

**Interface
Authorship:
the times they
are a changing...**

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@danielhirschman

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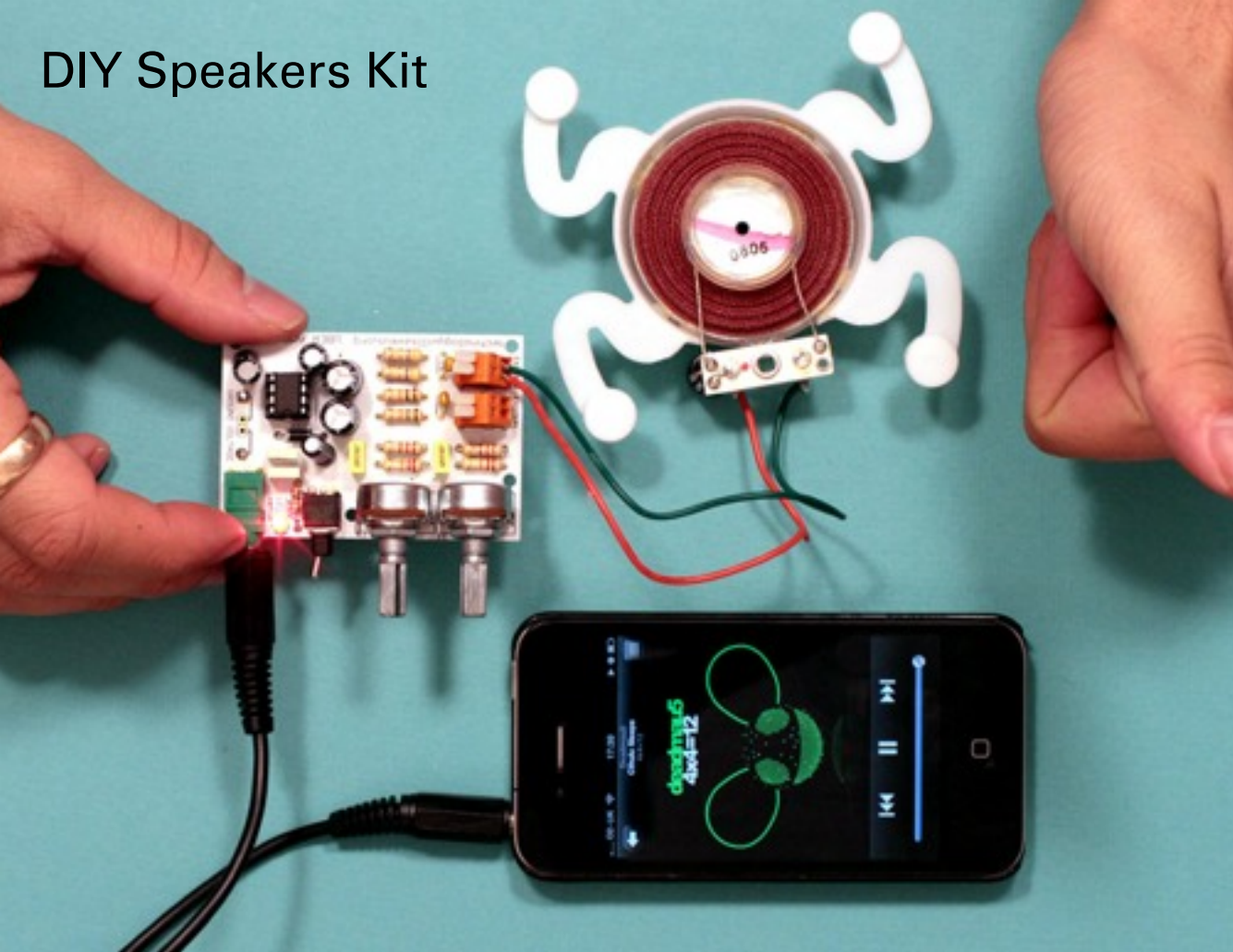
Hirsch&Mann



Learn about electronics with conductive play dough



DIY Speakers Kit



Lumiphone Kit



Thirsty Plant Kit



Electro card Kit





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...I blame the
hackers...



Canon Magic Lantern CHDK

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...I also blame
the internet!



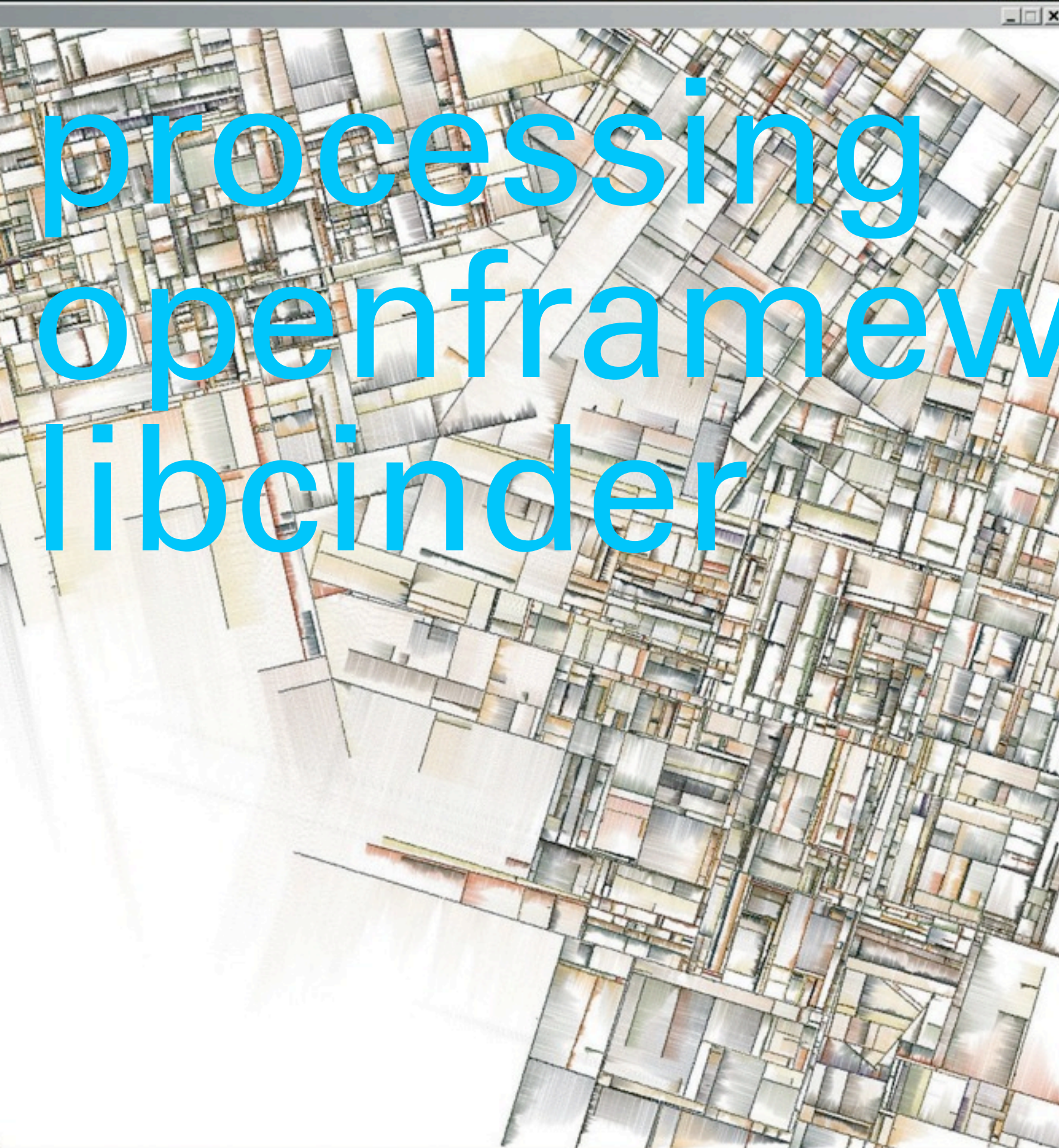
Creative coding

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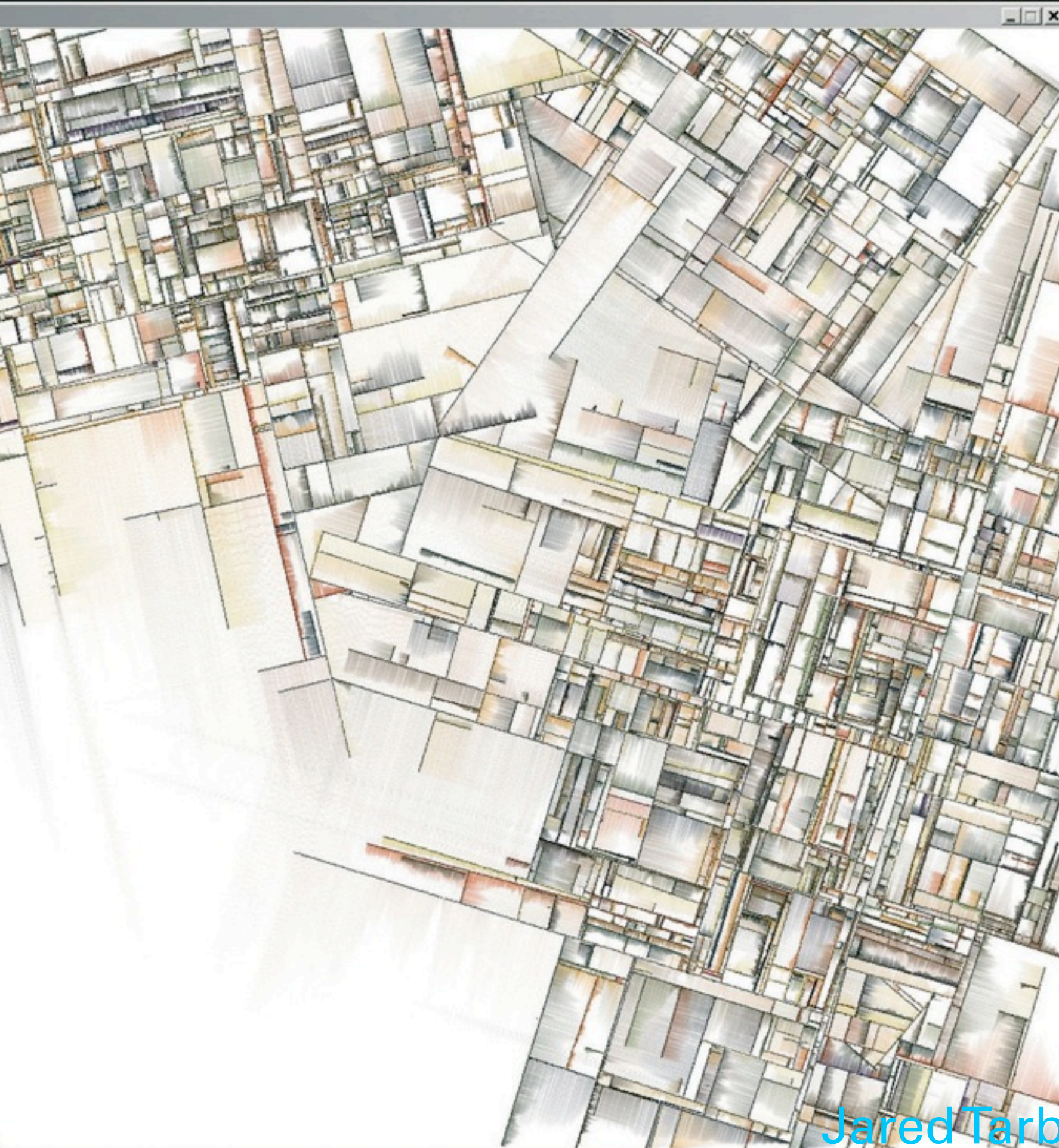
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processing openframeworks libcinder





```
Processing - 0092 Beta
File Edit Sketch Tools Help

TarbellSubstrate $

// Substrate Watercolor
// Jared Tarbell

// Click the mouse to restart the growth

int width = 950;
int height = 950;
int num = 0;
int maxnum = 250;

// grid of cracks
int[] cgrid;
Crack[] cracks;

// color parameters
int maxpal = 512;
int numpal = 0;
color[] goodcolor = new color[maxpal];

// sand painters
SandPainter[] sands;

// MAIN METHODS -----

void setup() {
  size(950, 950);
  // size(width,height);
  background(255);
  fill(255);
  rect(0, 0, width, height);
  takecolor("pollockFFF.gif");

  cgrid = new int[width*height];
  cracks = new Crack[maxnum];

  begin();
}

void draw() {
  // crack all cracks
}
```

Jared Tarbell: complexification.net
'Substrate' using processing

Generative visuals

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City Icon: hirsch&mann
generative cityscape for Siemens



RANCE PREVENT
CARE SHIE
SENSE
PEAC
SUST

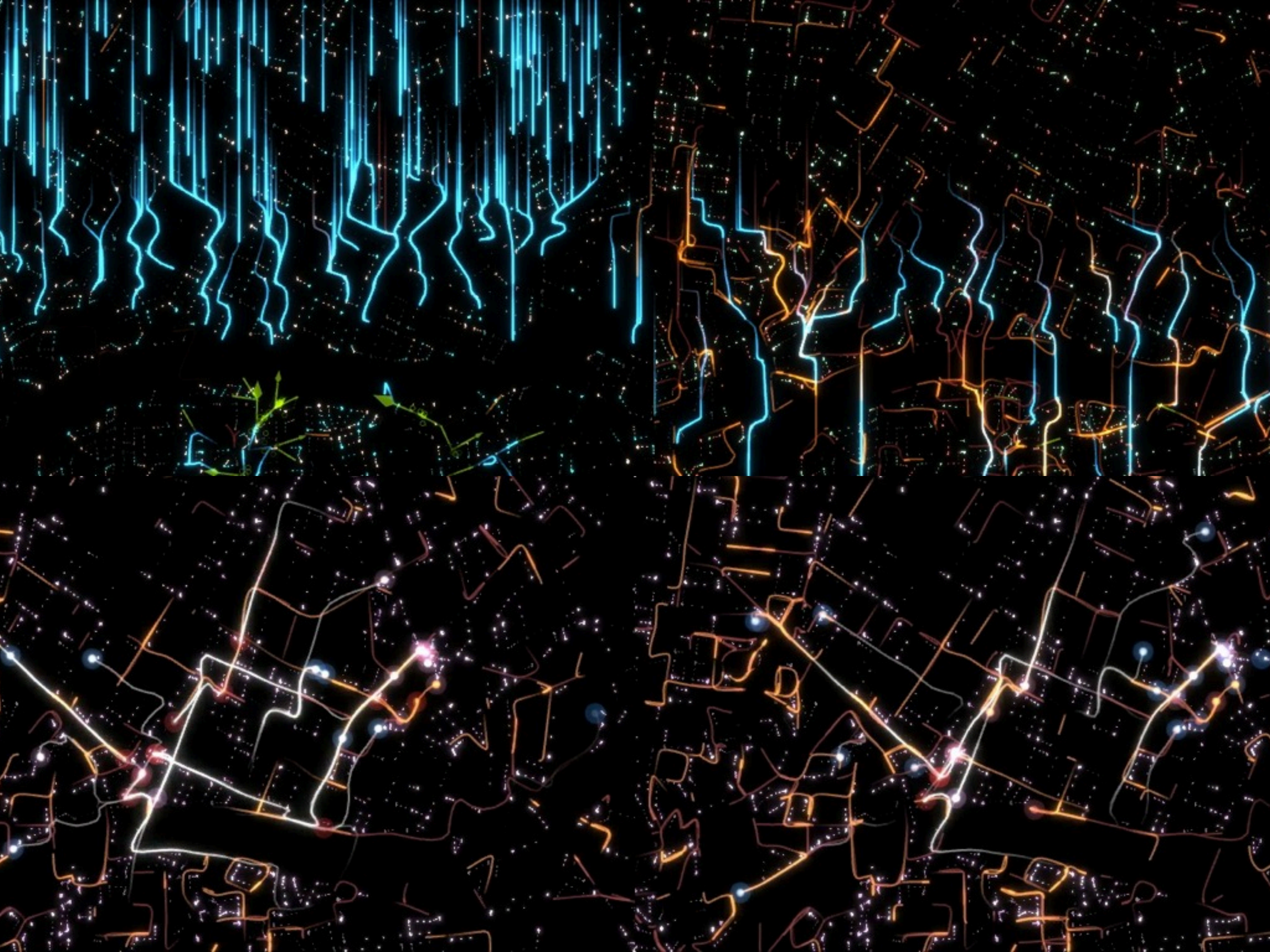
City monitor

Resilient city

The world's greenest cities

The world's greenest cities

Density matters



DEFAULT TRANSPORT WATER HEALTH ENERGY ENVIRONMENT SECURITY SHARED LIGHTS

25.00 NUMPARTICLES

43.89 TRANSITION

21.76 FPS

CAR COLOR 1



CAR COLOR 2

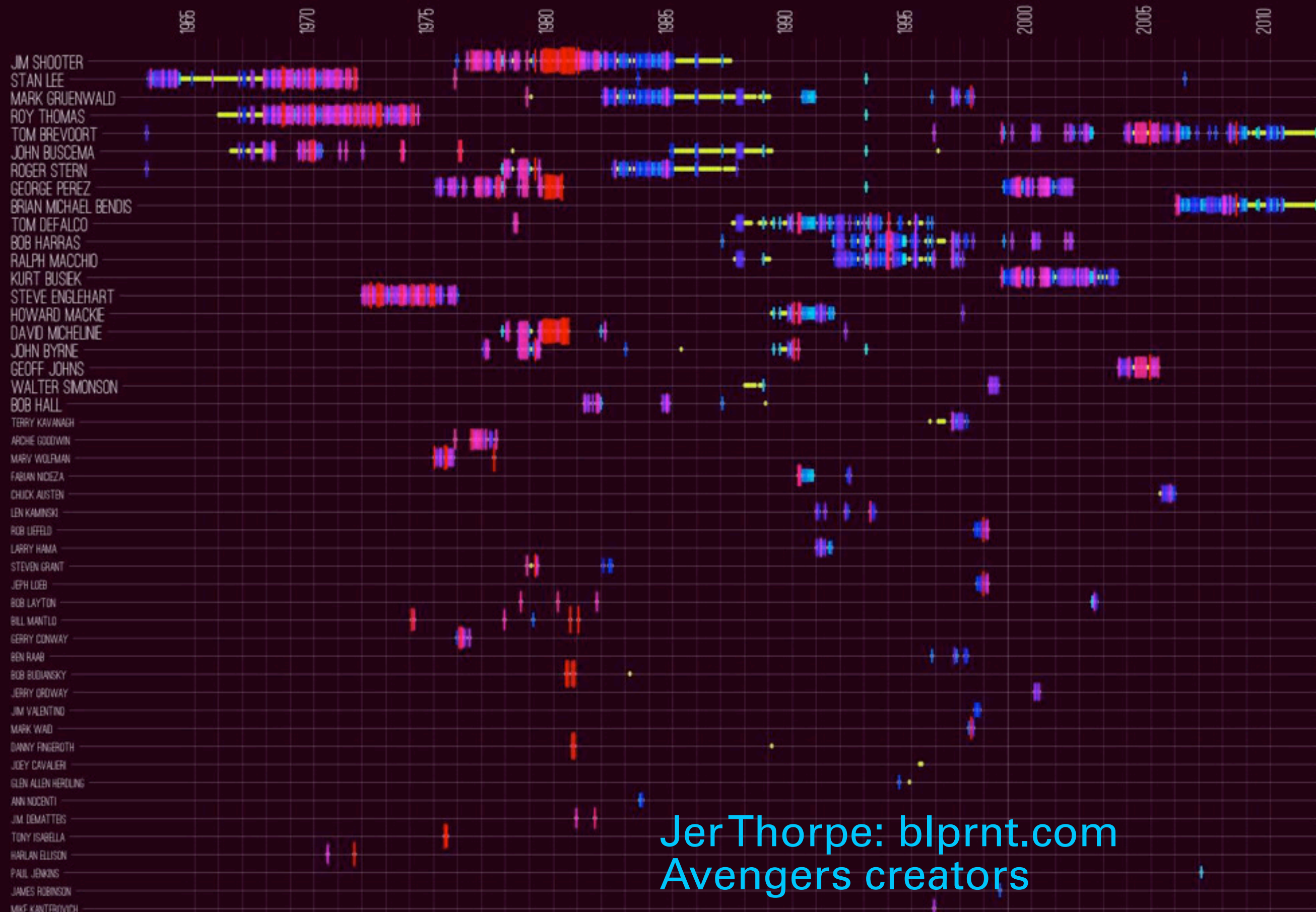


0.05 CAR SPEED



AVENGERS (1963 - 2011)

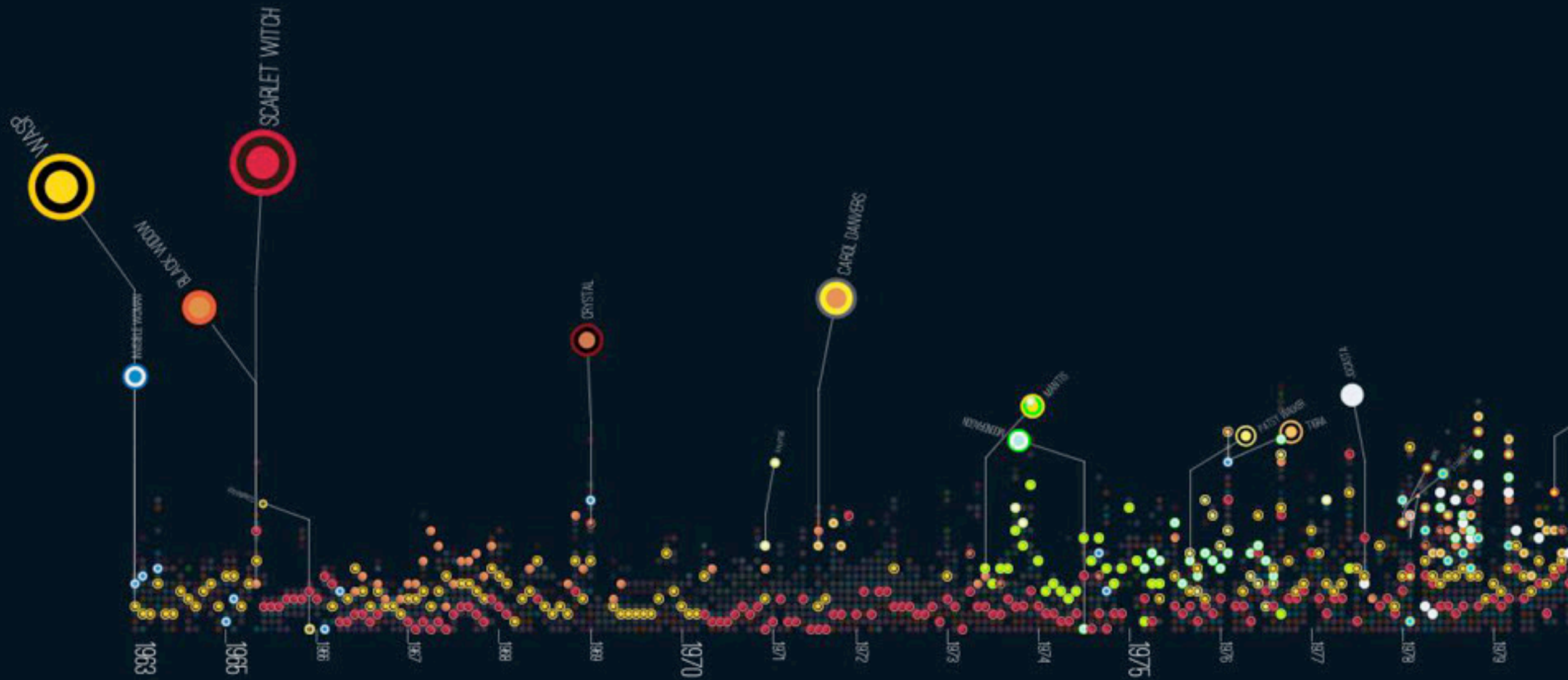
CREATORS - WRITER: CHARACTER ROBOTITUDE



JerThorpe: blprnt.com
Avengers creators

AVENGERS (1963 - 2011)

FEMALE CHARACTERS - TIMELINE



JerThorpe: blprnt.com
Female characters



JerThorpe: blprnt.com
Every Avenger ever

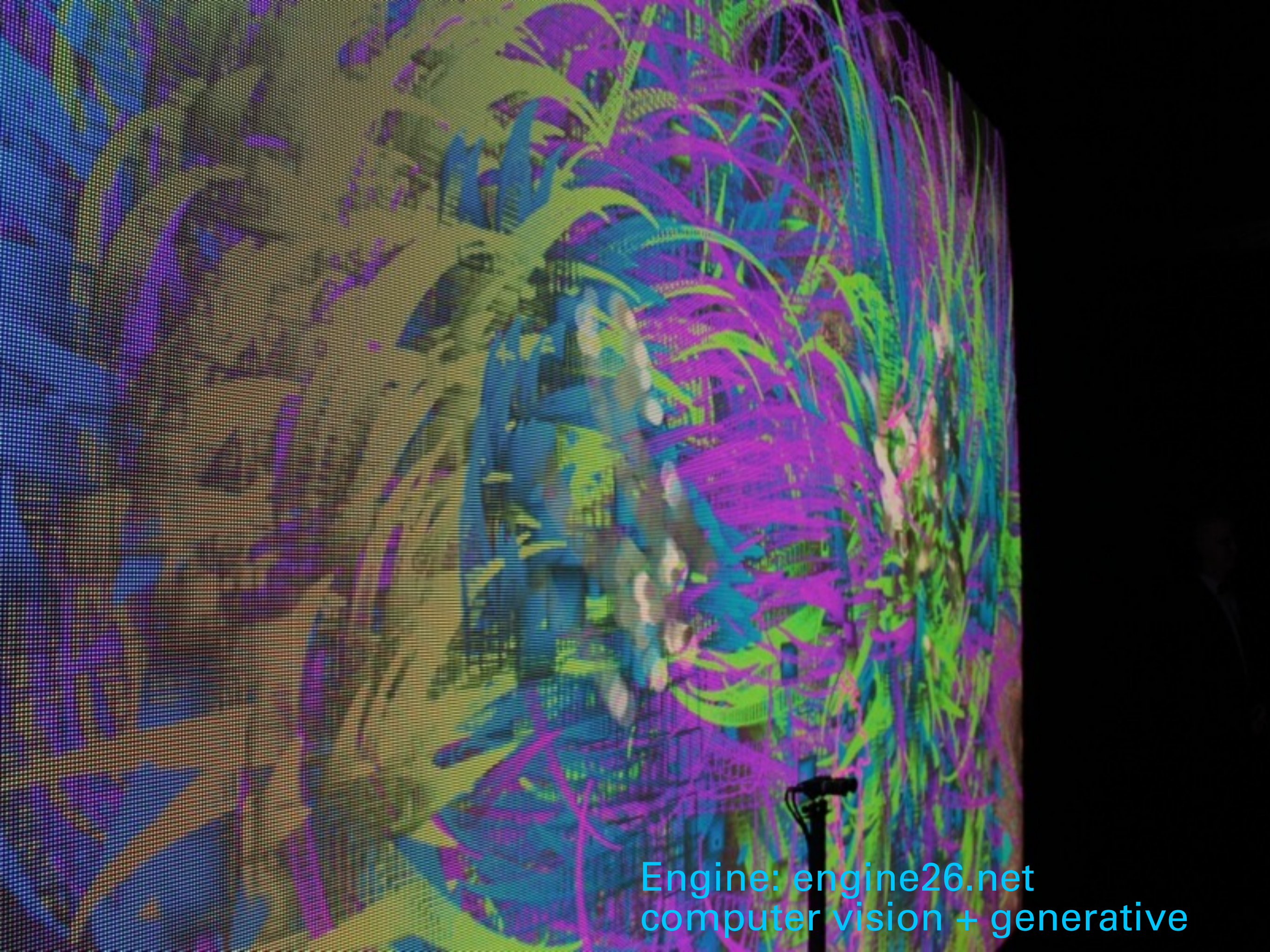
Computer vision

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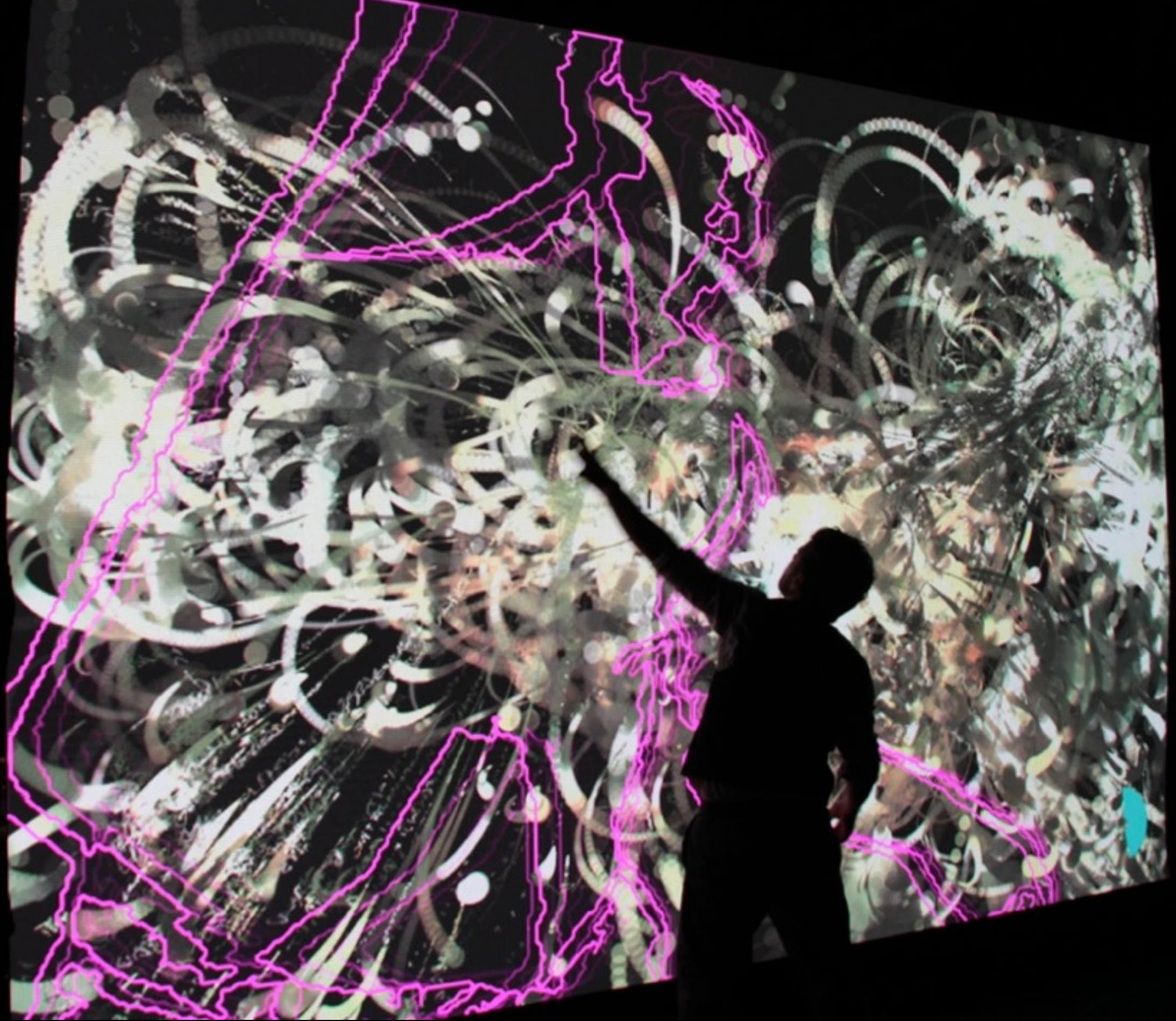


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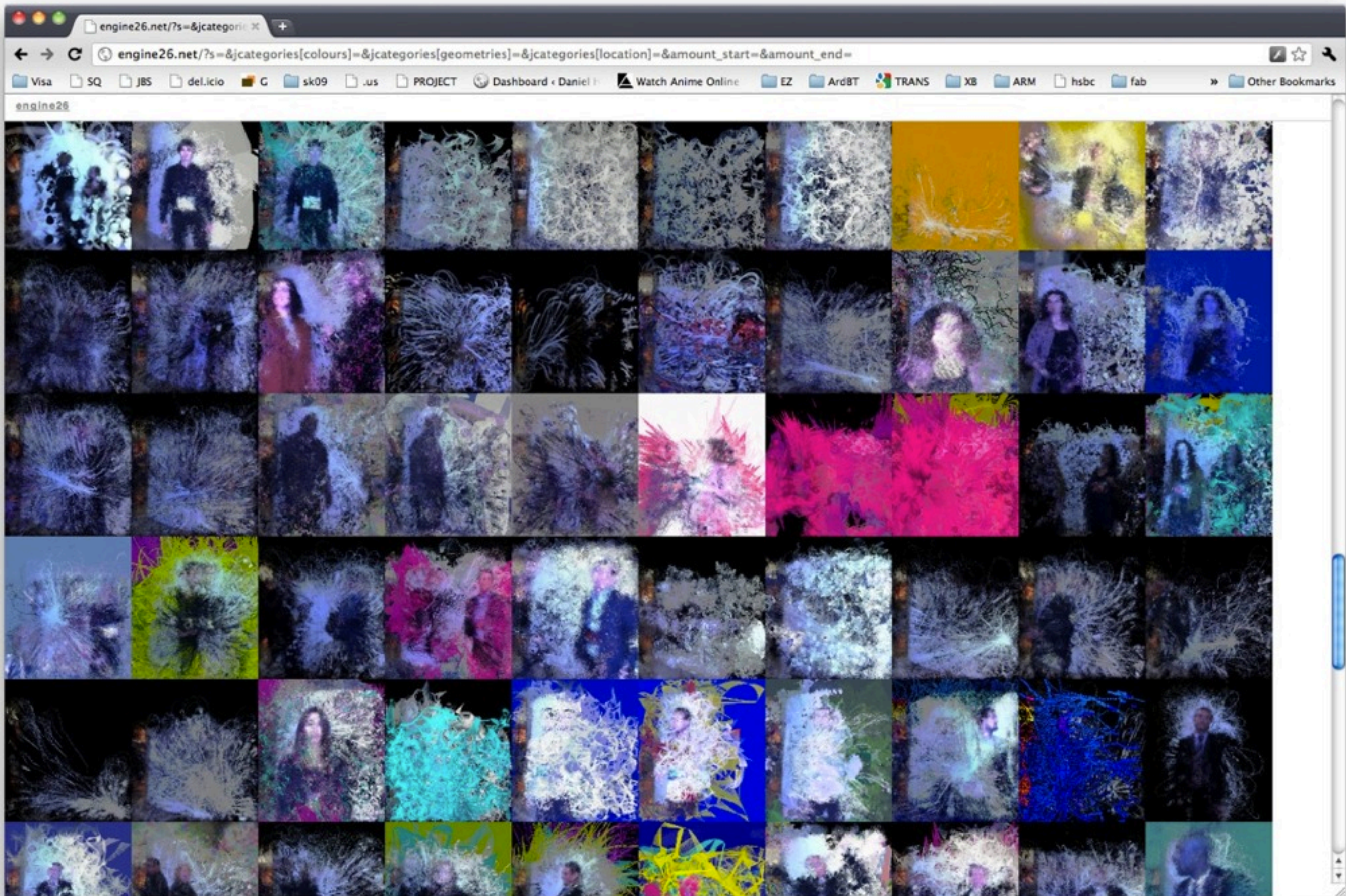
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Engine: engine26.net
computer vision + generative









damianstewart.com
Face Substitution



Unstoppable Death Machines
Made with RGBD Toolkit

Myron Kruger

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technologywillsaveus.org
hirschandmann.com



Video Place
all images © Myron Kruger

**Inventors can
now speak
directly to early
adopters**

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kickstarter.com

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Oculus Rift
photo via: digitaltrends.com



Oculus Rift
\$2.4M funding



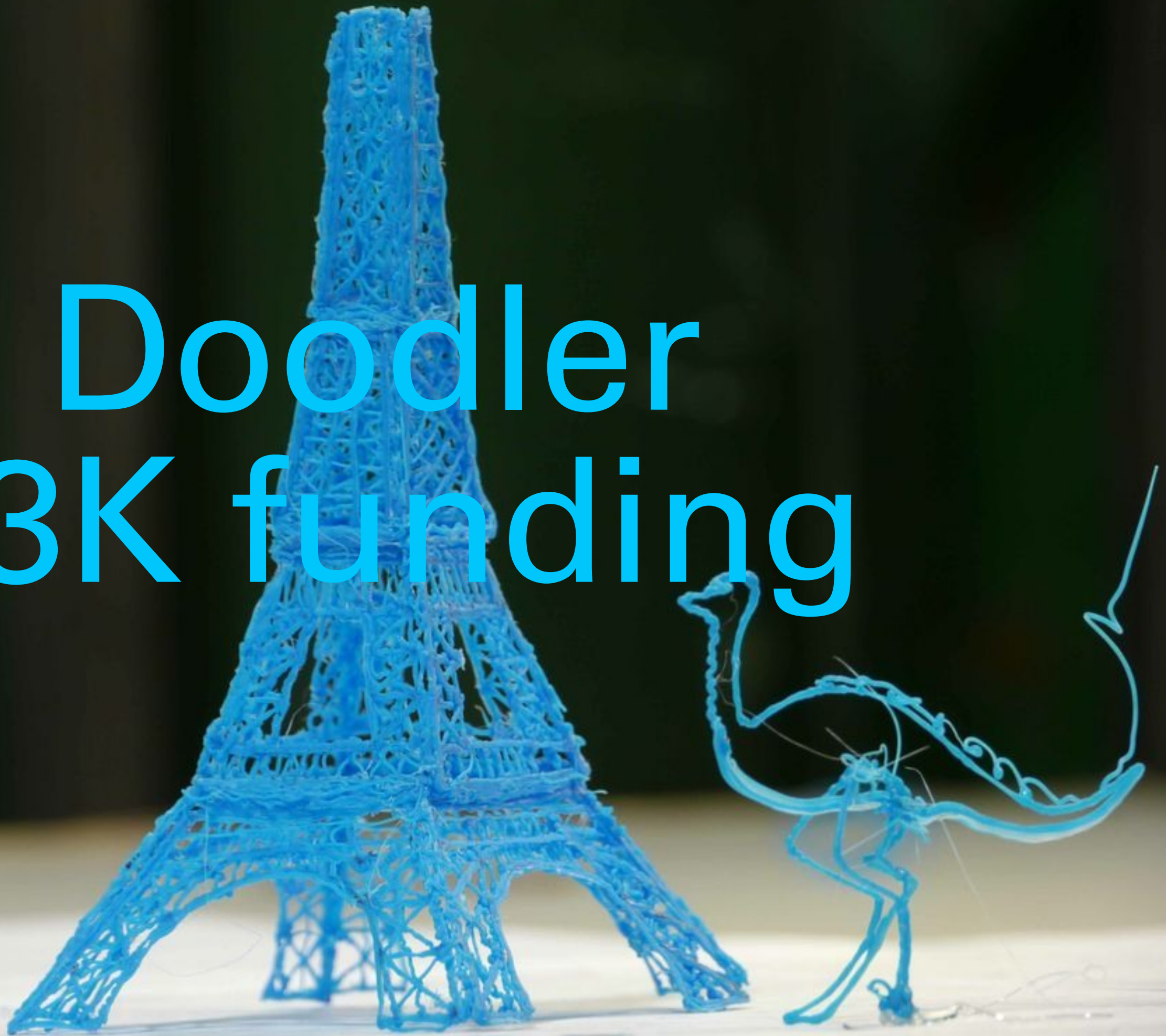
3Doodler

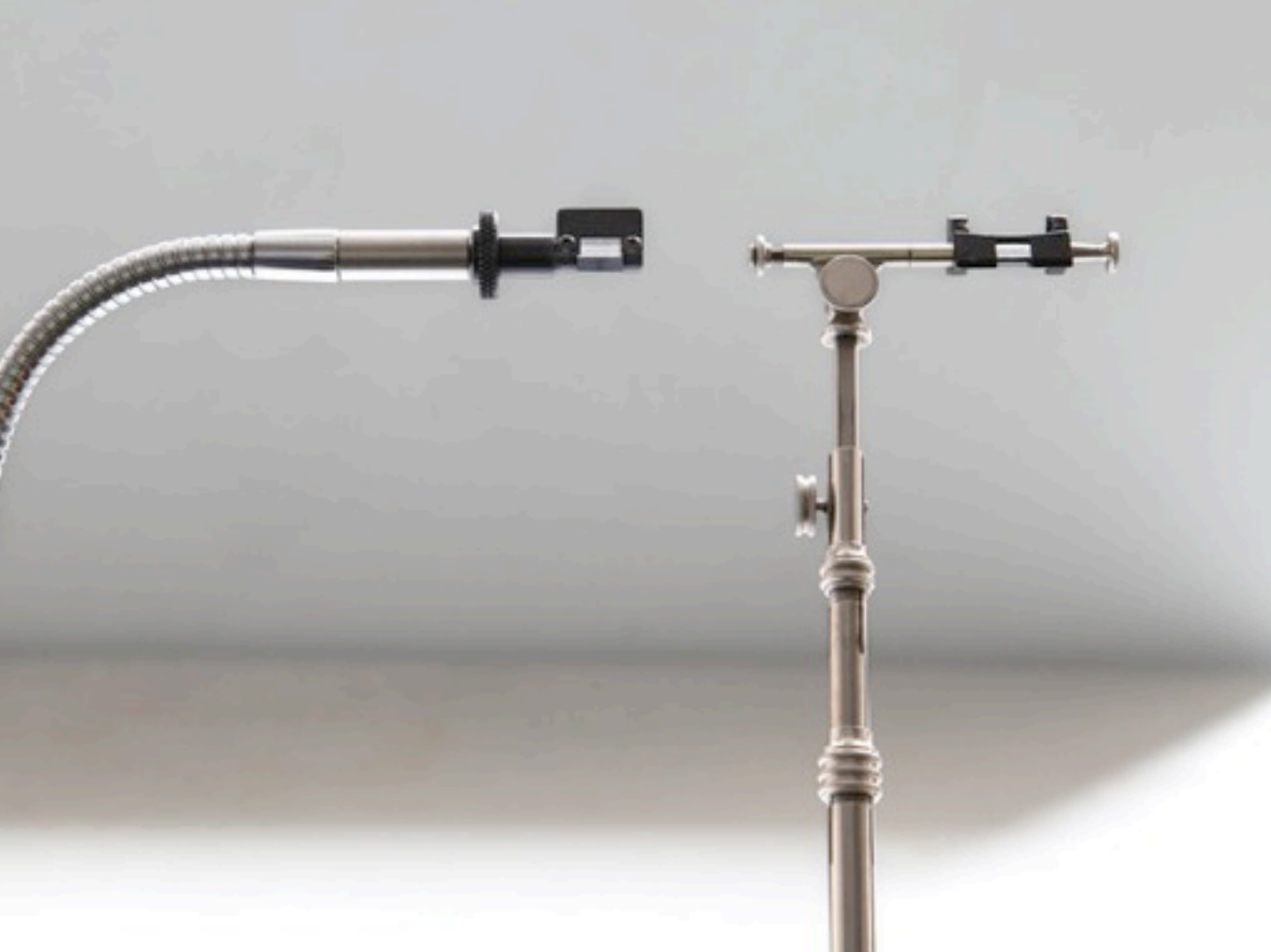
3D Doodler
photo via: the3ddoodler.com

3D Doodler

\$73K funding

3Doodler





Neolucida
photos via: [kickstarter.com](https://www.kickstarter.com)



Neolucida
\$425K funding

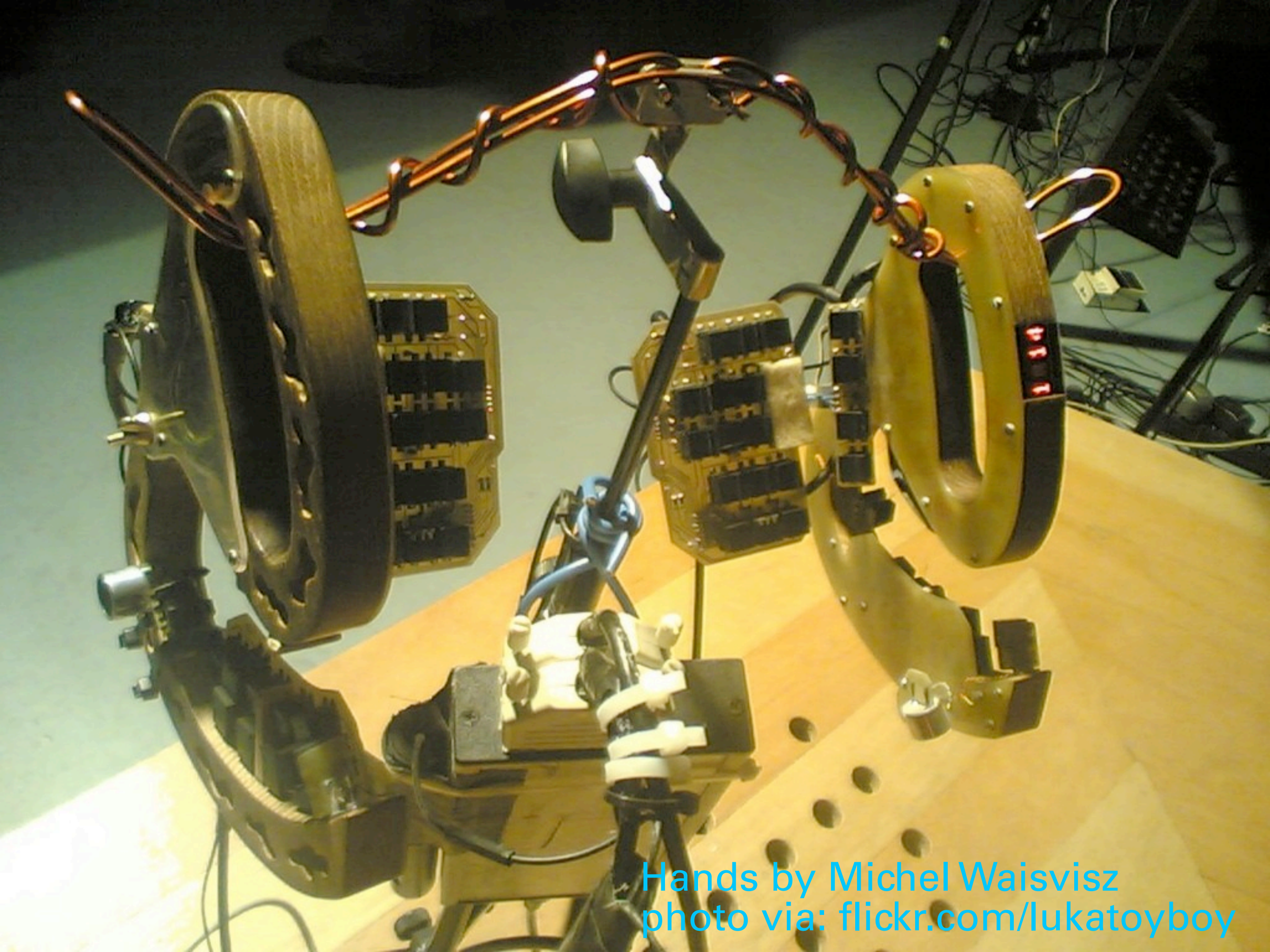
Bits & atoms

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Hands by Michel Waisvisz
photo via: [flickr.com/lukatooyboy](https://www.flickr.com/photos/lukatooyboy/)



Steim



NIME
photo via: steim.nl

MADE
IN ITALY

AREF

GND

13

12

~11

~10

~9

8

7

6

5

4

3

2

1

TX

RX

DIGITAL (PWM~)



UNO

ARDUINO

TX

RX

ON

RESET-EN

RESET

ICSP

RESET

3.3V

5V

GND

GND

Vin

POWER

ANALOG IN

A0

A1

A2

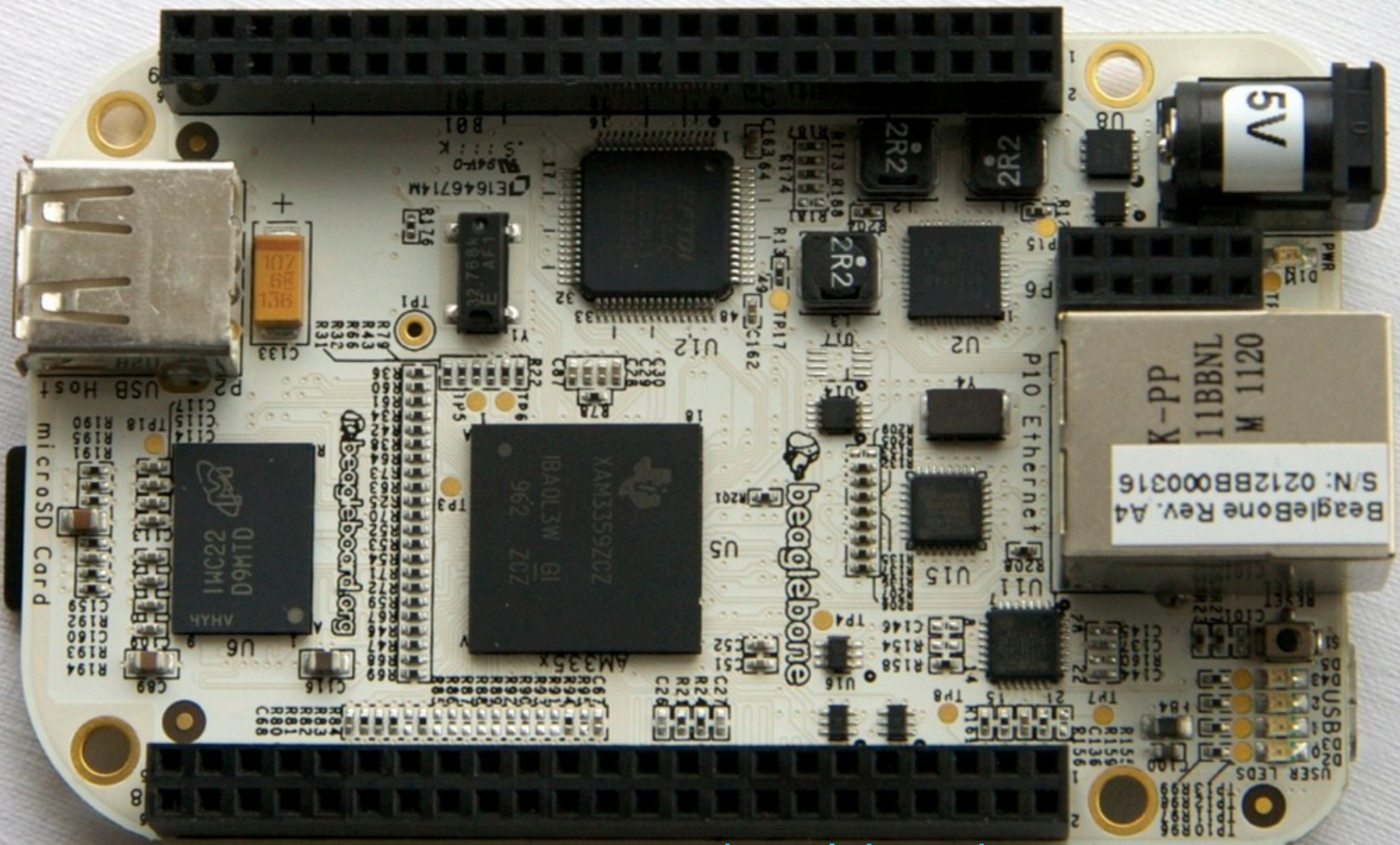
A3

A4

A5

arduino.cc :open hardware
photo via wikipedia

WWW.ARDUIINO.CC



beagleboard.org
photo via: auctoris.co.uk

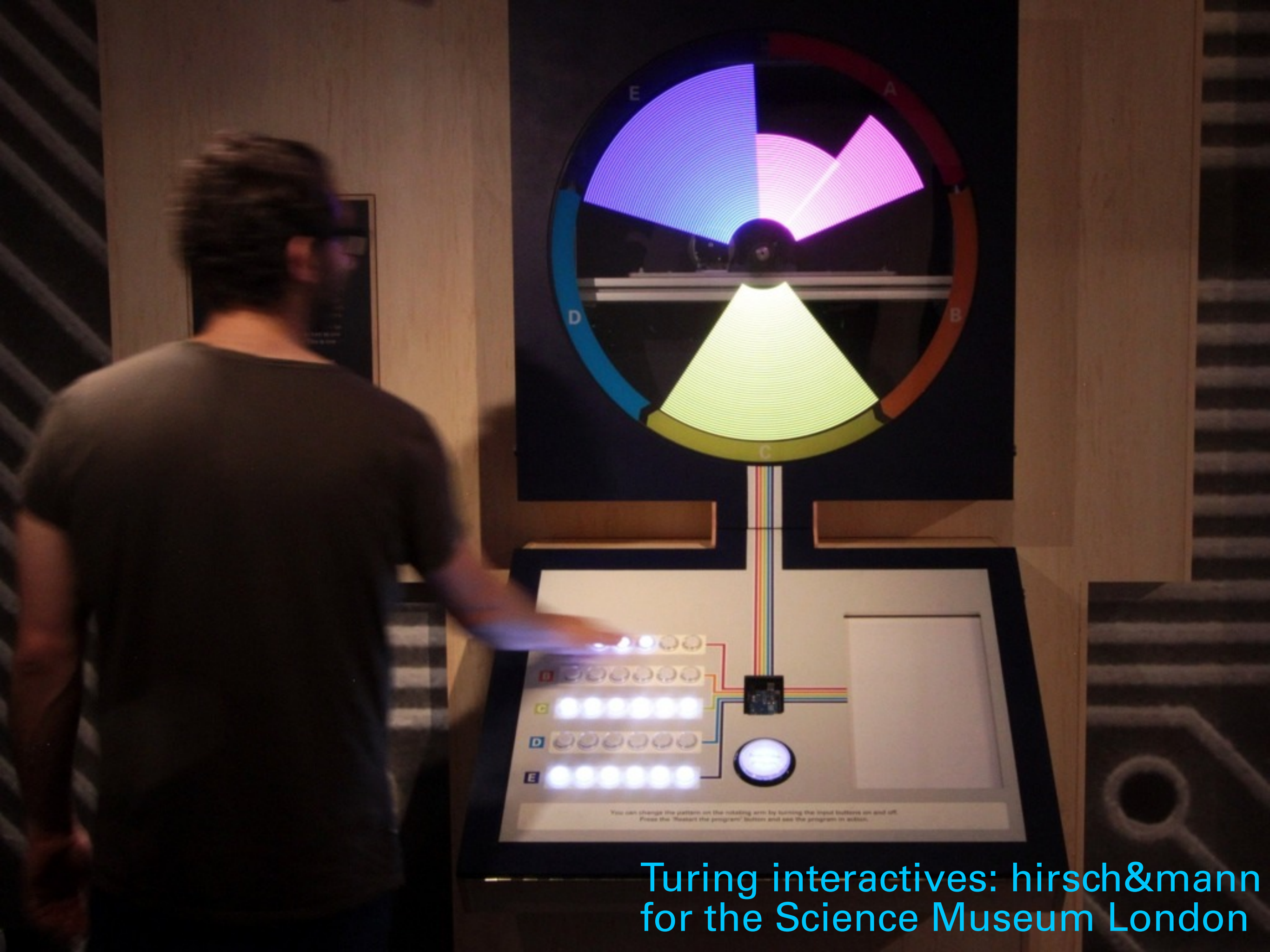




Tuned Stairs: danielhirschmann.com
with fabrica.it







Turing interactives: hirsch&mann
for the Science Museum London



Hirsch&Mann

Looping

LOOKING

A



B

P R O C E S S

OUTPUTS



COMPUTER



INPUTS



PUNCH CARDS

PUNCH CARD A

PUNCH CARD B

PUNCH CARD C

CODE

3.
SEND

2.
CONVERT

1.
READ

V I S I T O R ' S O B J E C T I V E

Use the PUNCH CARDS to turn the LEDs on the spinning arm ON & OFF. As the arm loops around and around the pattern can change as the LEDs are set to change.

STEP
THROUGH
PROCESS



VARIABLES

Computer programs are all about information and data. The program gives instructions on what to do with the data. The data can change but the program always uses them in the same way.

For instance, a program might be used to control the movement of a device such as a robot arm. The program would need to set the arm at certain angles.

The angles will vary depending on what the user wants the arm to do. The program needs a way to handle these varying quantities. It does so using 'variables'.

You can explore how variables work in the next section.

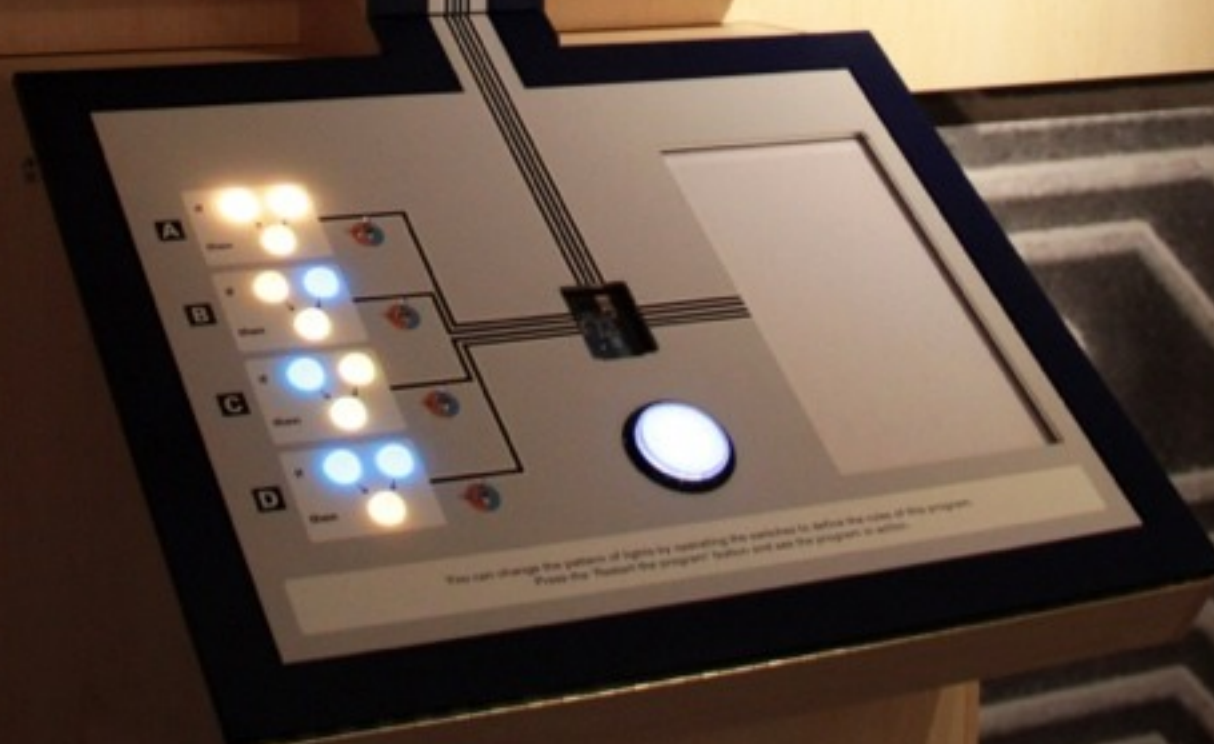


CONDITIONALS

Consider how to make decisions
in a program.

For instance, a computer might be operating
lights in a building. It would have to decide
whether to turn each exterior light on or
off according to time and by the day.

A simple rule might be, "If the sun is
high, then the light should be turned
off." Or a rule might be more complicated,
like this: "Only lighting during conditions
can be made using a program. These
decisions are made by a computer."
The computer then makes a decision.





Workshops & self learning

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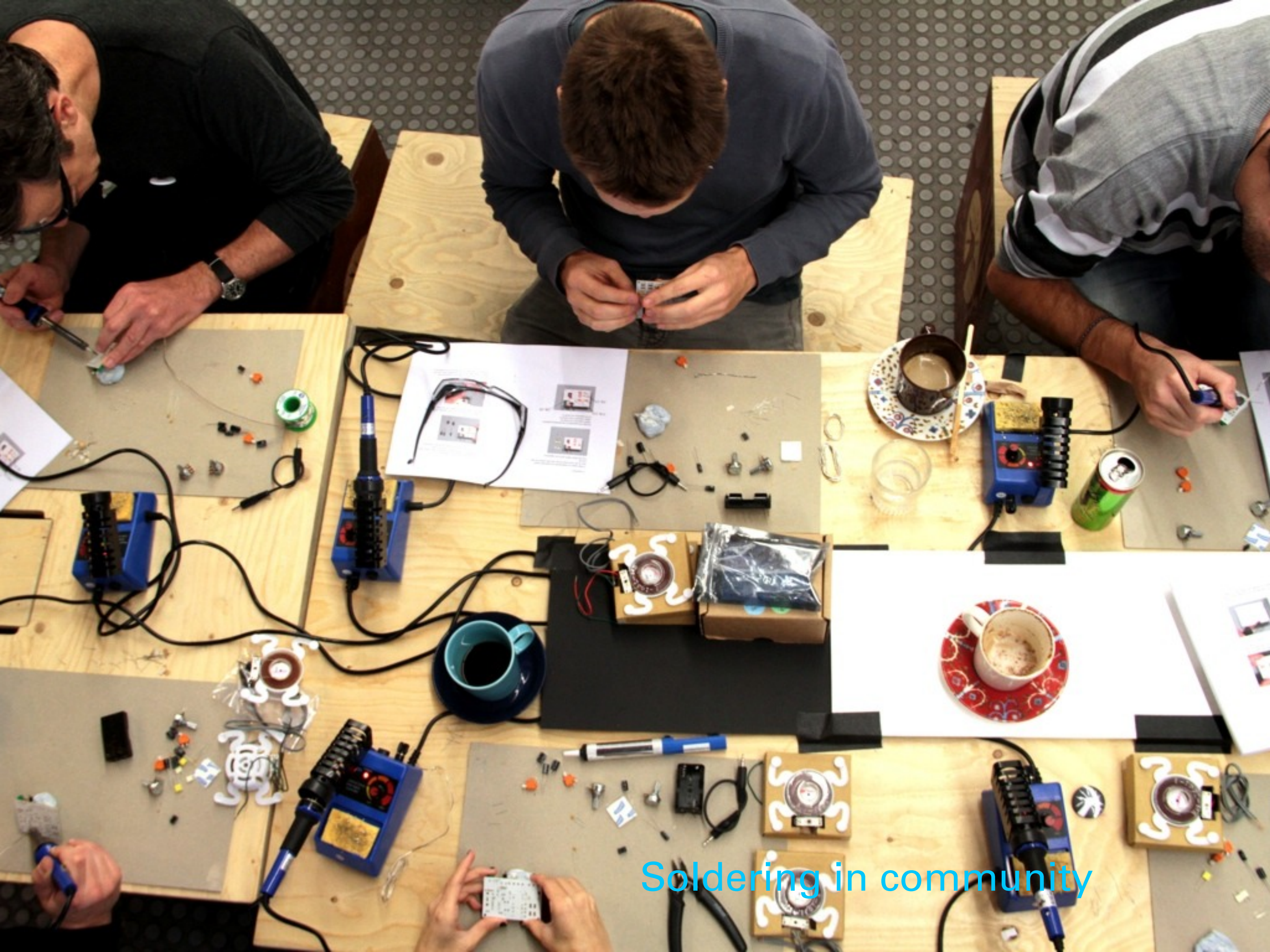


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How to wire a plug



Soldering in community



Building speakers out
of recycled material



Thirsty Plant kit

PLANT

Making a plant thirst detector

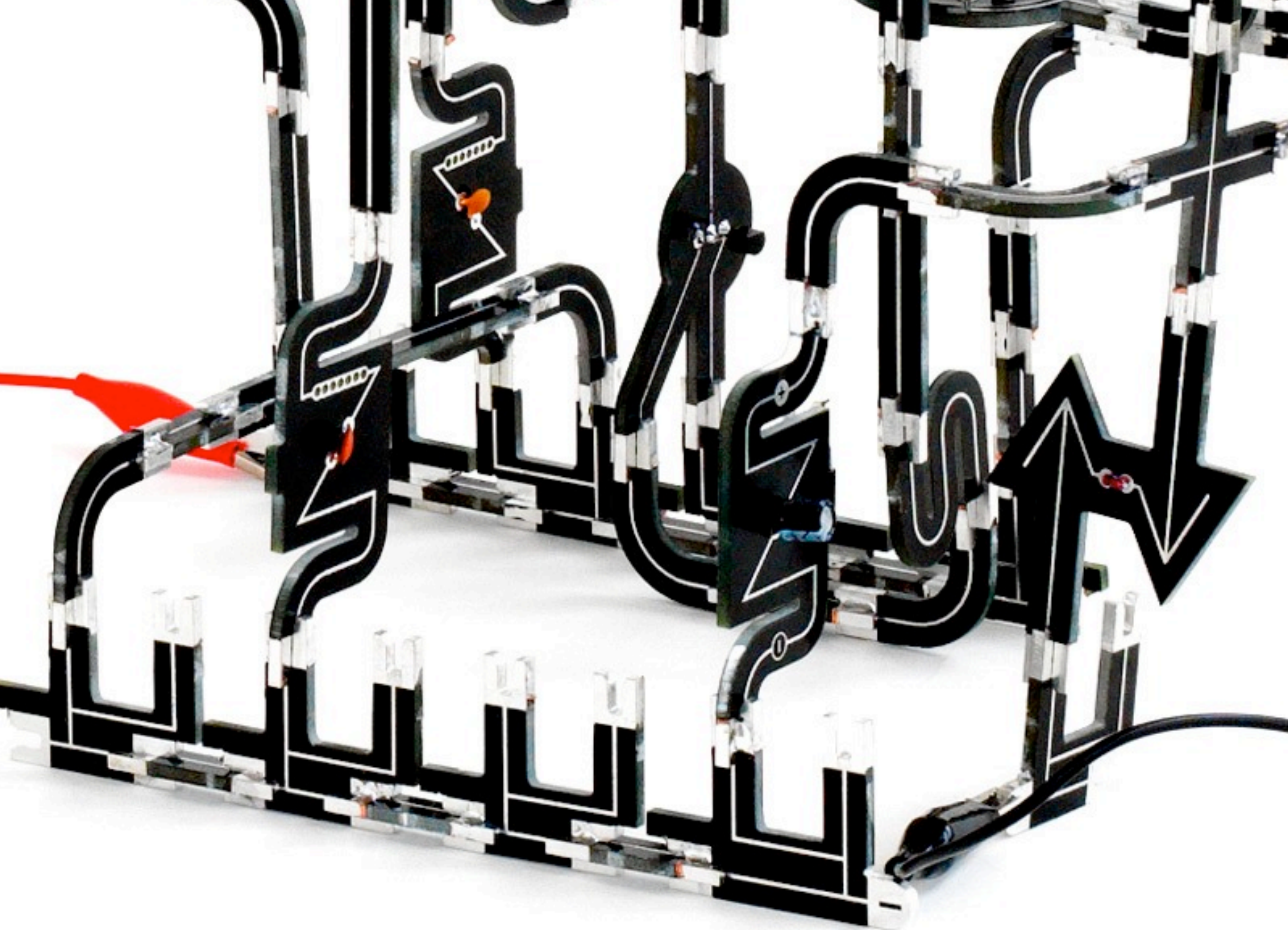


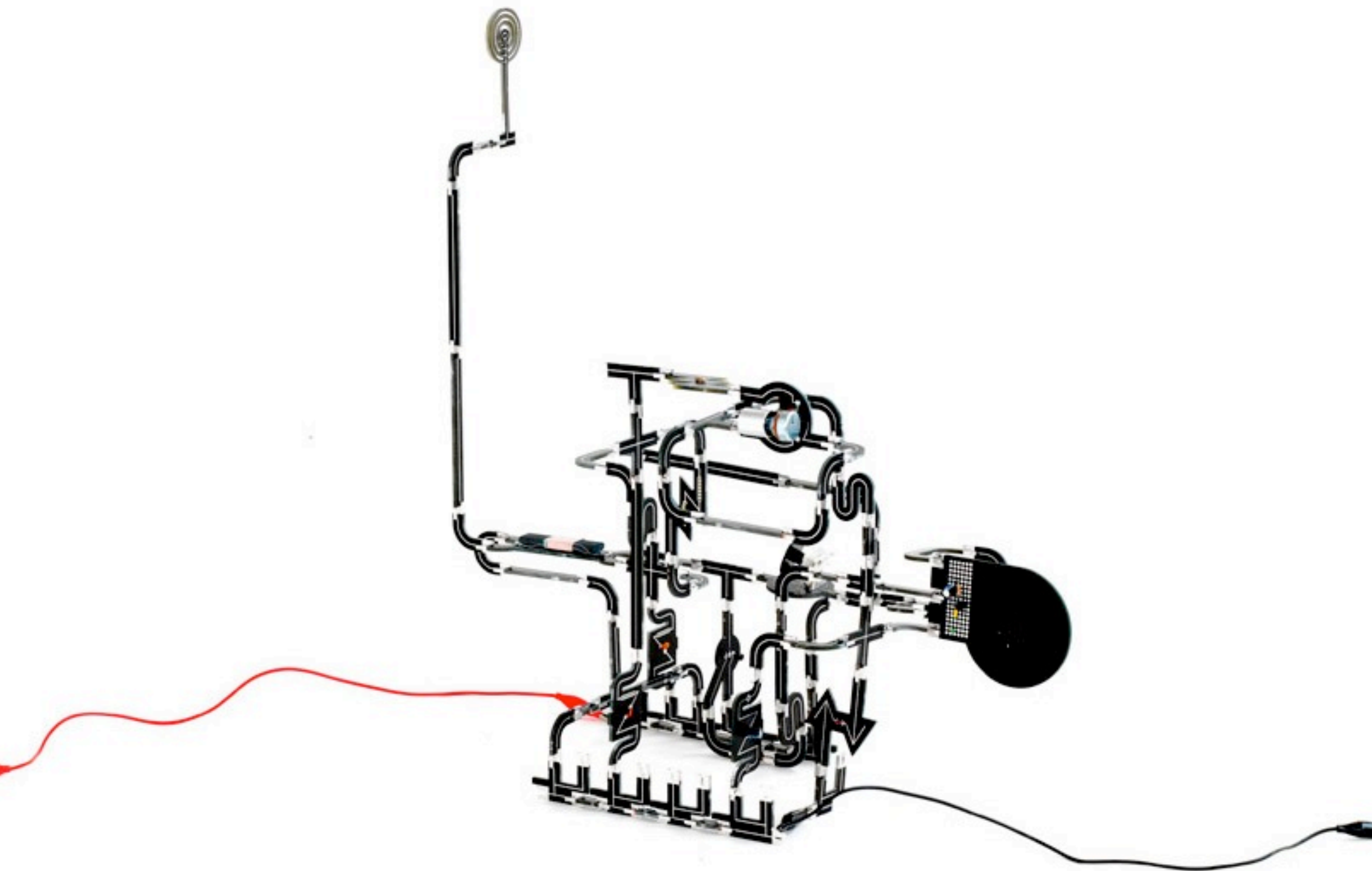
Live tech 'teardowns'



Developing and testing new kits: the Puzzle Radio







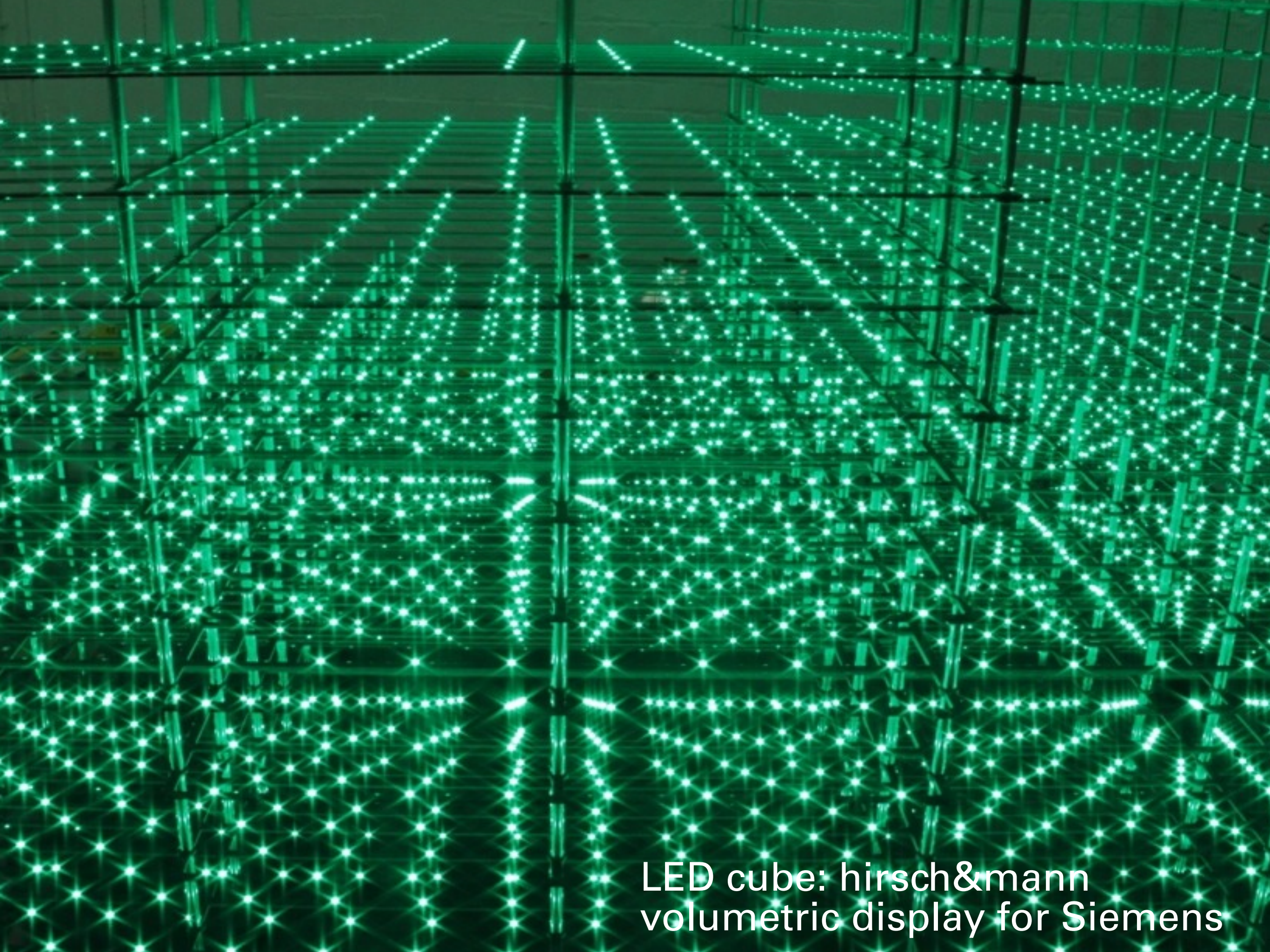
Putting all these things together

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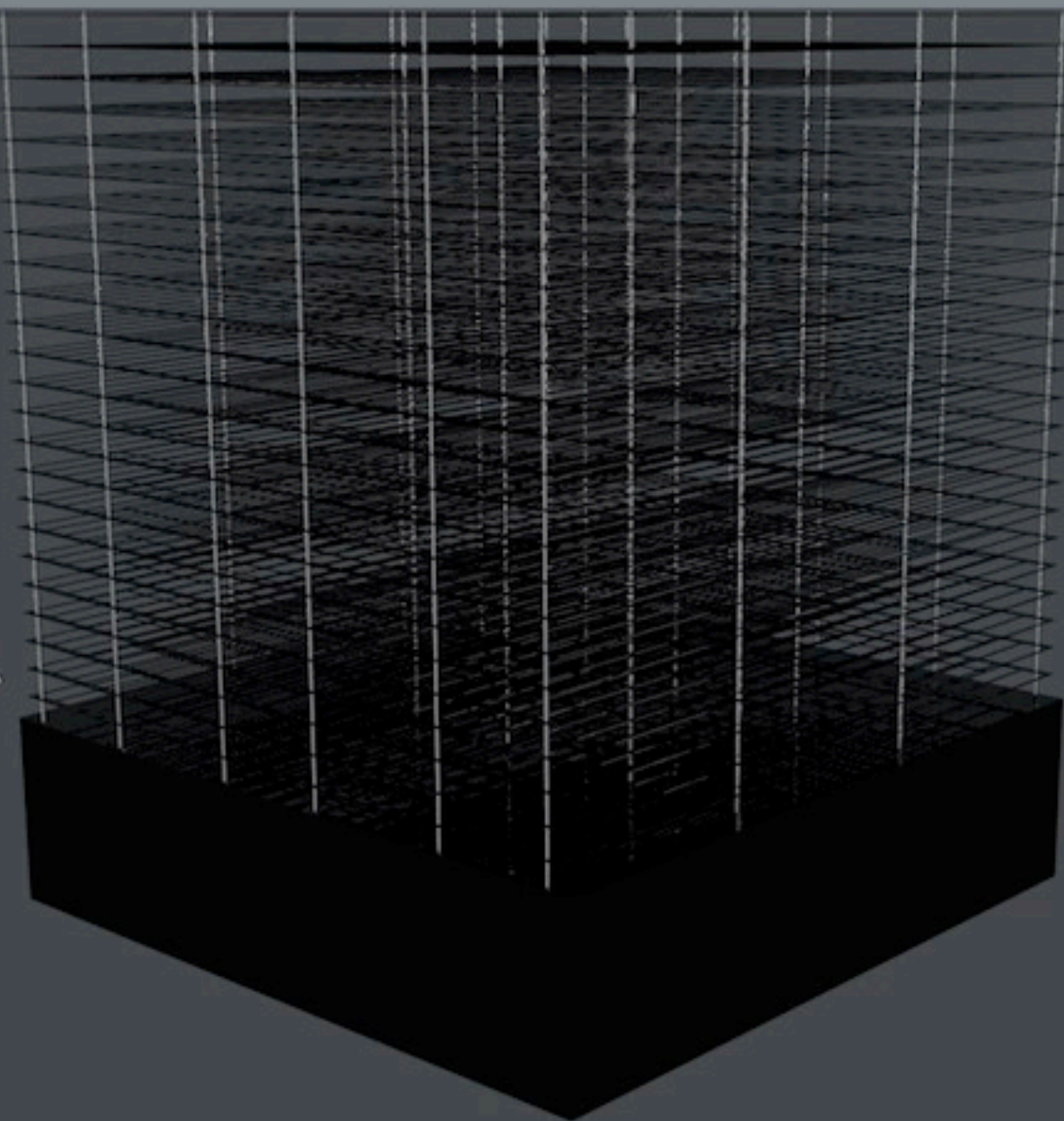


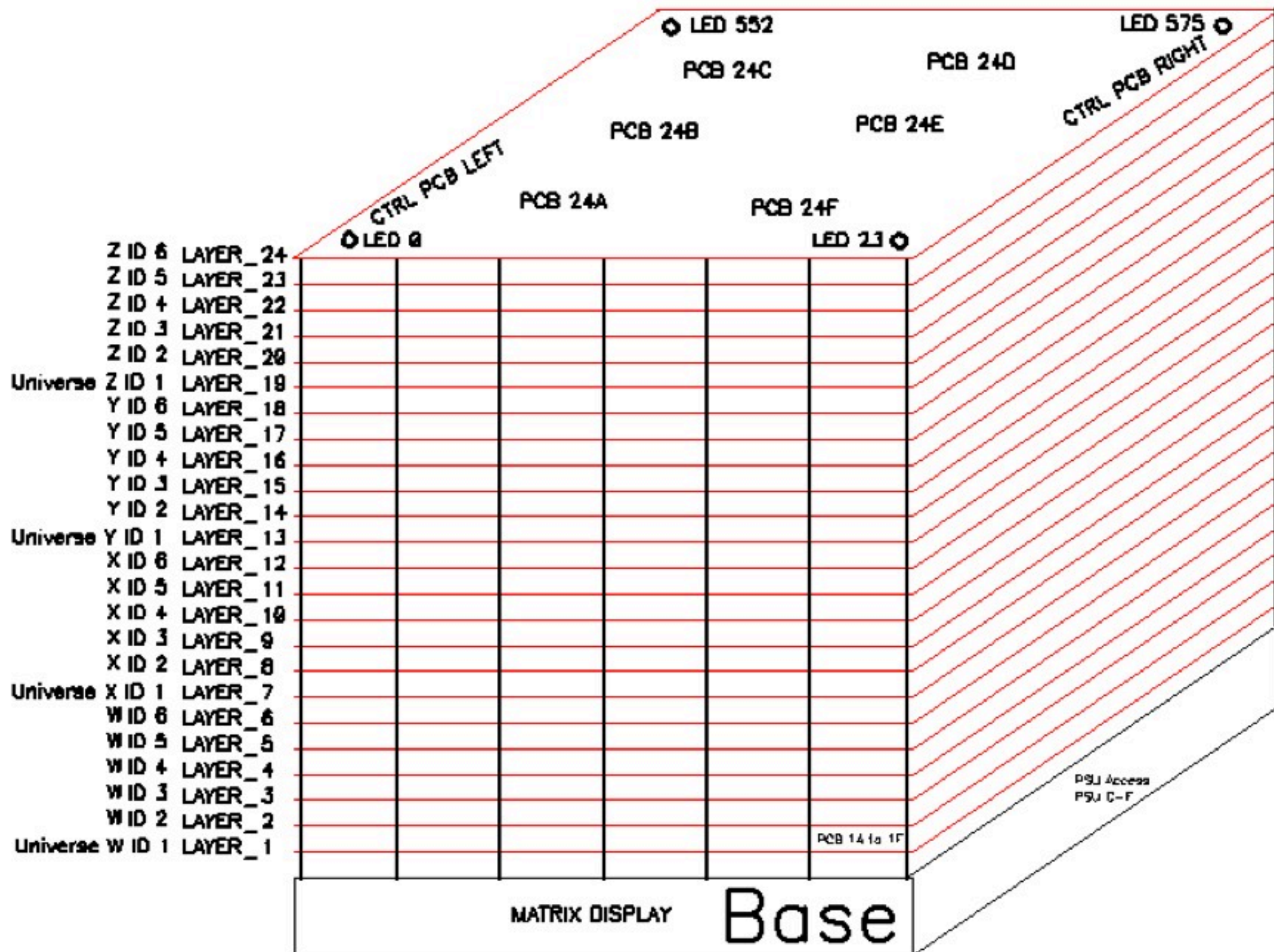
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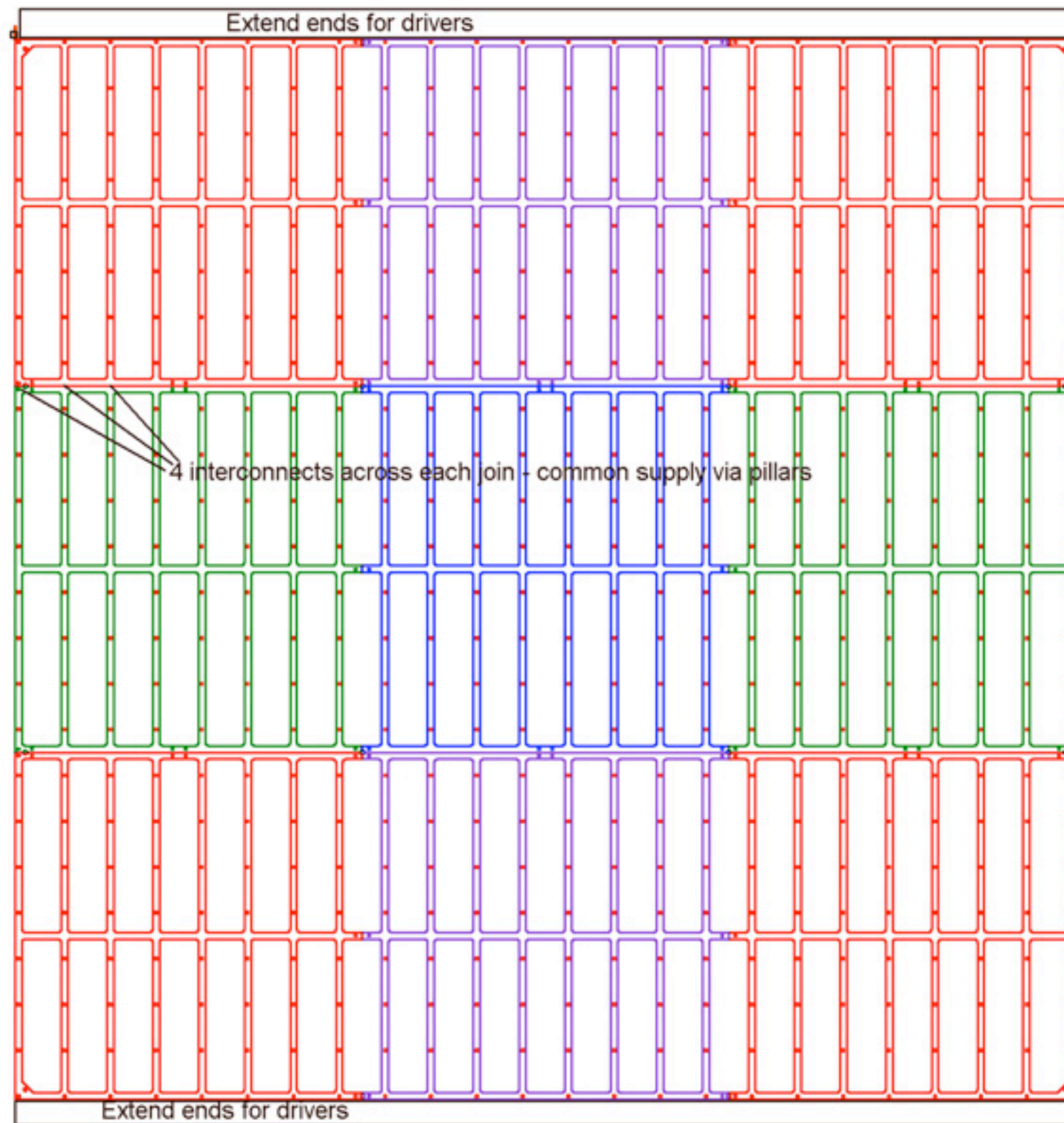


LED cube: hirsch&mann
volumetric display for Siemens

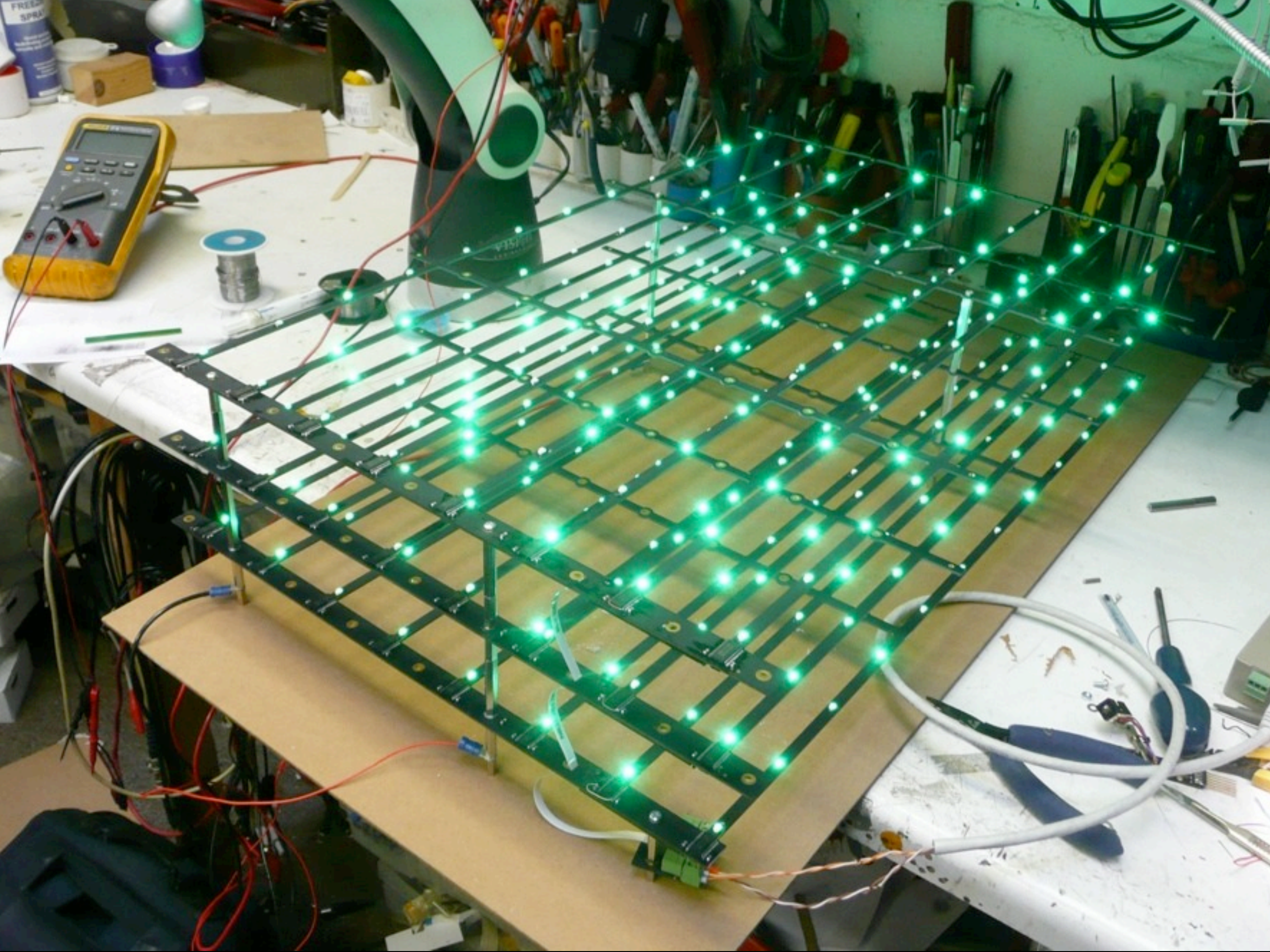


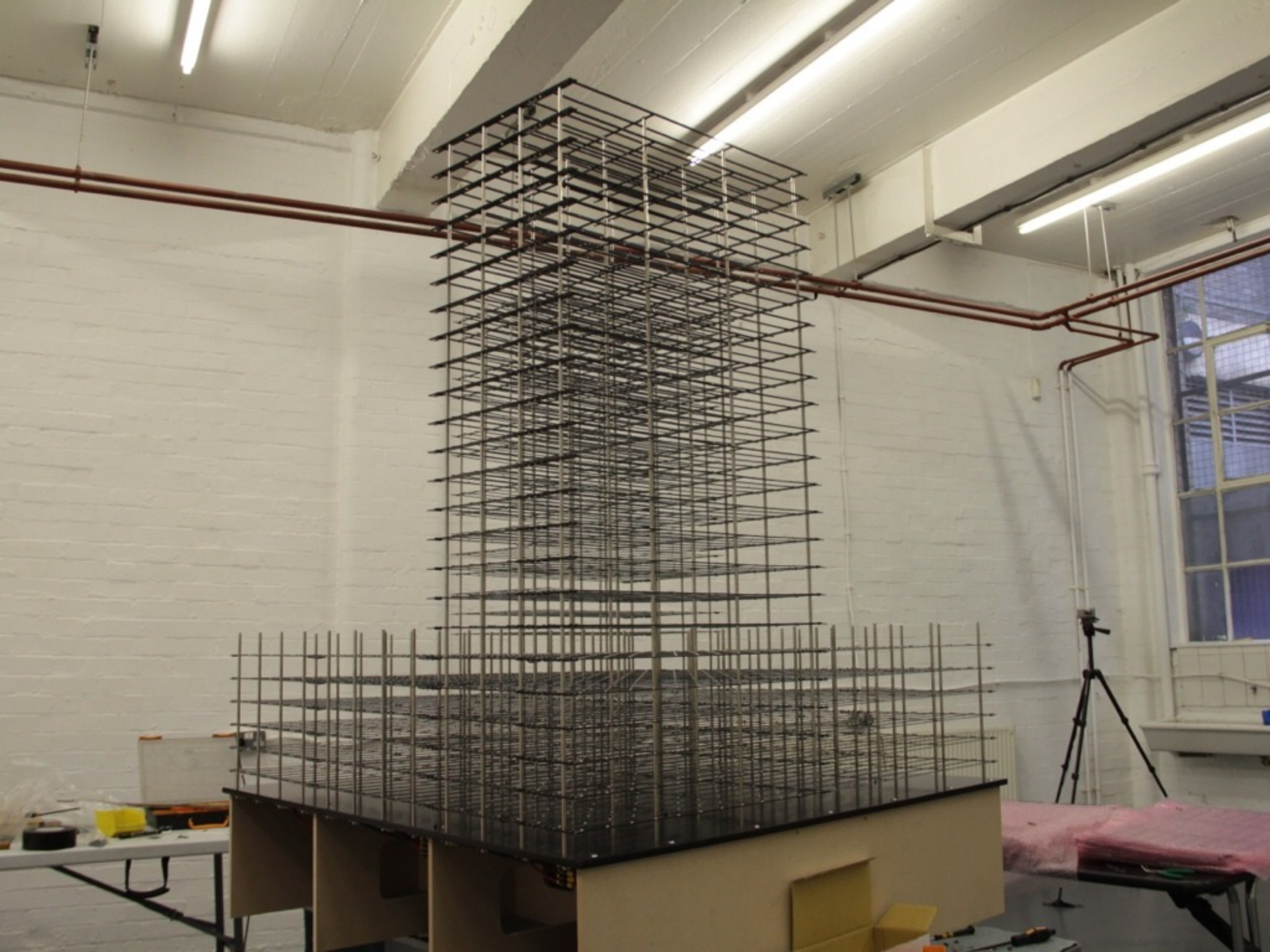


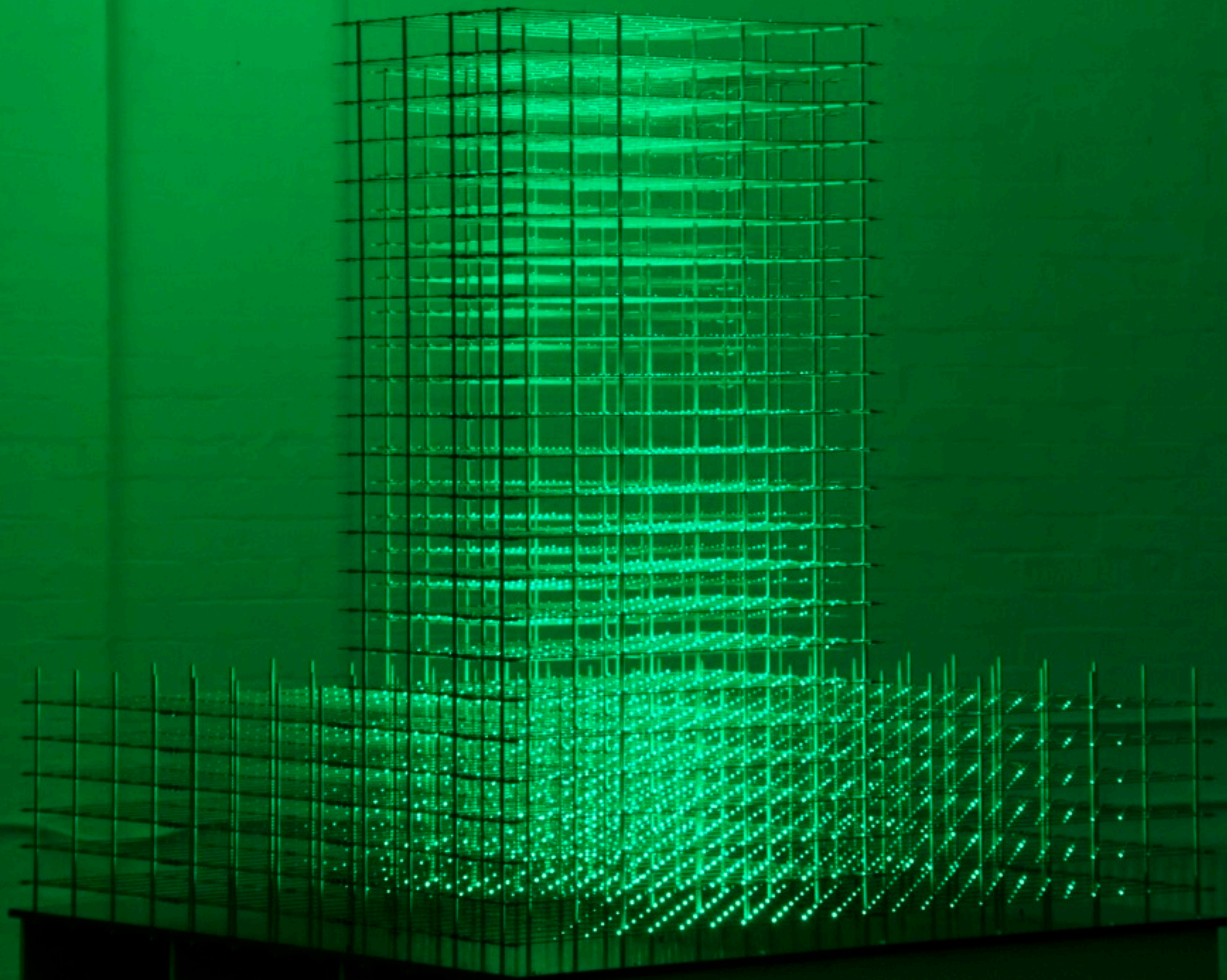
← May need 4 PCBs in this dimension →

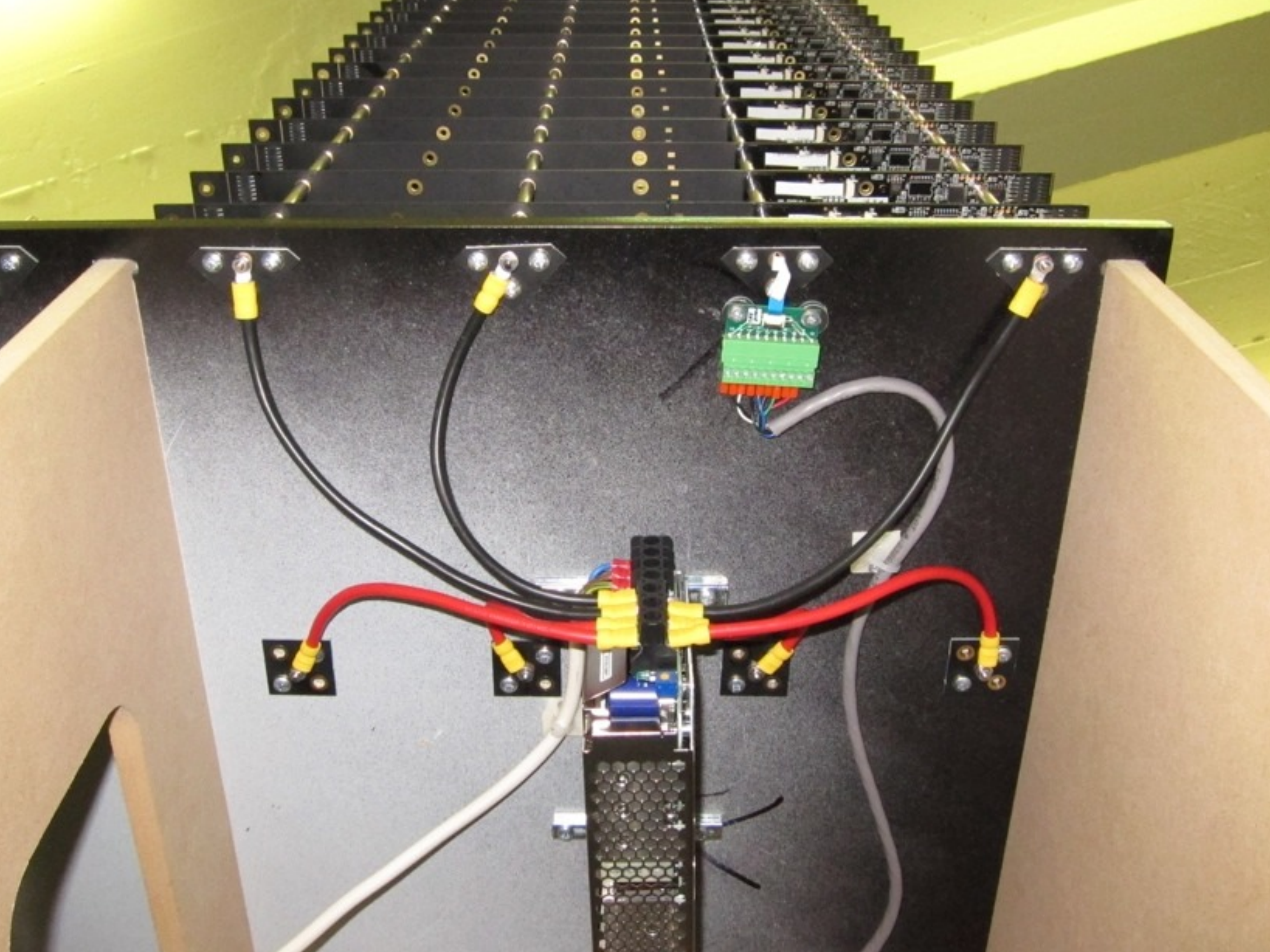




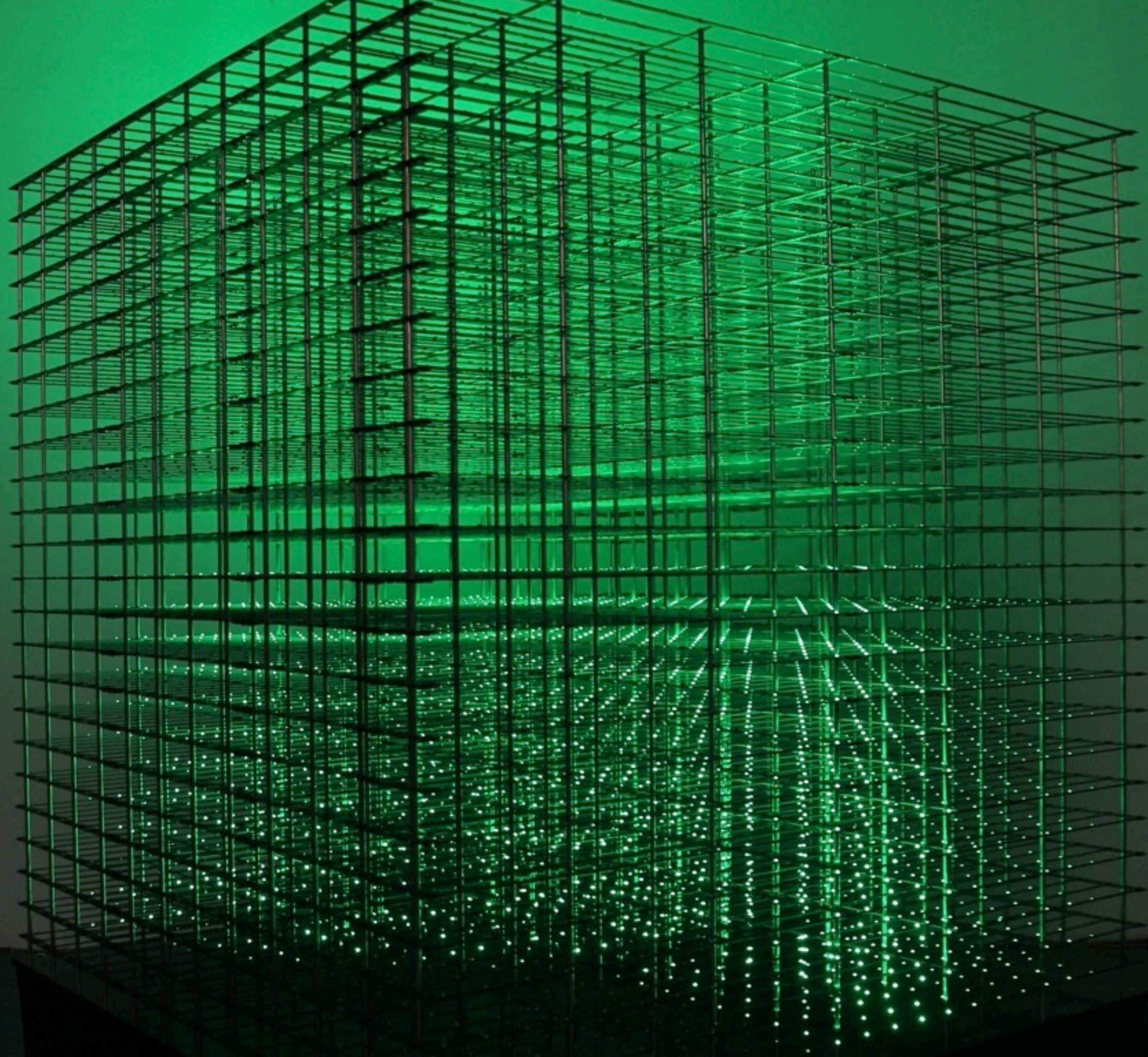


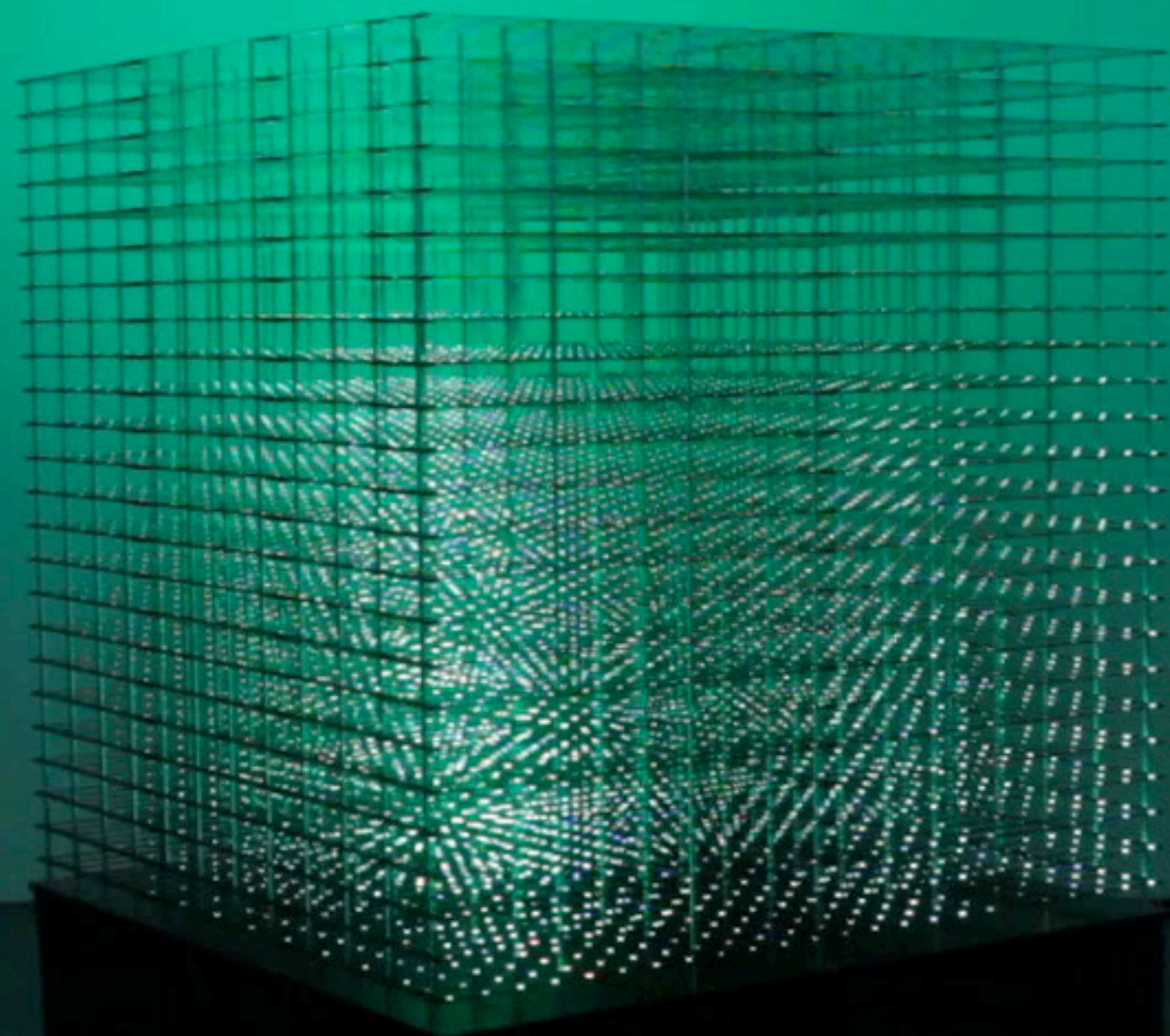


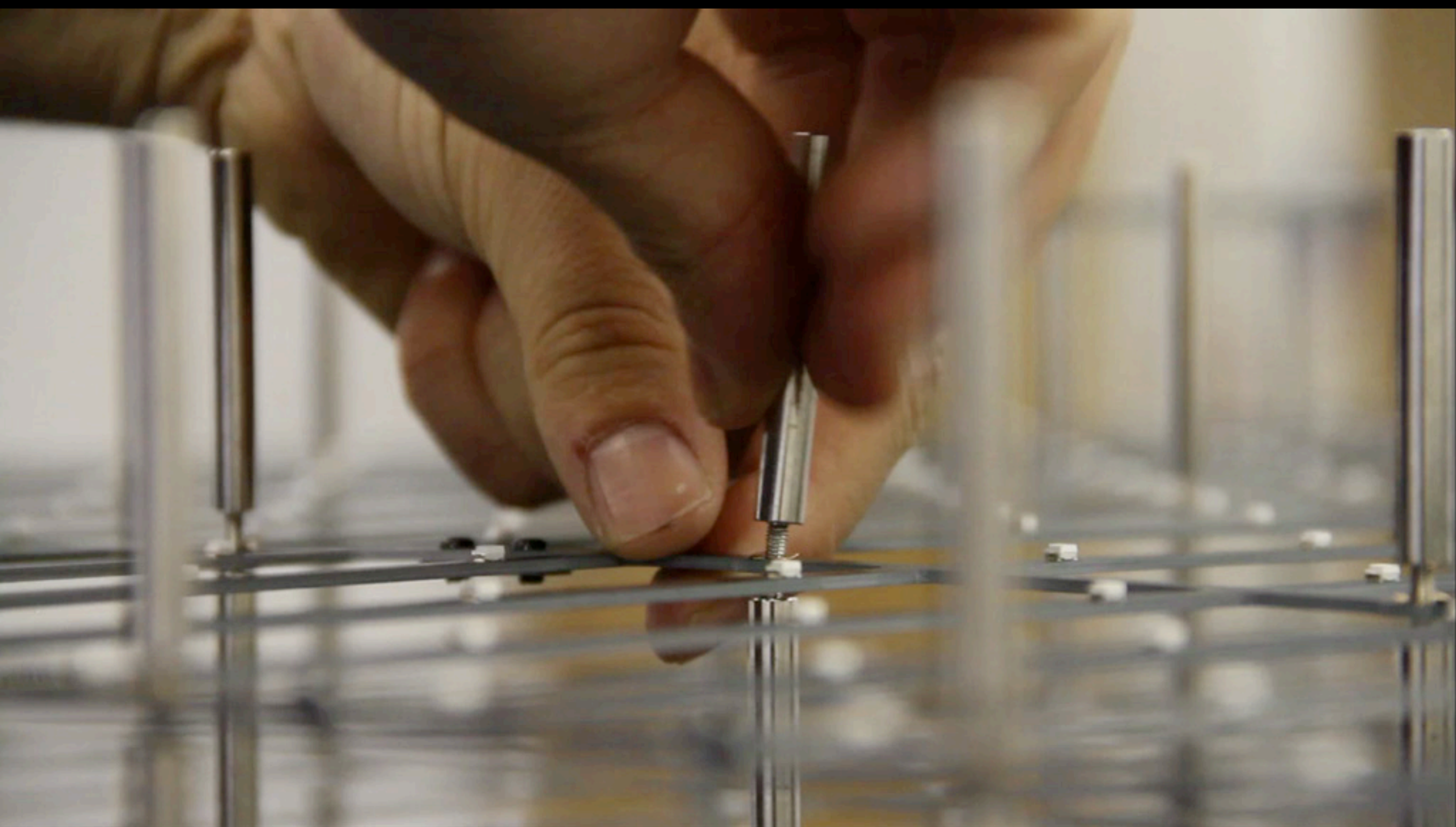




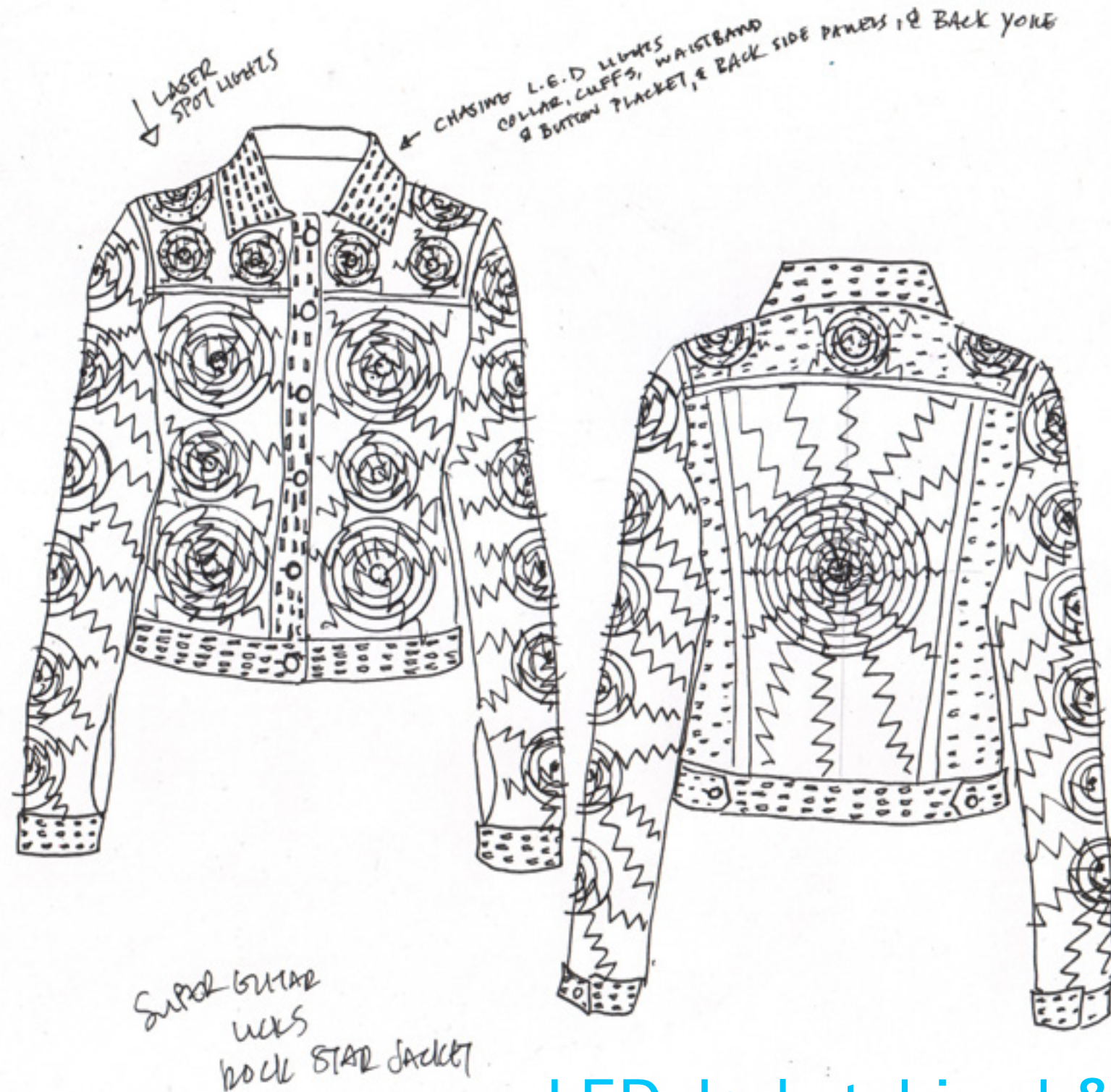




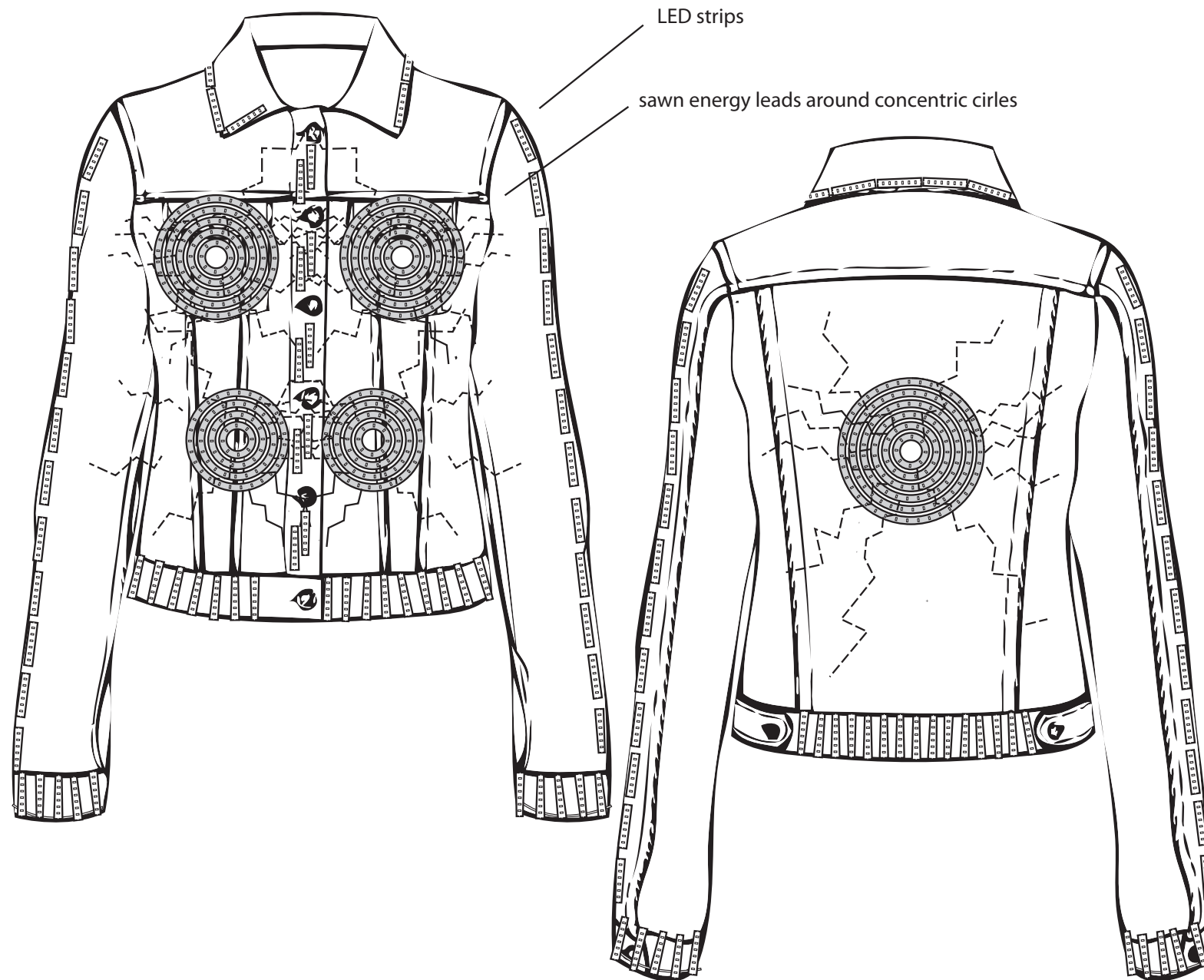


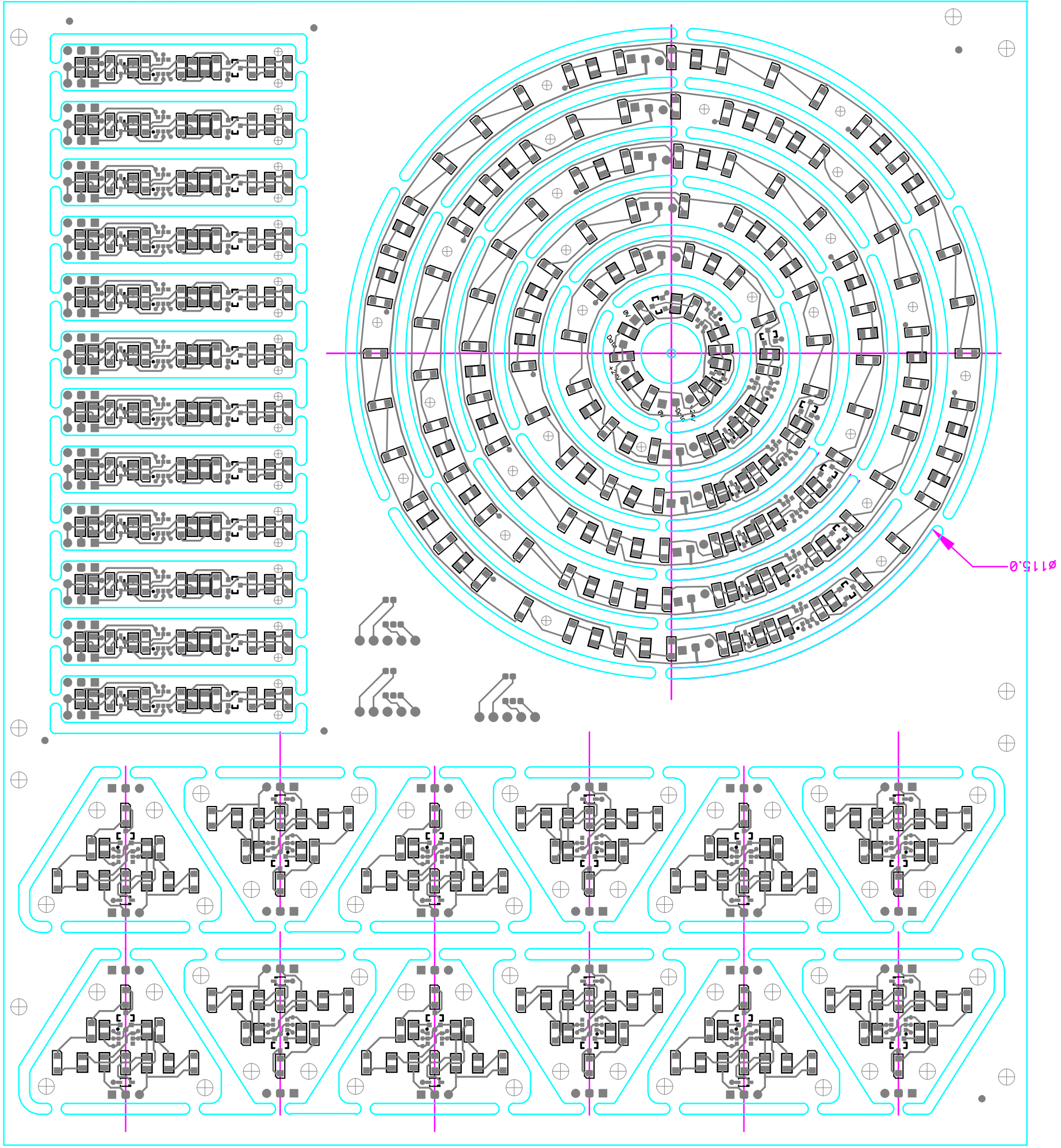


CHRISTIAN JOY SUPER GUITAR LICKS ROCK STAR JACKET! INTEL ULTRABOOK



LED Jacket: hirsch&mann
with Christian Joy









WORKSHOPS

www.technologywillsaveus.org
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Technology Will
Save US Workshops

JULY

14 - Intro to Arduino -
a little bit of programming
& a lot of pleasure
(Rough Trade East)

25 - Electro-Cord work
build your own elec-
tronic greeting card
(Rough Trade East)

AUGUST

1 - Talk @ Hackney Hub
(Gordale)

7 - Warby Plaid workshop
new ~~new~~ flared
jeans to wear
(Gordale)

TWU
KICKSTARTER



4,000

3,000

2,000







Light painting: twosu.co







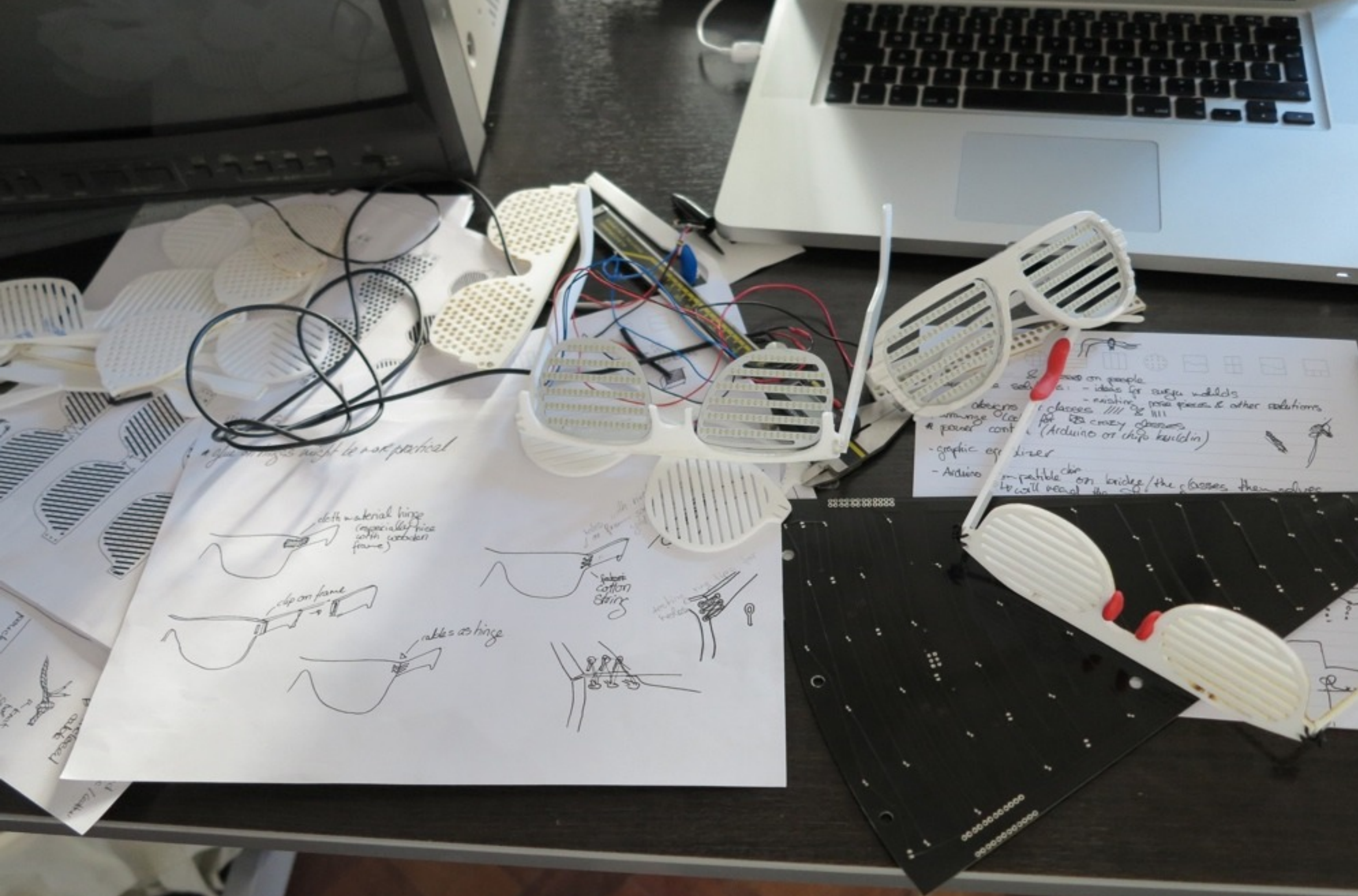
Make Music: hirsch&mann
for Red Stripe

27th Oct 2012, Dalston, London.

We made popping to the shop a lot more fun...







Bright Eyes: twosu.co/brighteyes
Education platform











Thank you

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