MULTITOUCH

MEHRFINGER GESTENERKENNUNG

DIY - MULTITOUCH

Eingabe Ausgabe - [NAME]

WE ARE...

Eingabe Ausgabe - [NAME]

JURI WOLF

B.A. Student

JORDI TOST

M.A. Student

Eingabe Ausgabe - [NAME]

FABIAN MORÓN ZIRFAS

Interfacer Lab Supervisor

PROJECT AIM

Eingabe Ausgabe - [NAME]

PROJECT AIM

MT Basics using

Computer Vision (Bare Bones)

Physical Computing (Capacitiv & Acoustic)

Open CV (Adavanced)

Exhibition17.10.2014

Eingabe Ausgabe - [NAME]

4 TYPES OF TOUCH(SCREEN) TECHNOLOGY

http://www.ijcaonline.org/volume6/number8/pxc3871433.pdf
https://ecs.victoria.ac.nz/foswiki/pub/Groups/Elvis/Multi-touchTable/schoening2008multitouch.pdf

RESISTIVE

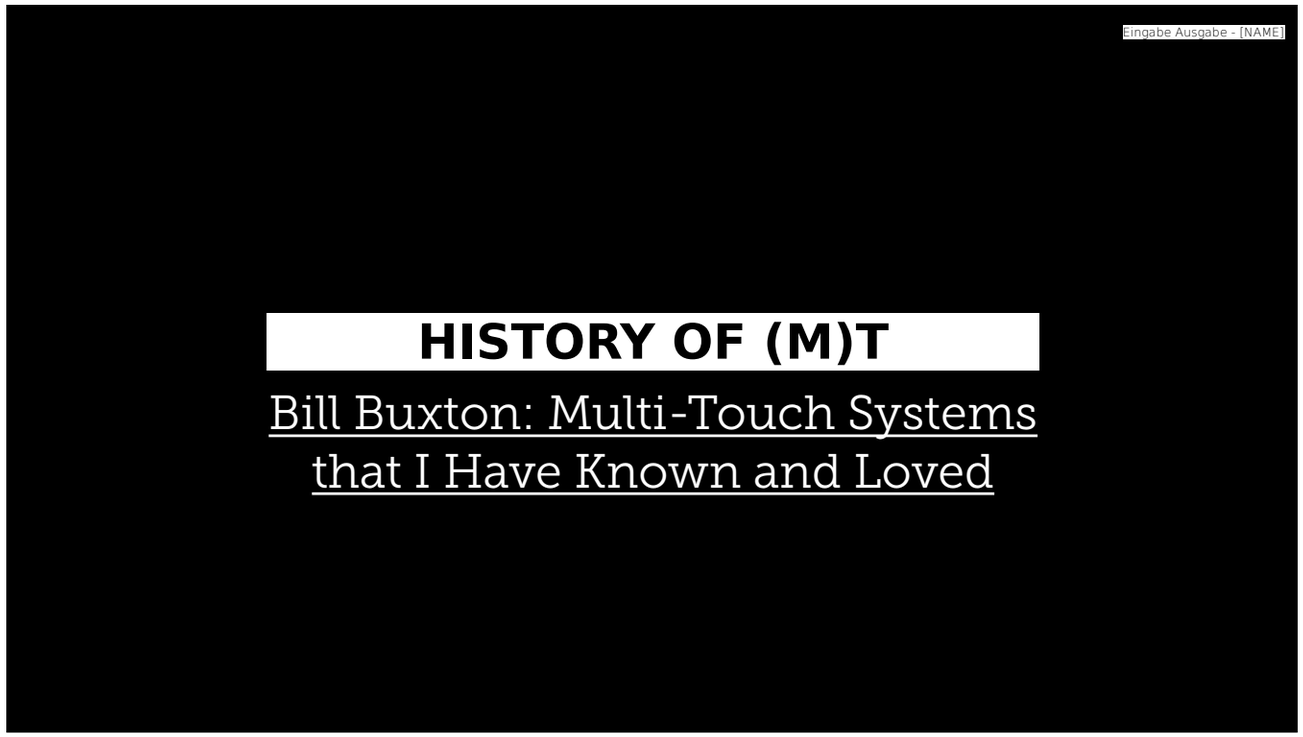
CAPACITIVE

Eingabe Ausgabe - [NAME]

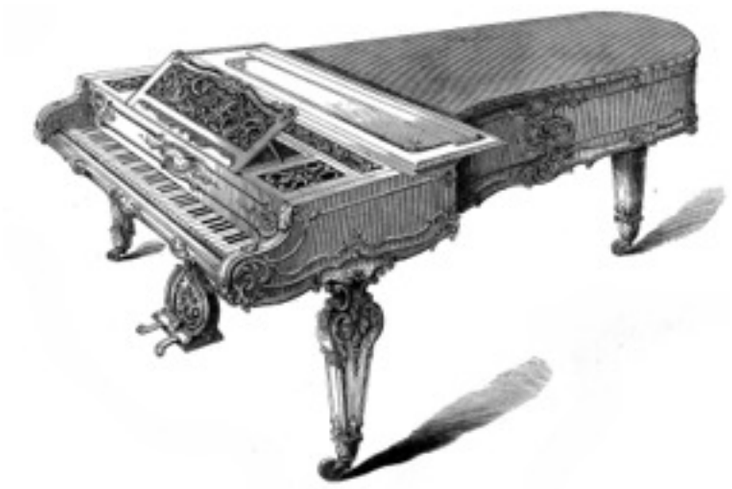
OPTICAL

Eingabe Ausgabe - [NAME]

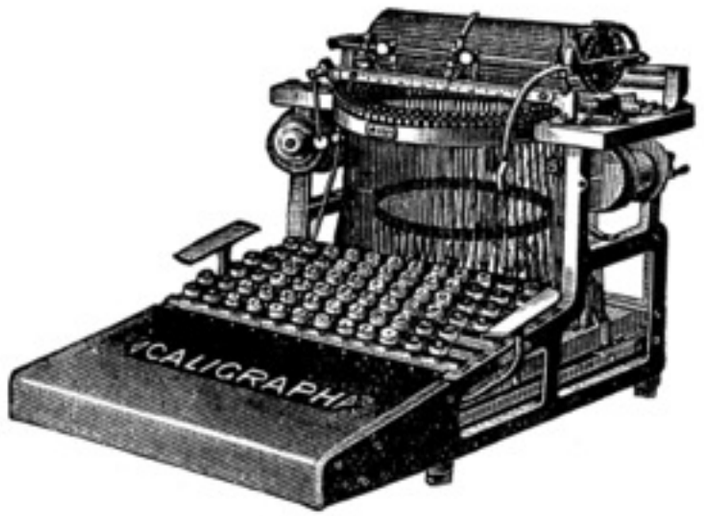
ACOUSTIC



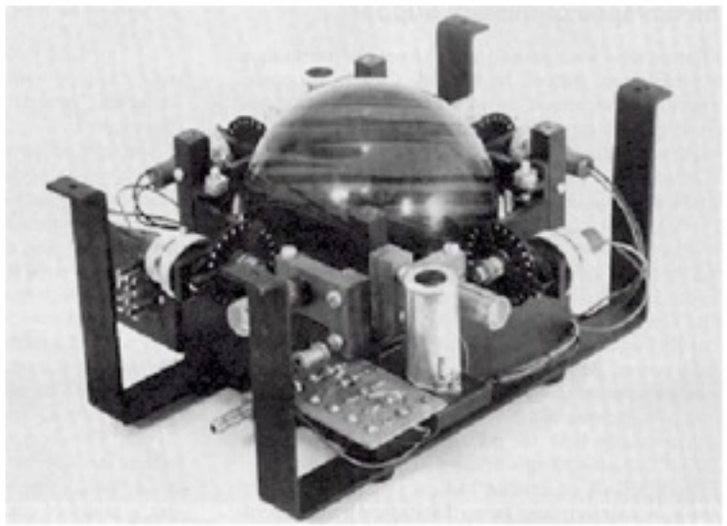
unvollständig



resistiv

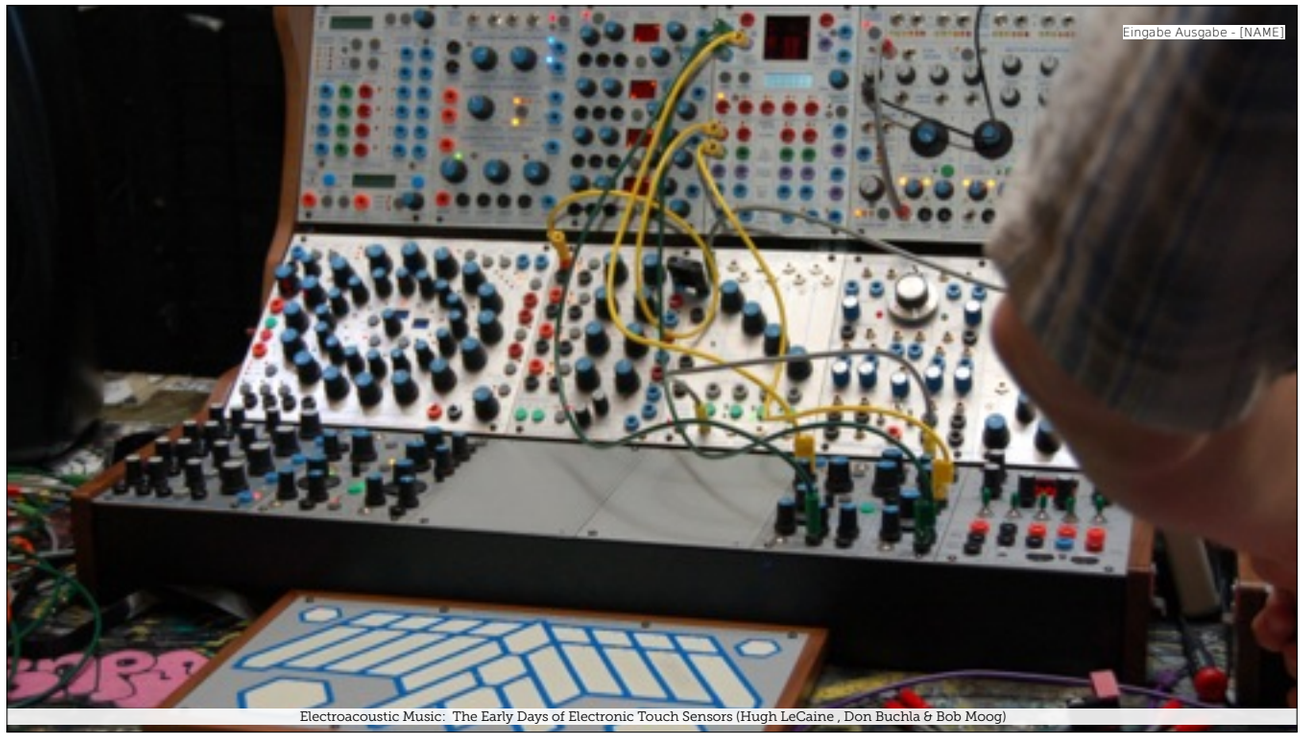


resistiv



1945: Trackball (Ralph Benjamin)

trackball



Electroacoustic Music: The Early Days of Electronic Touch Sensors (Hugh LeCaine , Don Buchla & Bob Moog)

capacitive

1960s: Mouse (Douglas Engelbart & Bill English)

mechanical

1965: Touch Screen Technology (E.A. Johnson of the Royal Radar Establishment)

single touch capacitive

1972: PLATO IV Touch Screen Terminal

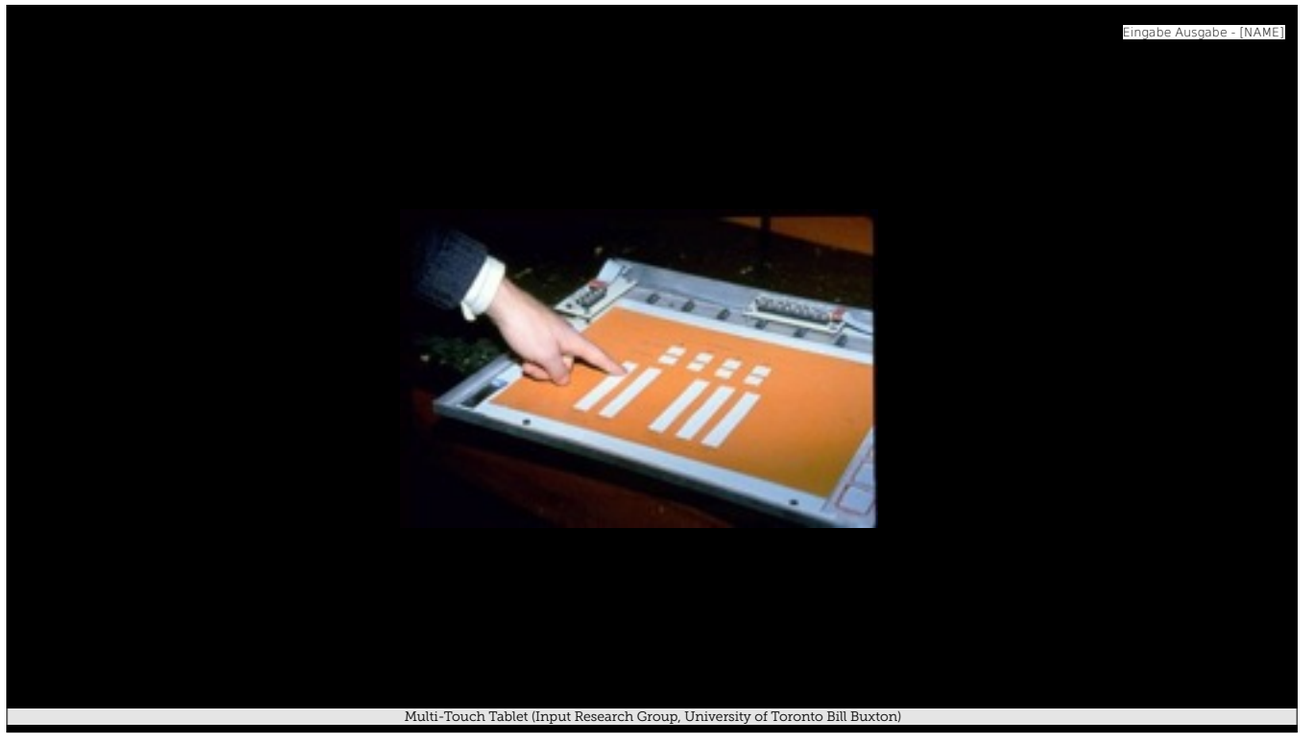
Plato IV optical (IR)

1983: Video Place / Video Desk (Myron Krueger)

optical Video https://www.youtube.com/watch?v=dmmxVA5xhuo

1984: Multi-Touch Screen (Bob Boie, Bell Labs, Murray Hill NJ)

capacitive



Multi-Touch Tablet (Input Research Group, University of Toronto Bill Buxton)

capacitive

1985: Sensor Frame (Carnegie Mellon University Paul McAvinney)

The device used optical sensors in the corners of the frame to detect fingers.

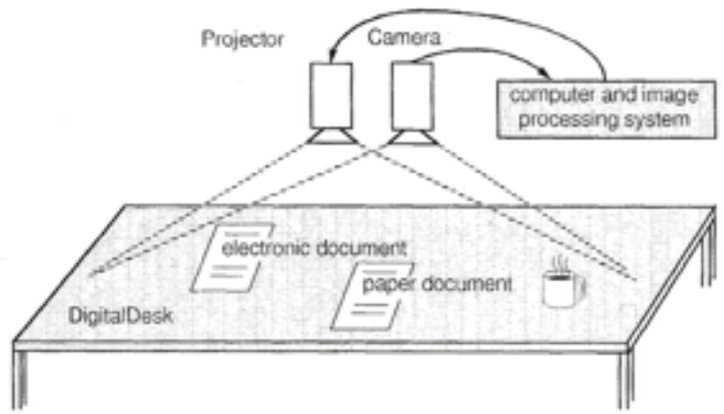


Figure 1. A DigitalDesk system

1991: Digital Desk (Pierre Wellner, Rank Xerox EuroPARC, Cambridge)

An early front projection tablet top system that used optical and acoustic techniques to sense both hands/fingers as well as certain objects, in particular, paper-based controls and data. https://www.youtube.com/watch?v=S8lCetZ_57g

1992: Simon (IBM & Bell South)

IBM and Bell South release what was arguably the world's first smart phone, the Simon.

What is of historical interest is that the Simon, like the iPhone, relied on a touch-screen driven “soft machine” user interface.

While only a single-touch device, the Simon foreshadows a number of aspects of what we are seeing in some of the touch-driven mobile devices that we see today.

Sidebar: my two working Simons are among the most prized pieces in my collection of input devices.

Eingabe Ausgabe - [NAME]

AND MANY MORE

see Bill Buxtons site for further research

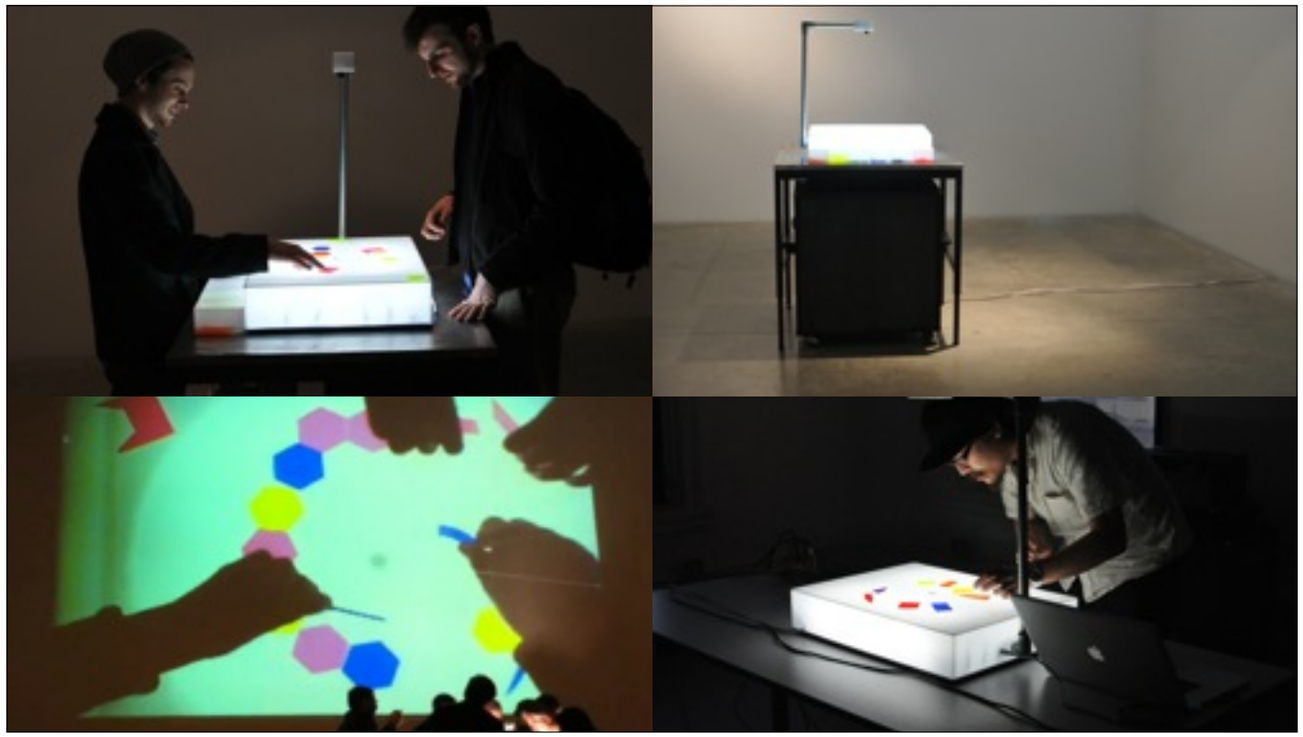
1992: Wacom, 1992: Starfire, 1994-2002: Bimanual Research, 1995: Graspable/Tangible Interfaces, 1995/97: Active Desk, 1997: T3, 1997: The Haptic Lens, 1998: Tactex Controls, ~1998: Fingerworks, 1999: Portfolio Wall, 2001: Diamond Touch, 2002: HandGear + GRT. DSI Datotech, 2002: Jun Rekimoto Sony Computer Science Laboratories, 2003: University of Toronto, 2003: Jazz Mutant, 2004: Neonode N1 Mobile Phone, 2004: TouchLight, 2005: Reactable, 2005: Blaskó and Steven Feiner, 2005: PlayAnywhere, 2005: Jeff Han, 2005: Tactiva, 2005: Toshiba Matsusita Display Technology, 2005: Tomer Moscovich & collaborators, 2006: Benko & collaborators, 2006: Plastic Logic, 2006: Synaptics & Pilotfish, 2007: Apple iPhone, 2007: Microsoft Surface Computing, 2007: ThinSight, 2008: N-trig, 2011: Surface 2.0

Ab hier werden die bisher eingeführten Techniken verbessert und erweitert

EXAMPLES

http://www.ryanraffa.com/parsons/thesis/category/concept/

https://vimeo.com/25090948



http://www.ryanraffa.com/parsons/thesis/category/concept/

https://vimeo.com/25090948

VIDEO

https://vimeo.com/25090948

crapple (2005: Golan Levin) is an audiovisual performance in which everyday objects placed on a table are interpreted as sound-producing marks in an “active score.” The Scrapple system scans a table surface as if it were a kind of music notation, producing music in real-time from any objects lying there. The 3-meter long table produces a 4-second audio loop, allowing the performers to improvise audiovisual compositions in real-time.
https://vimeo.com/2379890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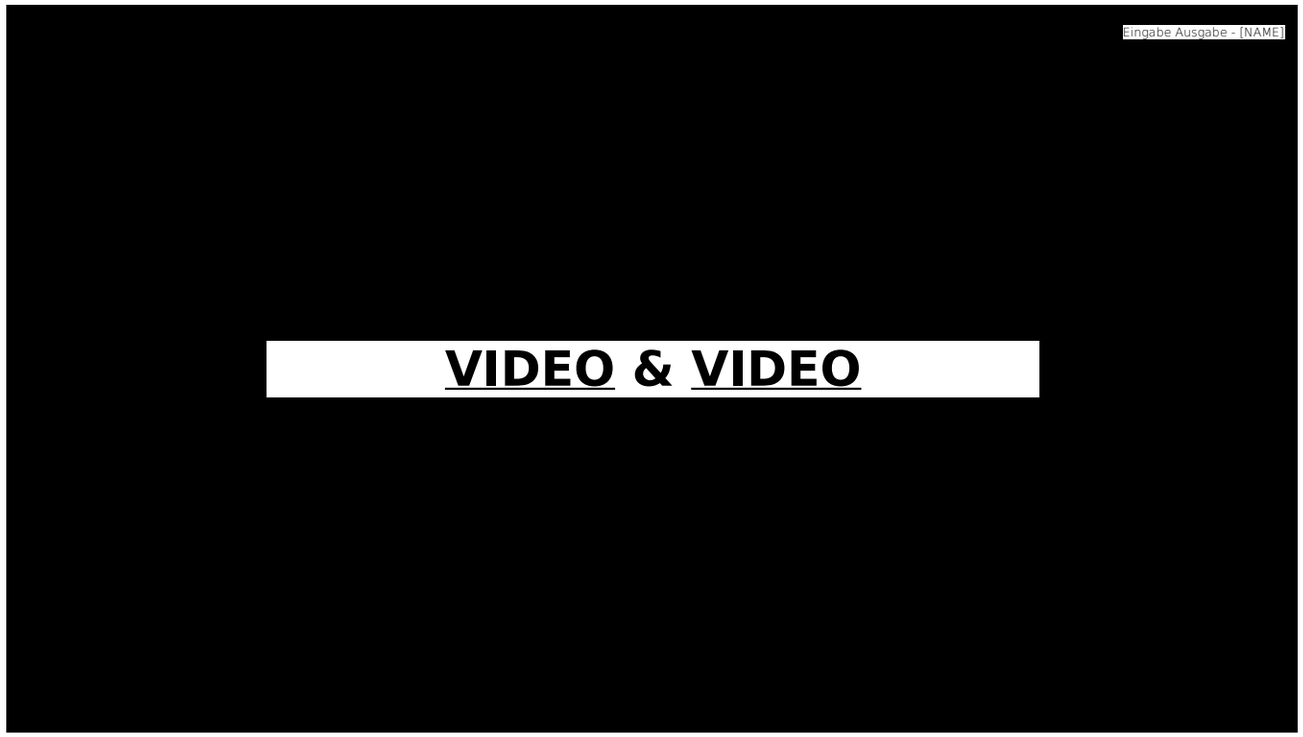
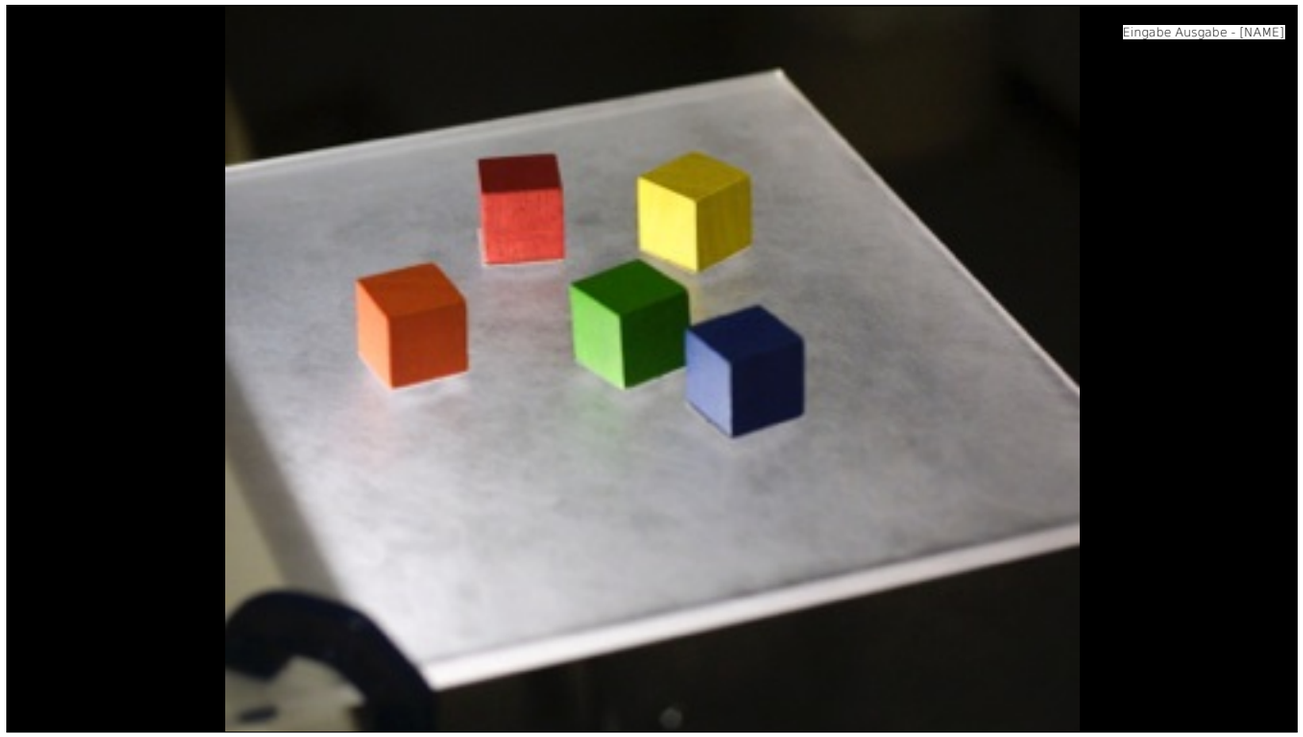
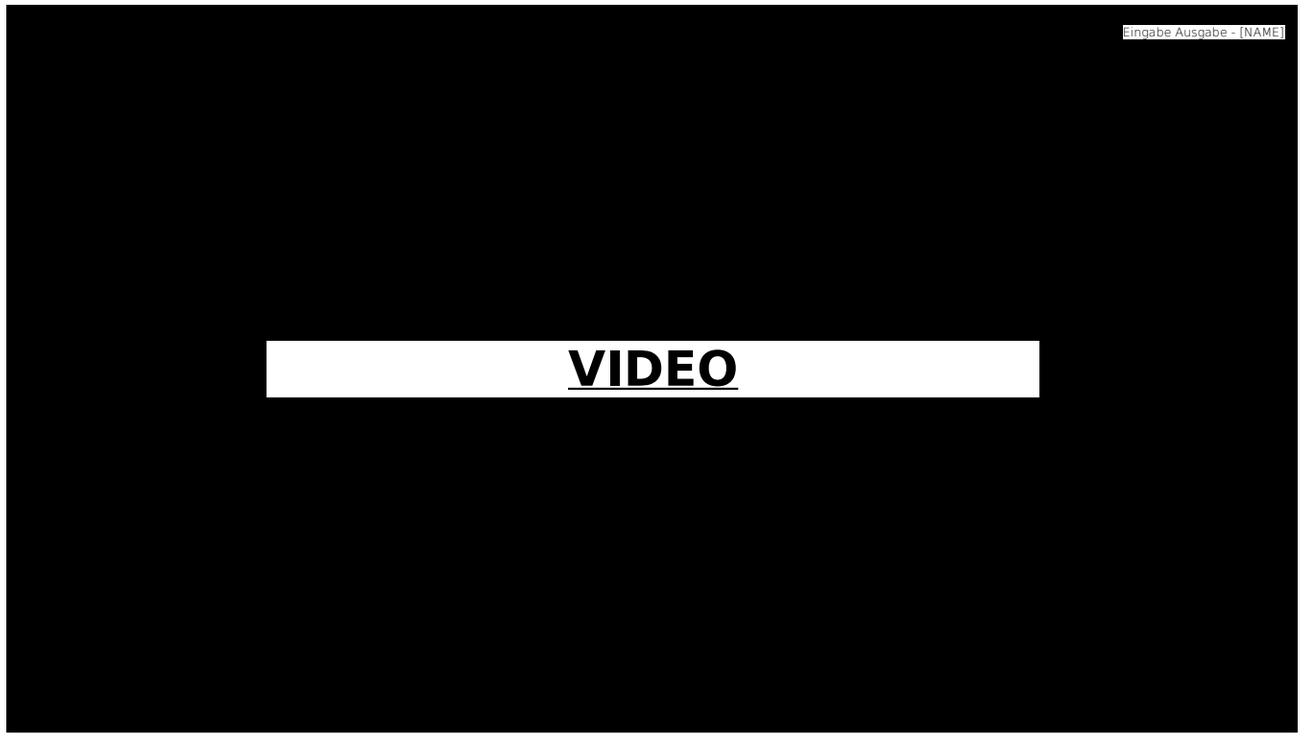


https://vimeo.com/2379890 & https://vimeo.com/2379389

Optical system

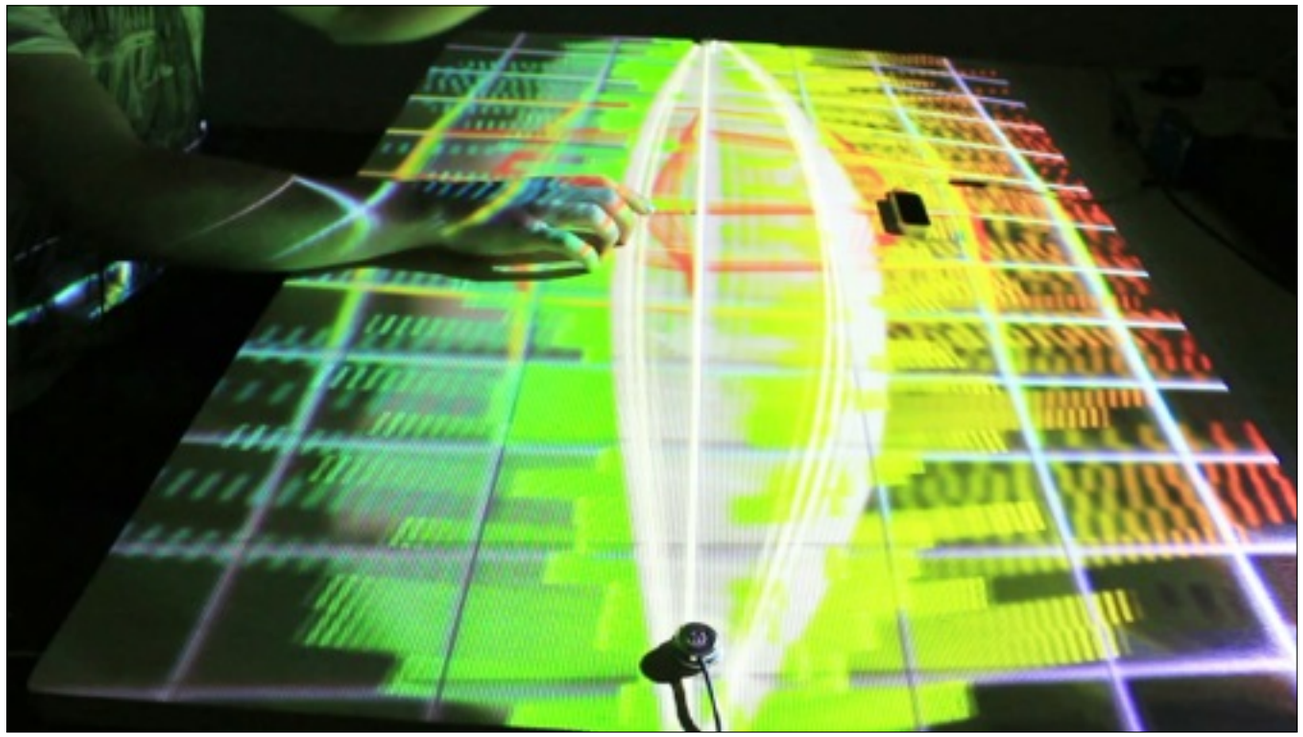
Trackmate is an inexpensive, do-it-yourself tangible tracking system that allows your computer to recognize tagged objects and their corresponding position, rotation, and color information when placed on a surface. Trackmate sends all object data via LusidOSC (a protocol layer for unique spatial input devices), allowing any LusidOSC-based application to work with the system.

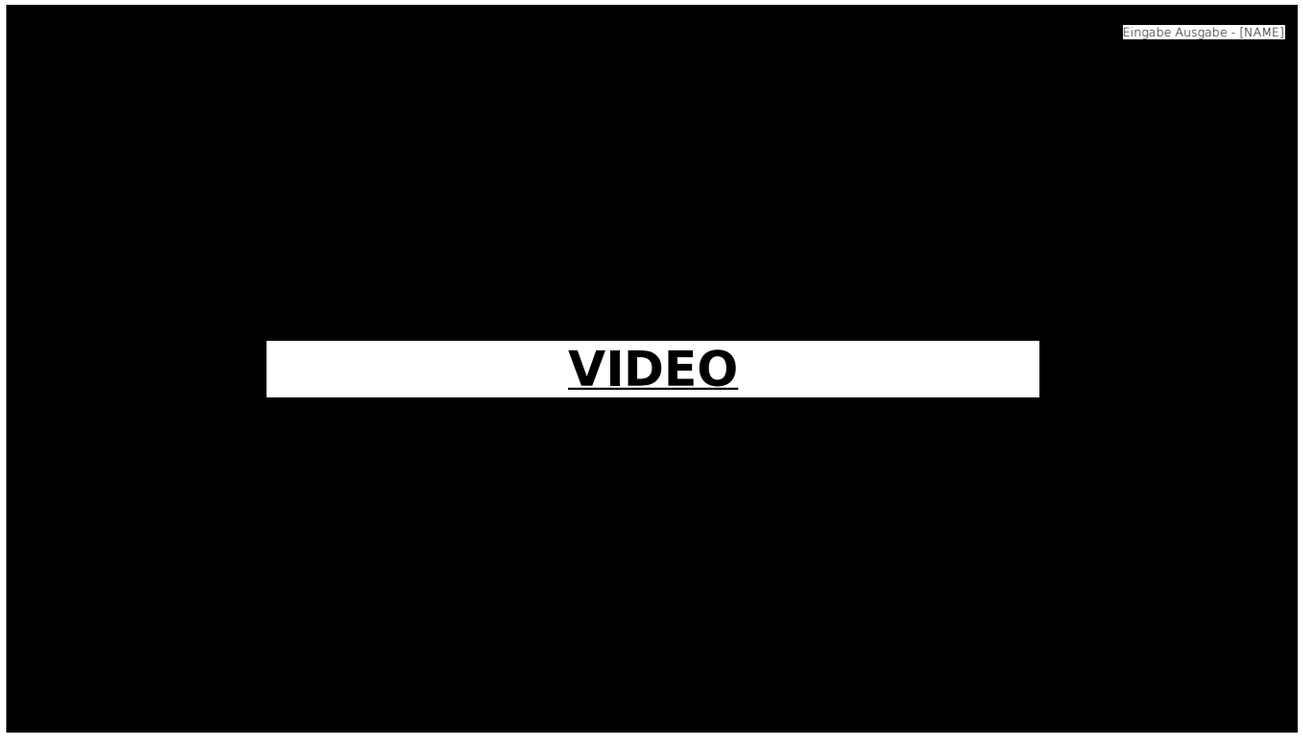

Eingabe Ausgabe - [NAME]



https://vimeo.com/6730765

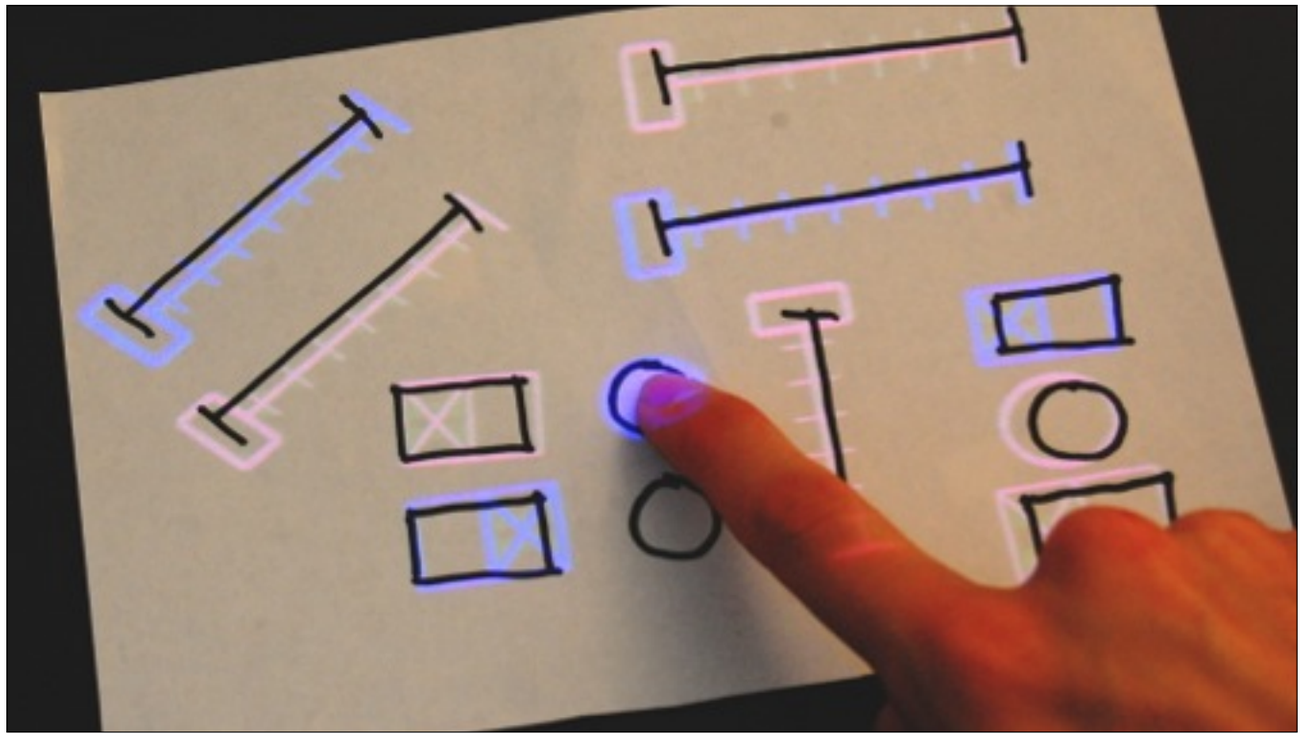
http://felixfaire.com/portfolio/contact/





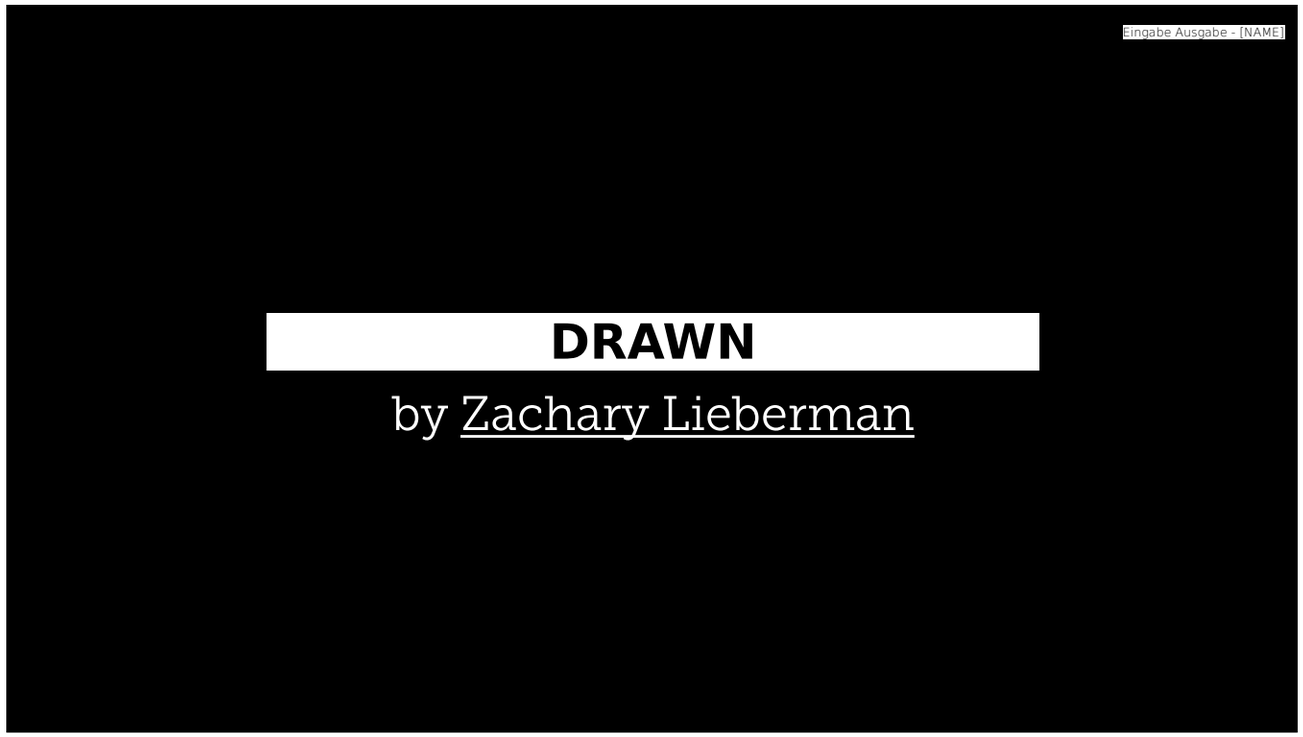
https://vimeo.com/82107250

https://github.com/bluekeyes



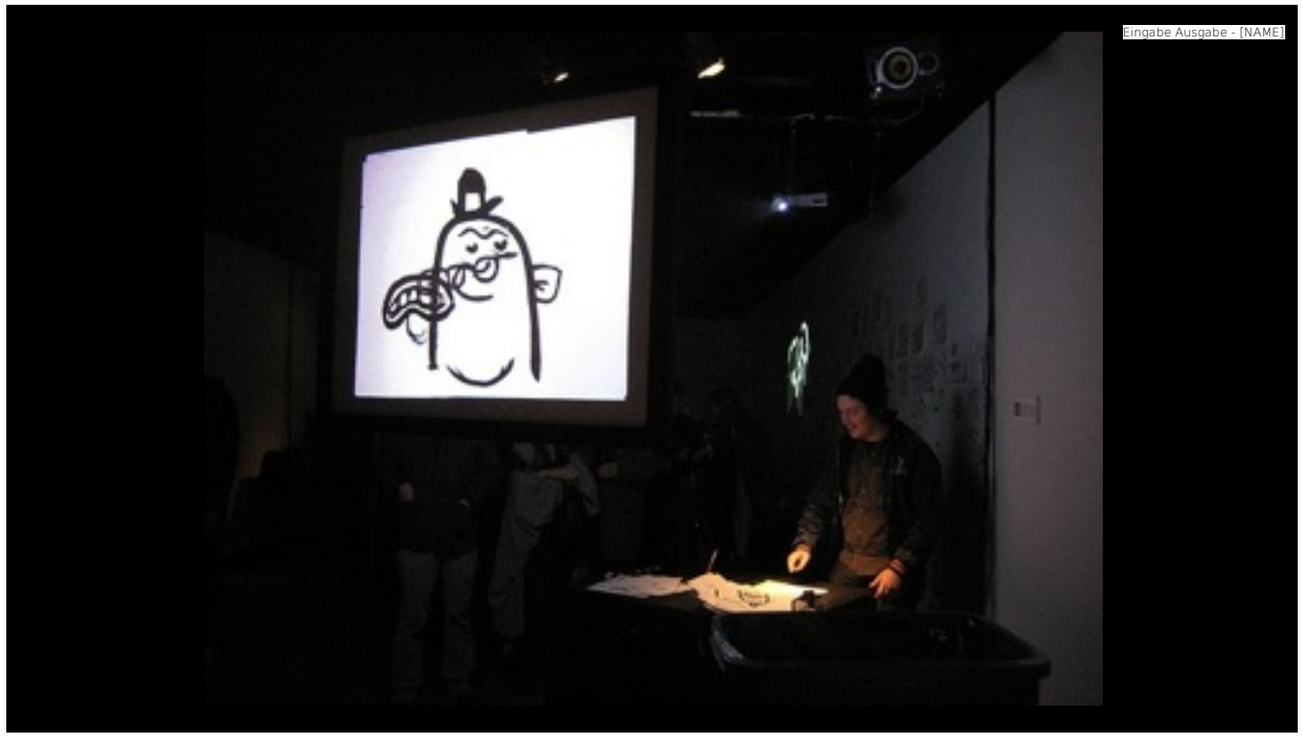
VIDEO

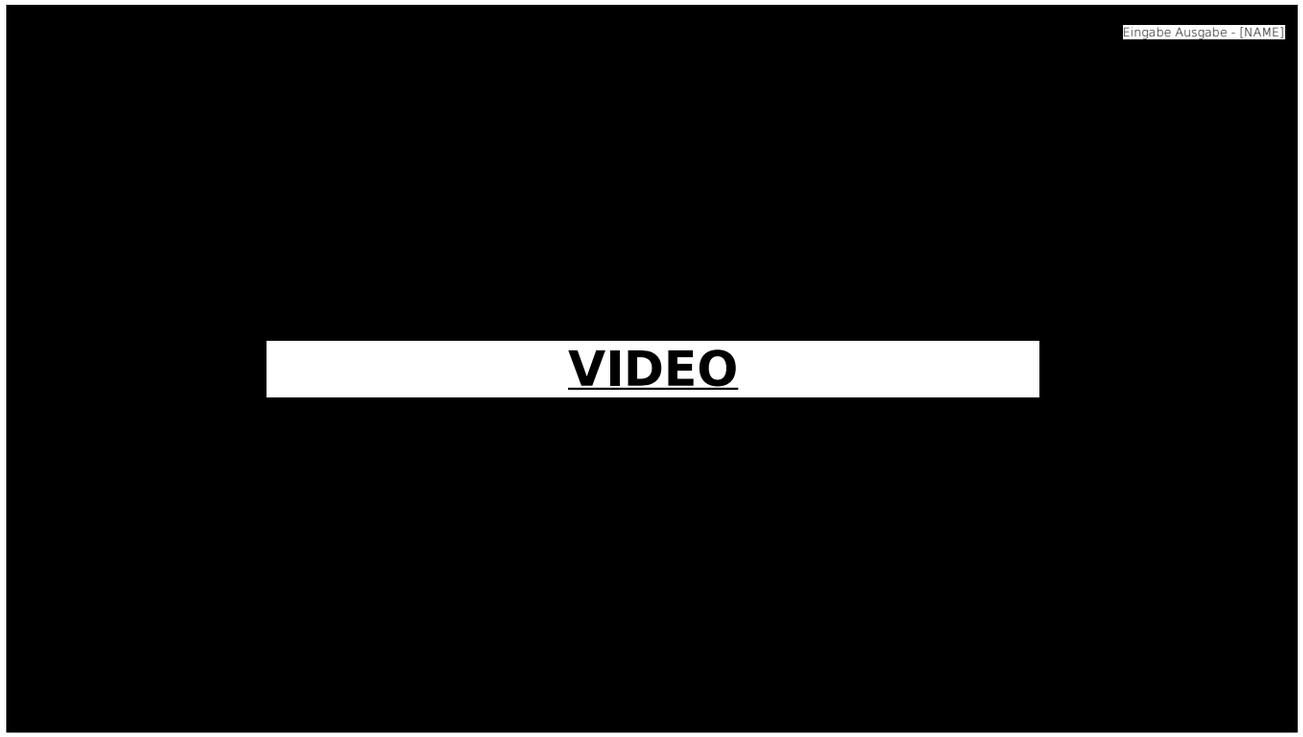
https://vimeo.com/42053193



http://thesystemis.com/projects/drawn/

http://v2.nl/archive/works/drawn

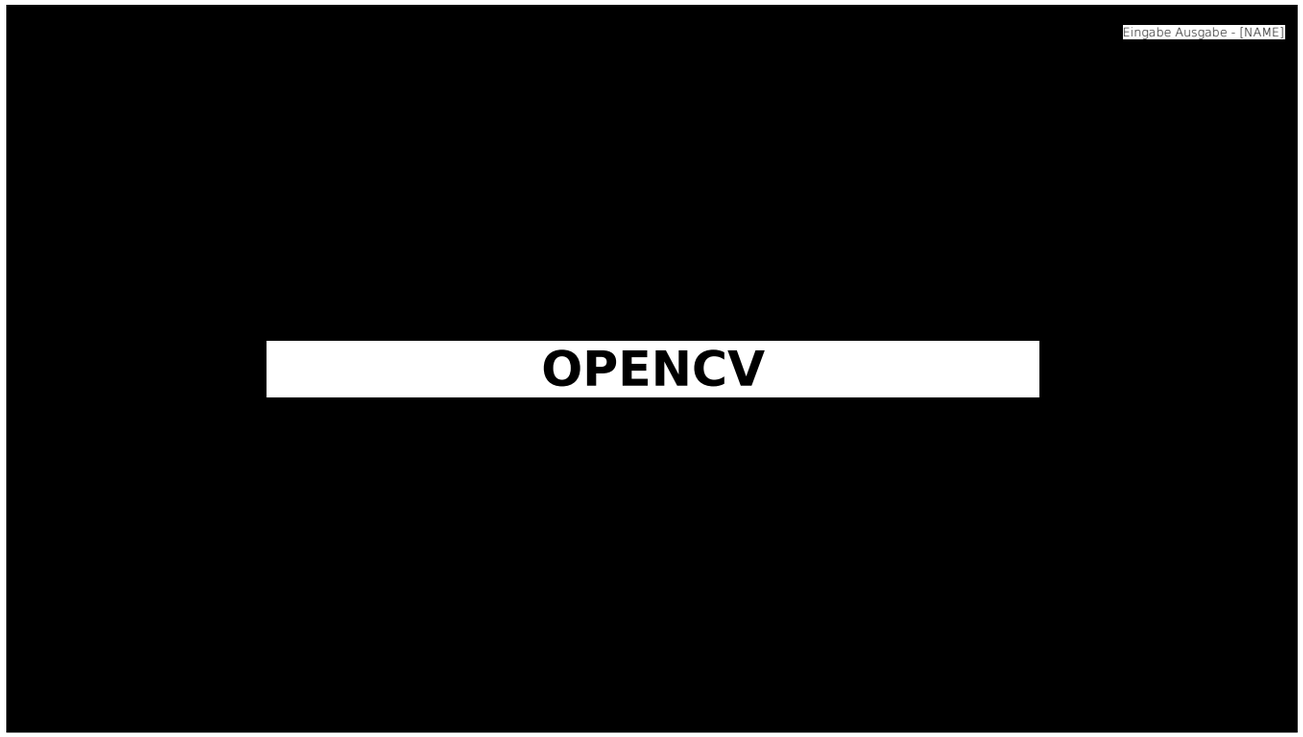

Eingabe Ausgabe - [NAME]



https://vimeo.com/4732884

Juri

WHAT ELSE IS IN THE BOX?



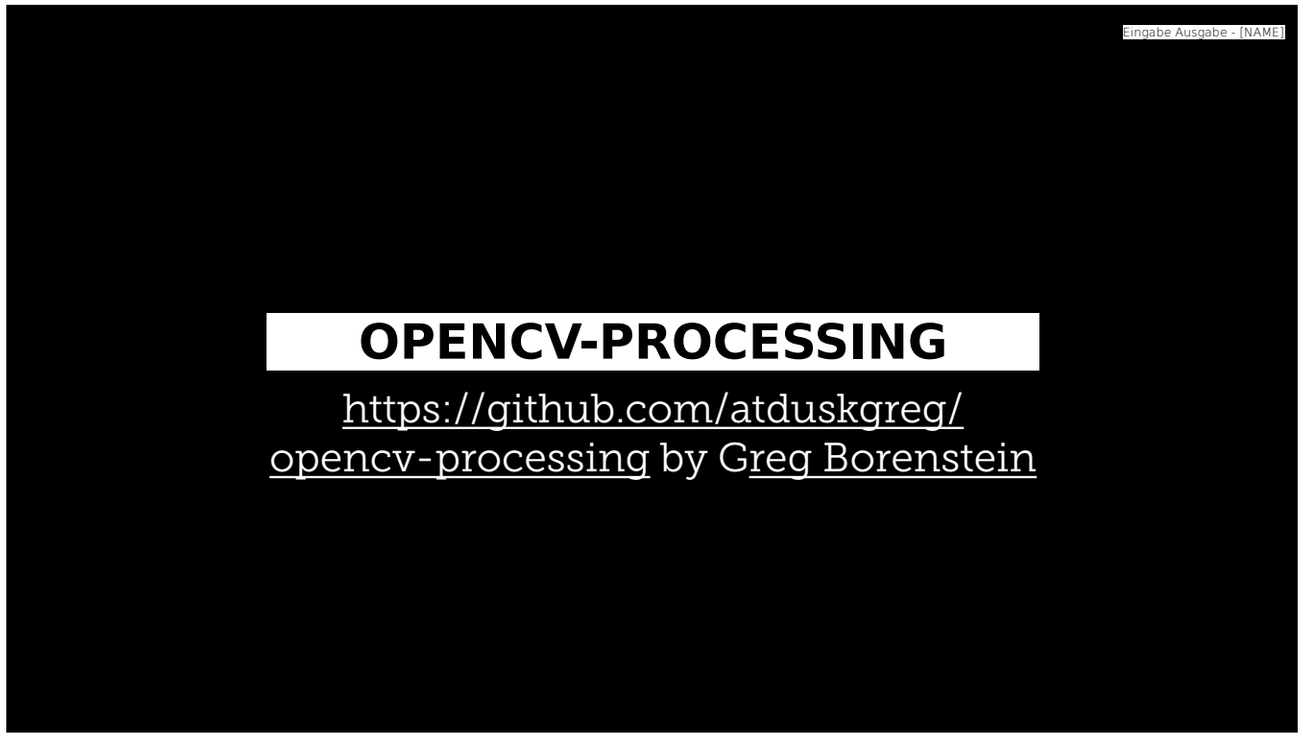
Jordi

OPENCV

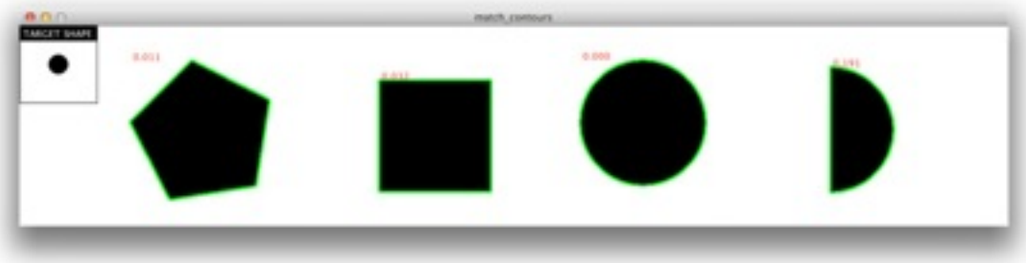
(Open Source Computer Vision Library)

is an open source computer vision and machine learning software library. OpenCV was built to provide a common infrastructure for computer vision applications and to accelerate the use of machine perception in the commercial products.

http://opencv.org/



Jordi? http://gregborenstein.com/


match_contours
TARGET SHAPE
0.011
0.000

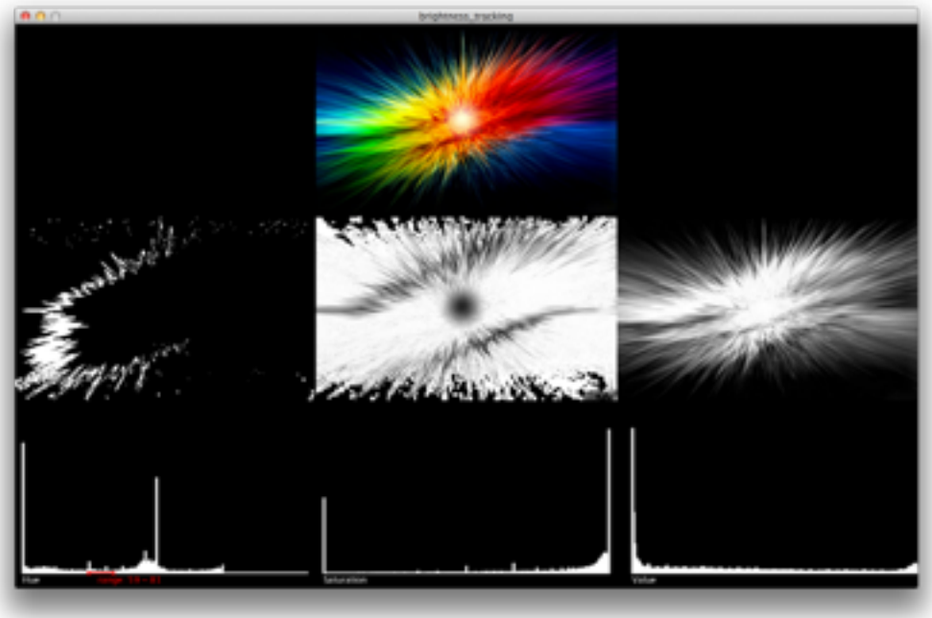
Eingabe Ausgabe - [NAME]

Eingabe Ausgabe - [NAME]

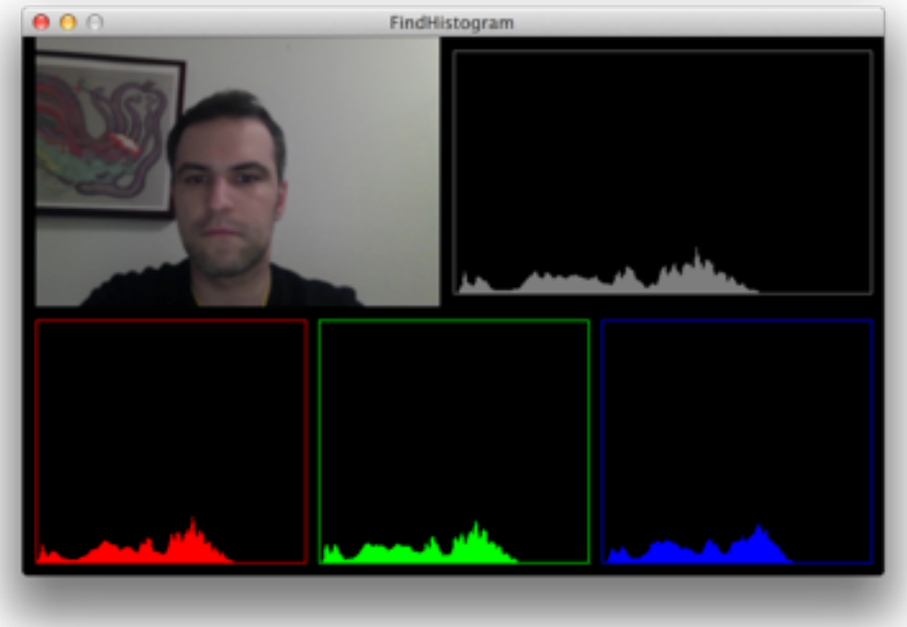
Eingabe Ausgabe - [NAME]

Eingabe Ausgabe - [NAME]

Eingabe Ausgabe - [NAME]



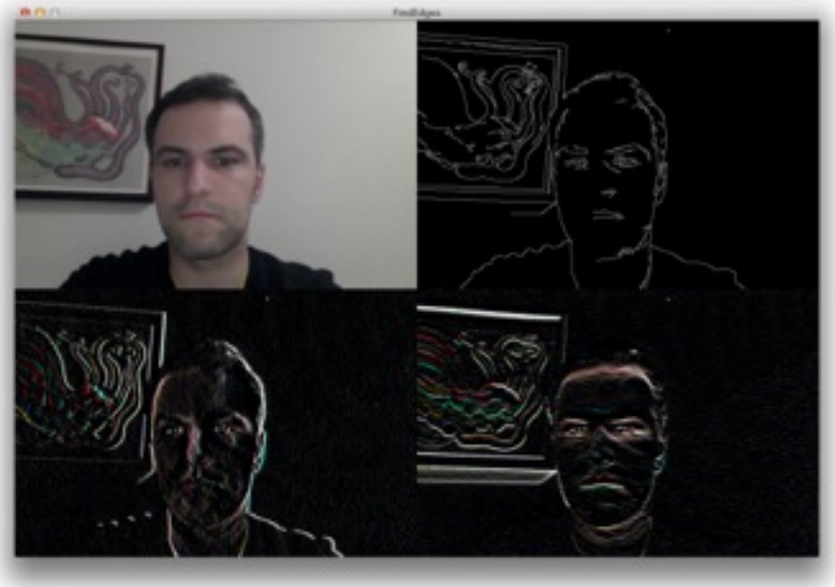
Eingabe Ausgabe - [NAME]

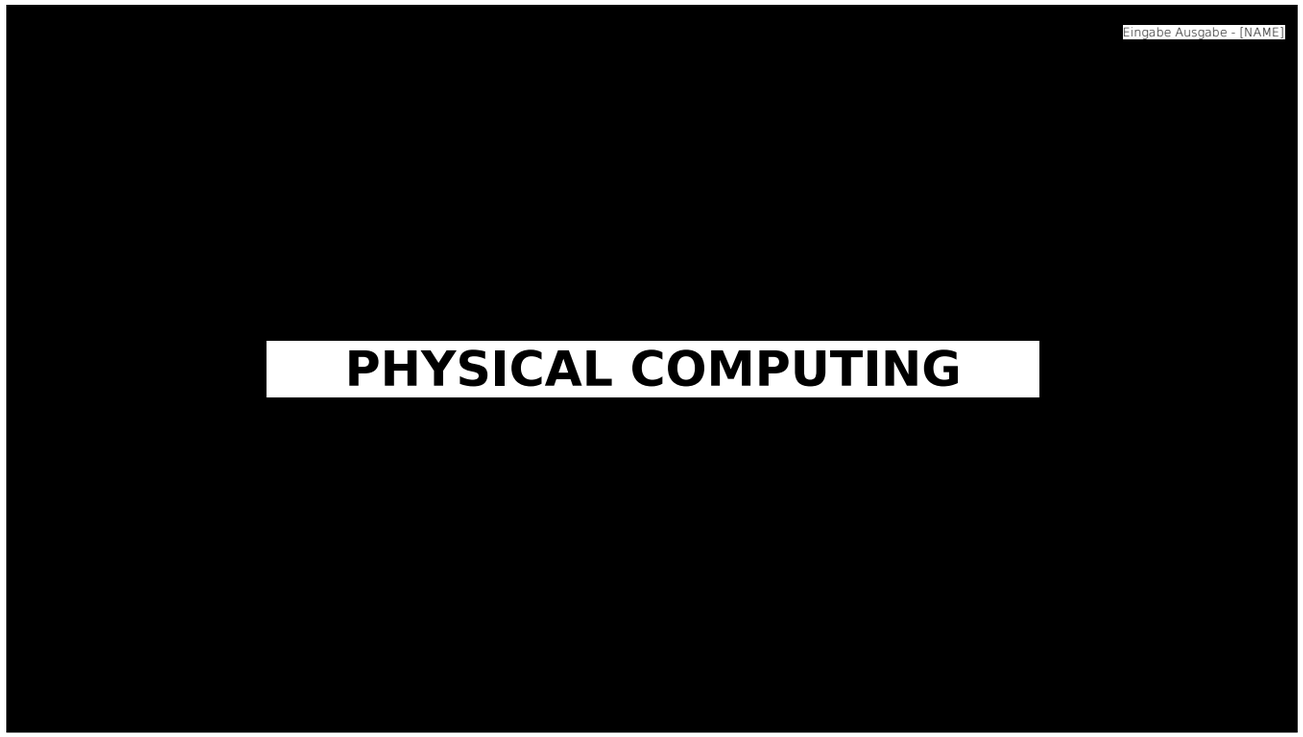


Eingabe Ausgabe - [NAME]

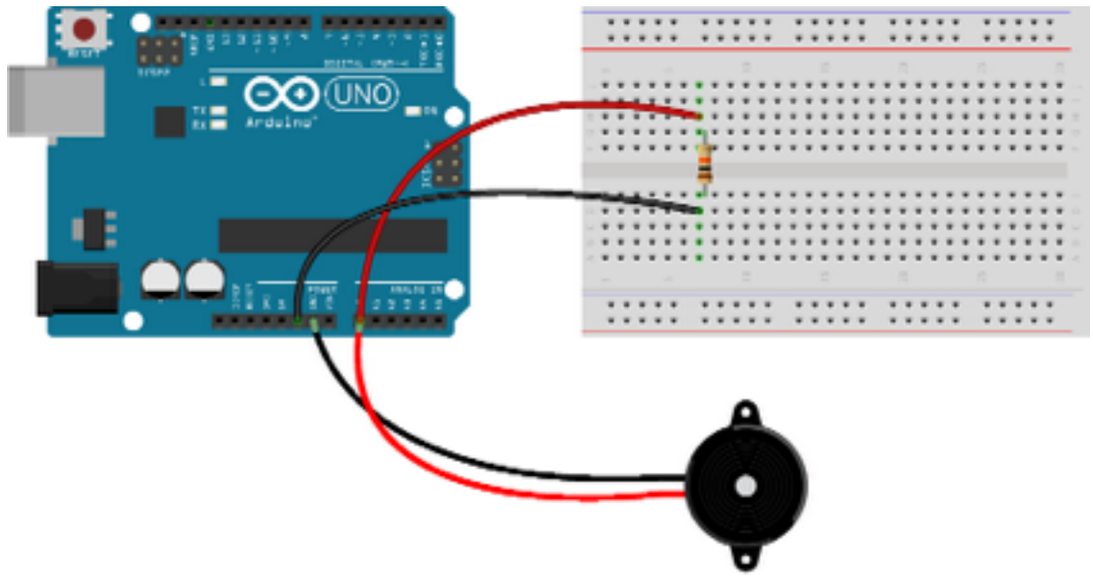
Eingabe Ausgabe - [NAME]

Eingabe Ausgabe - [NAME]

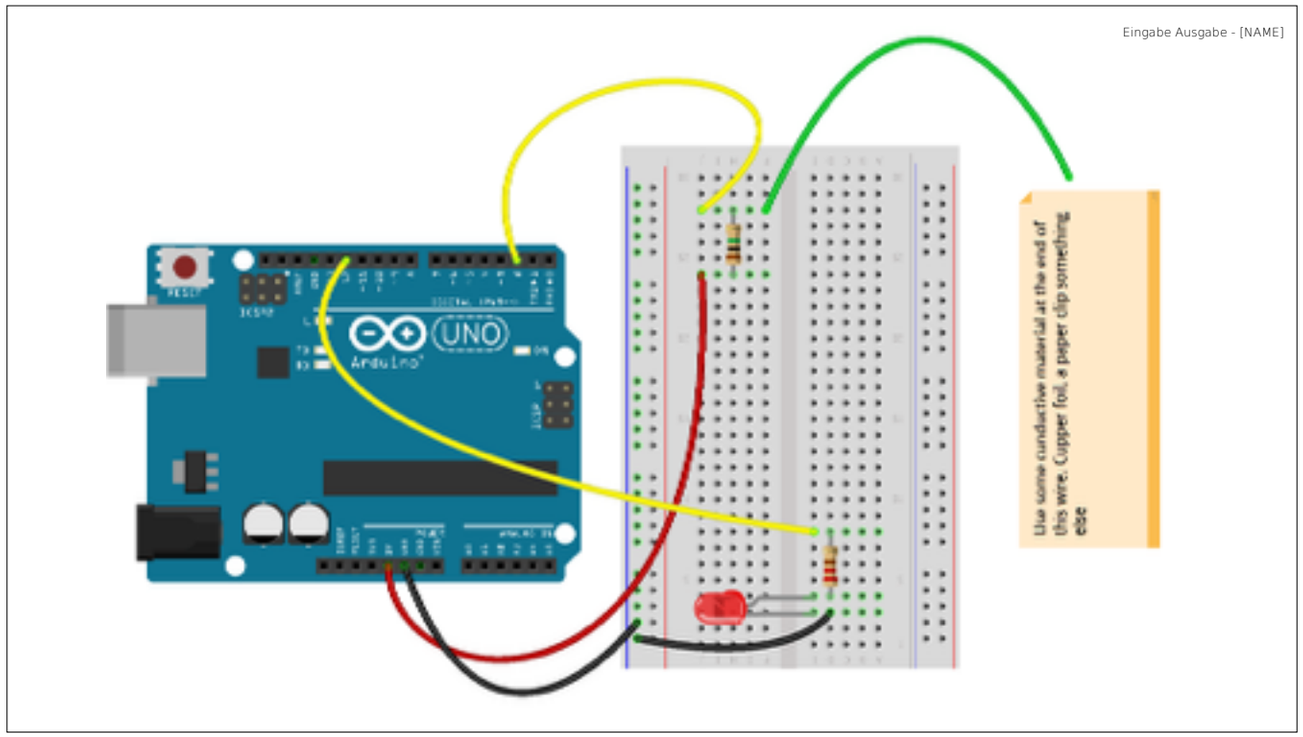




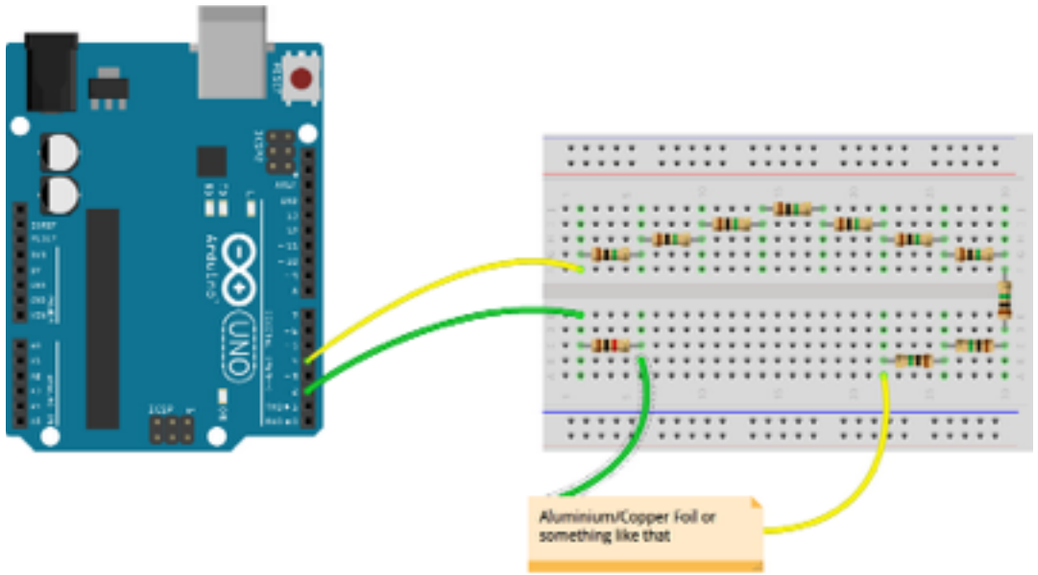
Fabian



Knock acoustic



Capacitive Digital



Capacitive Analog

https://www.olimex.com/Products/Duino/AVR/OLIMEXINO-85S/open-source-hardware

GROUPS OF 3

Eingabe Ausgabe - [NAME]

EXERCISE

Connect || Think || Present

Aufgabe zu morgen