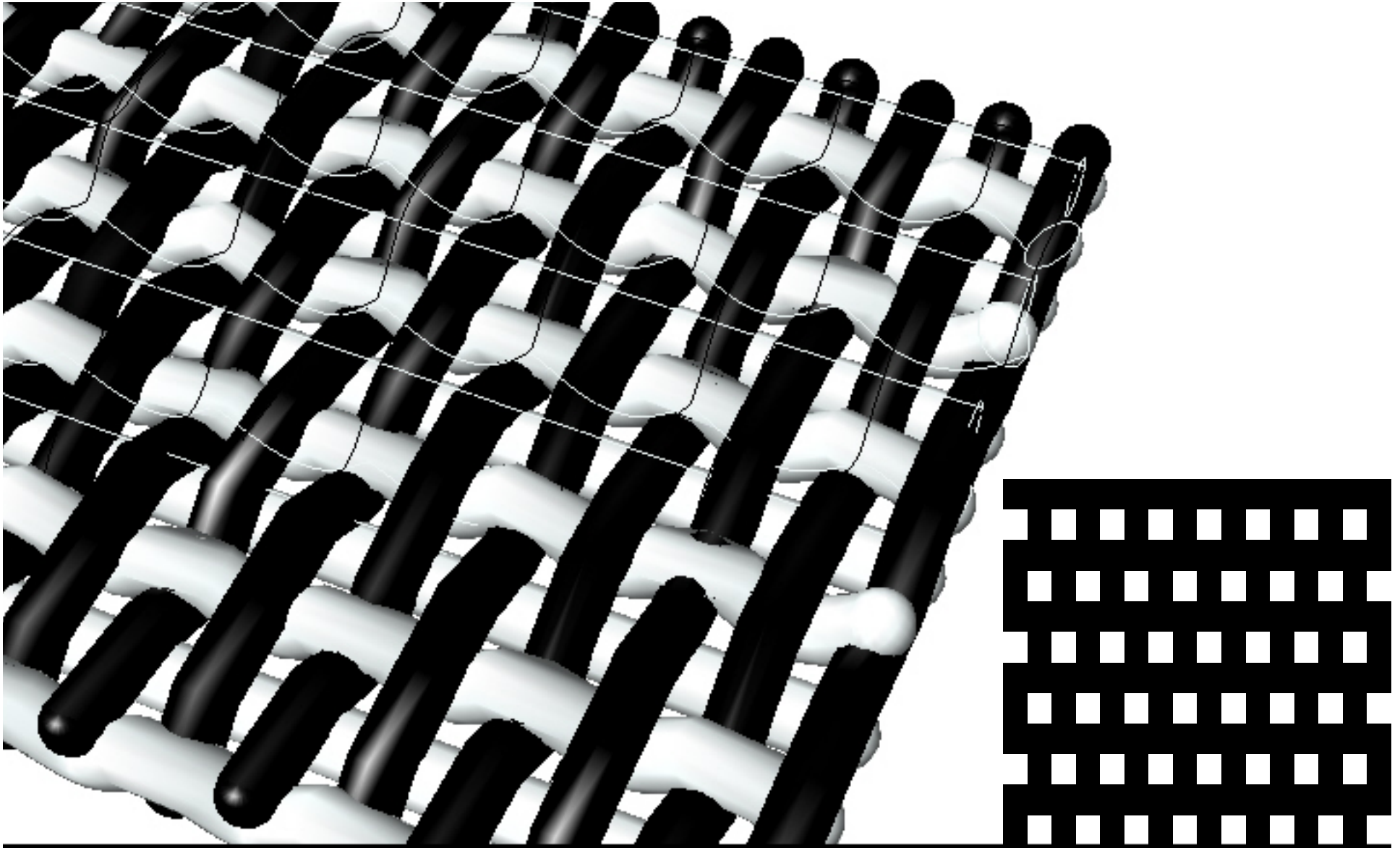TRADITIONAL PUNCH CARD DESIGN, CAD TEXTILE DESIGN USING TEXTILE SOFTWARE

# PROCESS

COMPUTATION - USING WEAVE DRAFTS TO SIMULATE WOVEN STRUCTURES
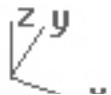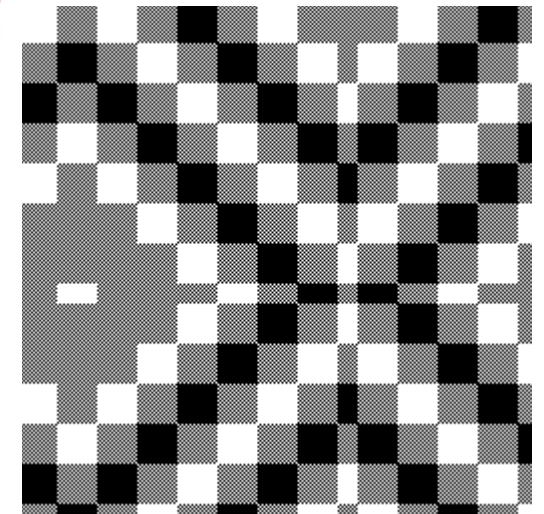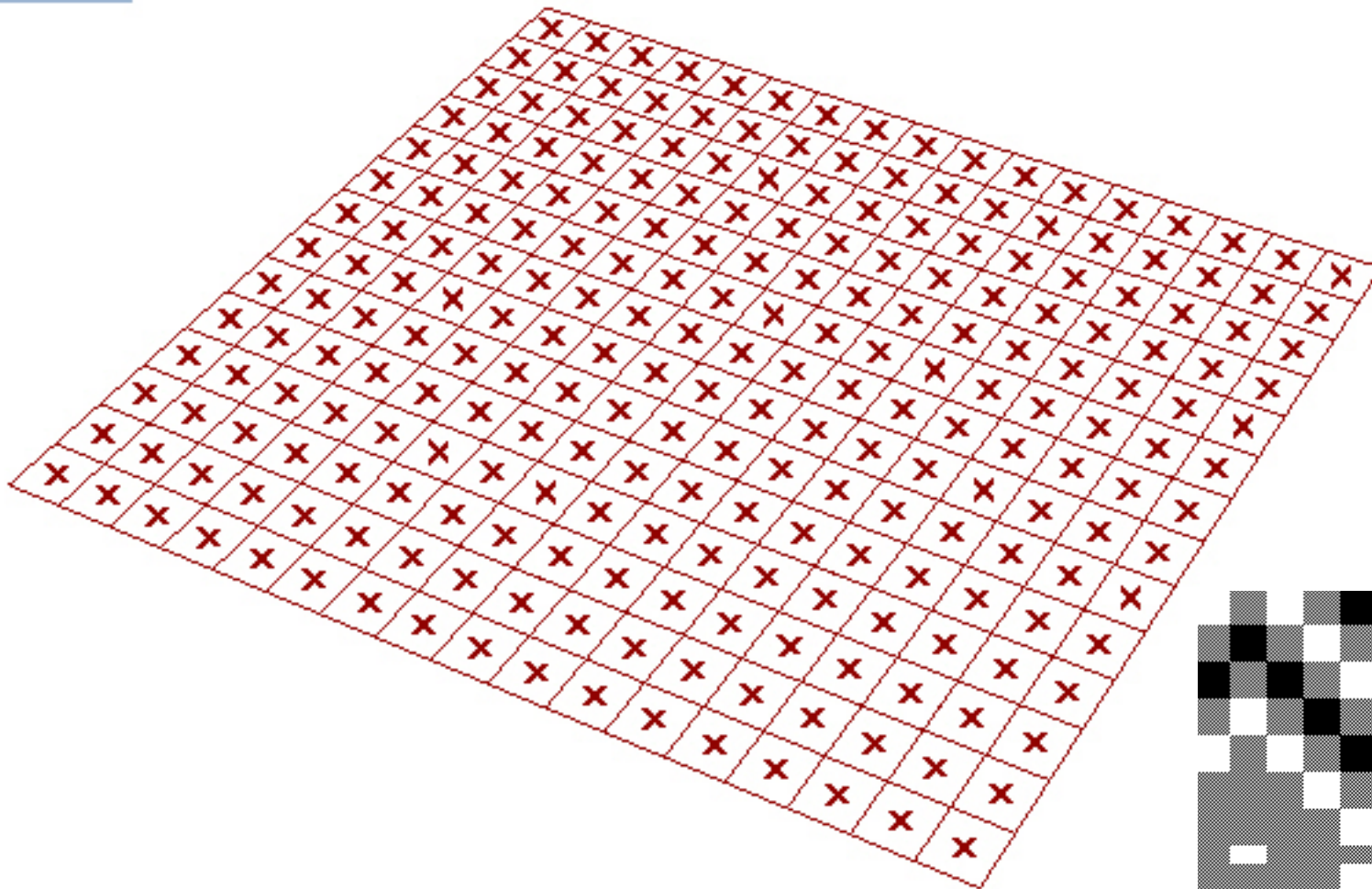
# PROCESS

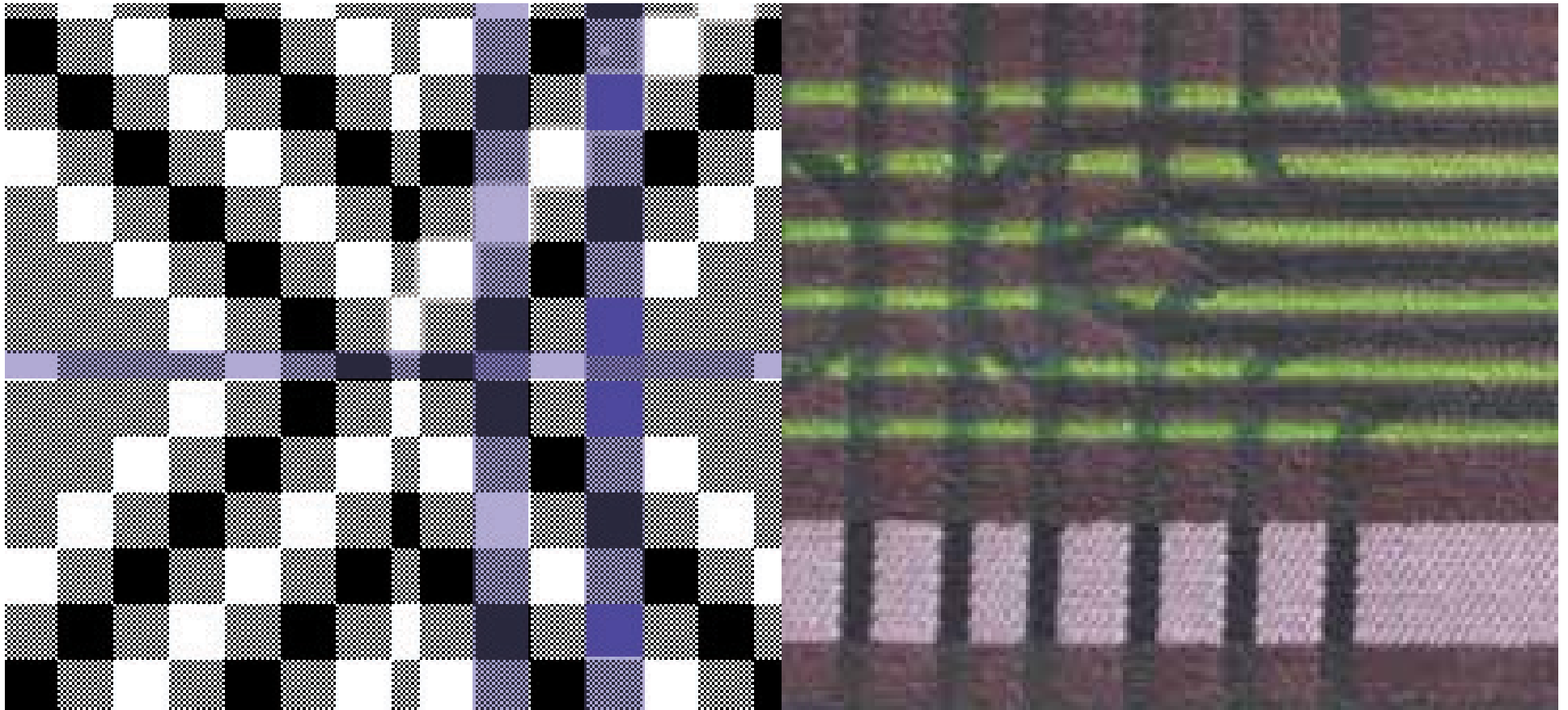COMPUTATION- USING SIMULATIONS TO UNDERSTAND WEAVE STRUCTURE  AND CIRCUIT POTENTIAL

# PROCESS
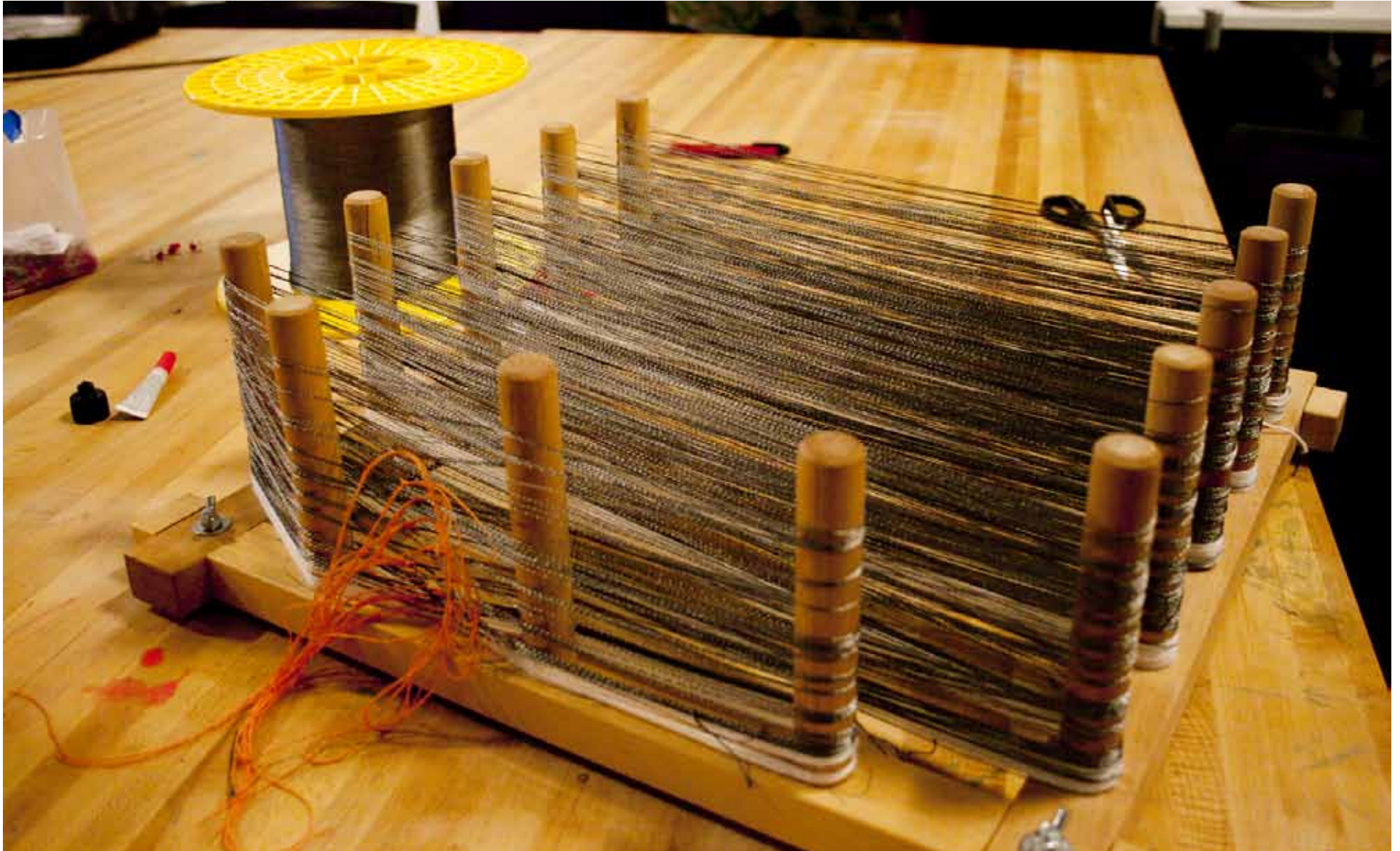
COMPUTATION - DESIGNING WEAVE DRAFTS IN GRASSHOPPER

# PROCESS

WOVEN PROTOTYPING - DESIGNING CIRCUITS

# PROCESS

WOVEN PROTOTYPING - MAKING A CONDUCTIVE WARP

# PROCESS

WOVEN PROTOTYPING - TIME LINE



11/ 8 CIRCUIT DESIGN, THREADING A CONDUCTIVE WARP

 11/15 WEAVING TEXTILE PROTOTYPES

11/22 TESTING OF CIRCUITS AND SIMULATION

11/29 REVISIONS