

# DISTANZ

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M.F.A. Media Art and Design

IDMC - Interface Design Masterclass  
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Thomas Struth  
Museum Photographs  
Audience 1  
Galleria Dell Accademia  
Florenz, 2004



Perceiving is a way of acting. Perception is not something that happens to us, or in us. It is something we do.

[...]

The world makes itself available to the perceiver through physical movement and interaction.

– Alva Noë  
Action in perception

# Participative artworks

People can physically interact with the artwork.

The project is an interactive installation with a screen projecton with which you can interact. The installation tracks your movement and reacts to it.

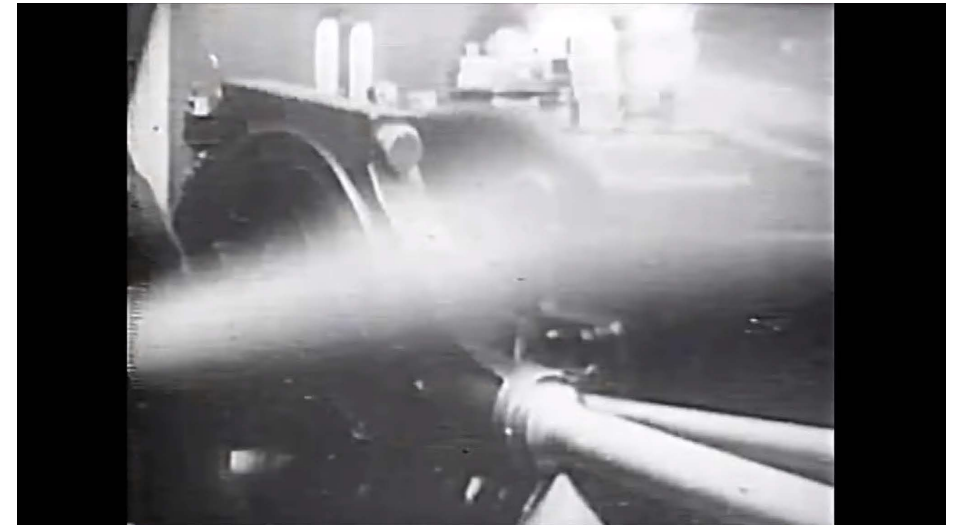


# Historical references: motion

Fernand Léger and Dudley Murphy, Ballet mécanique, 1924

The film showcases serially manufactured commodities, thrusting machine parts, geometric shapes, geometric shapes, rapid montage, geometric abstraction, stop-motion and one of the first self-conscious media loops in history.

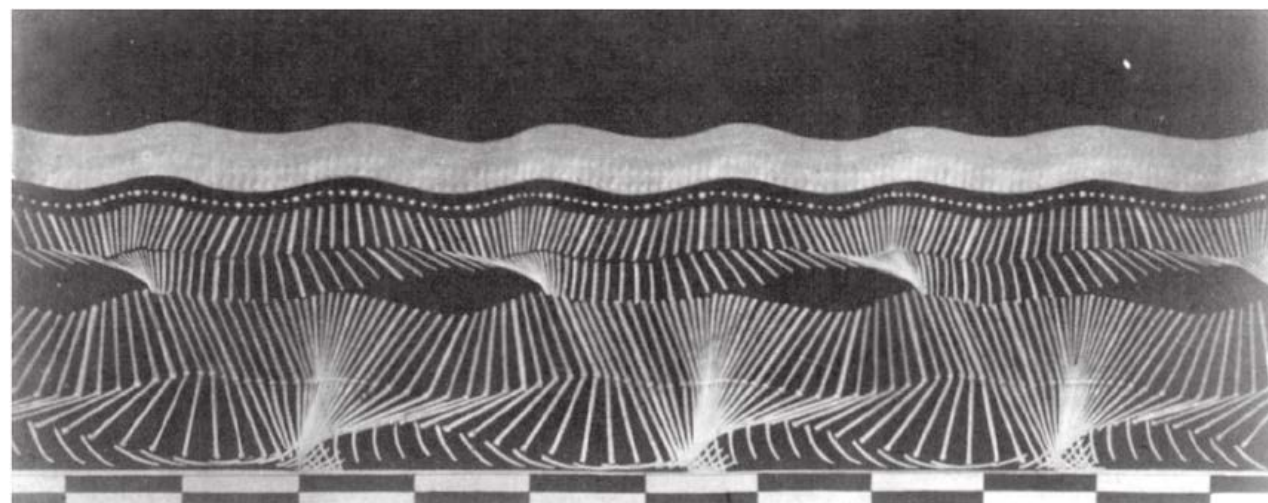
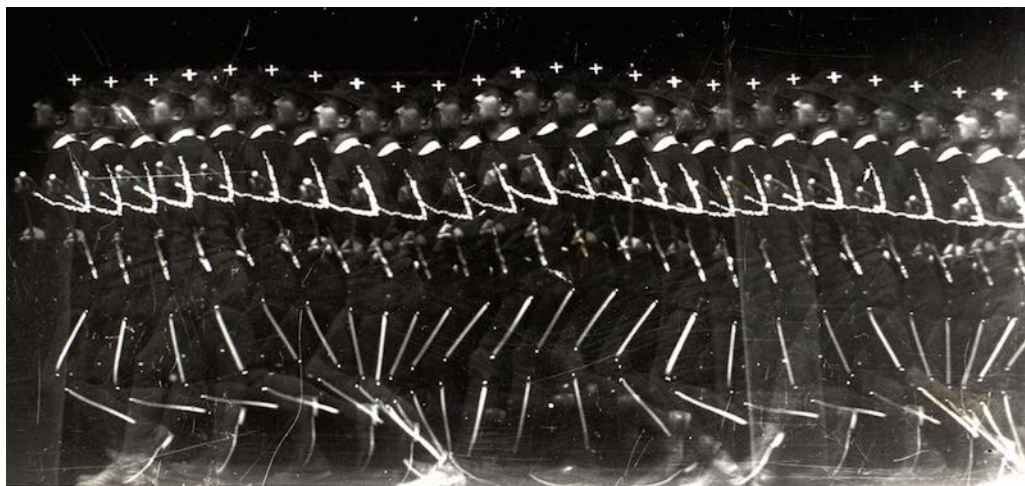
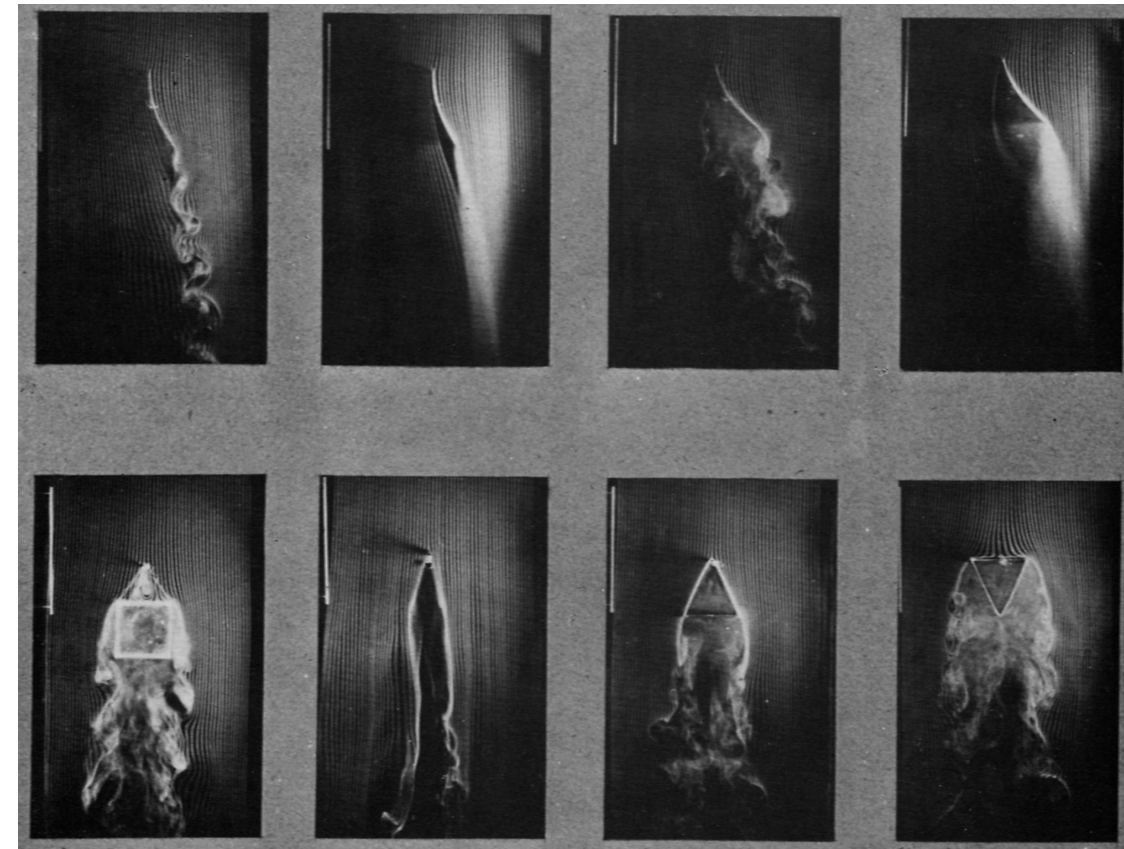
According to Léger, it was incumbent upon theater and cinema to embrace spectacular modernity, animate the beauty of industrial objects, and reduce actors to mechanisms, to moving scenery.



# Historical references: motion

Étienne-Jules Marey, capturing movement with chronophotography, 1880s

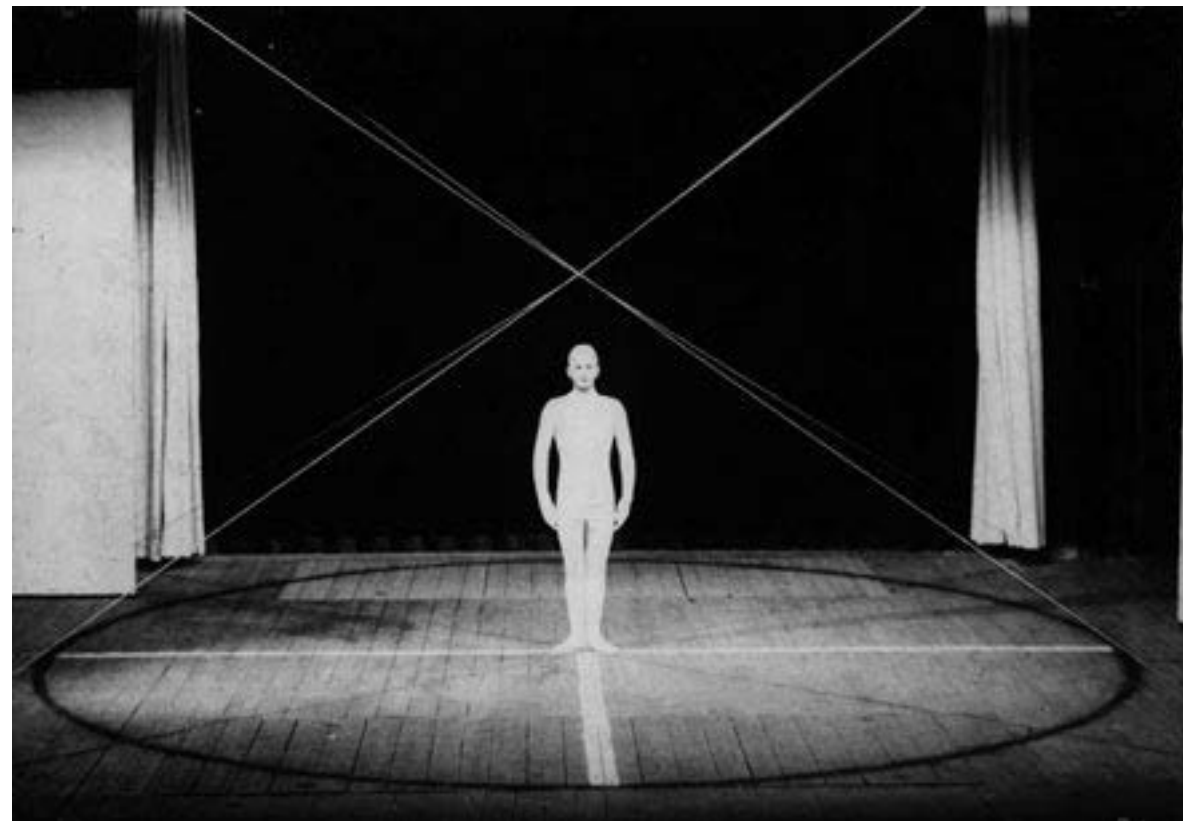
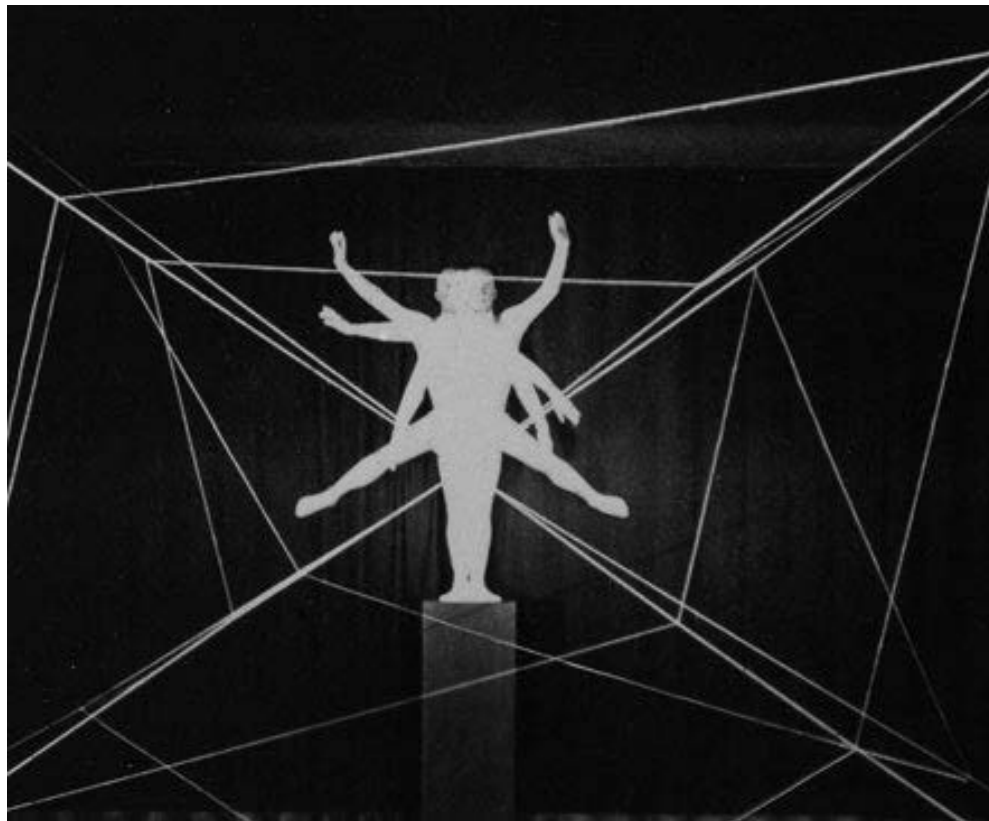
In the last years of the nineteenth century French physiologist Étienne-Jules Marey finds novel ways to record and visualize the motions of the body over time. He's not interested in the person but in the motion itself. He develops "the graphic method", in which movement is abstracted from the individual, exists as an independent entity.



# Historical references: theatre

Oskar Schlemmer, Mensch und Kunstfigur, 1923

Schlemmer sought to fuse the laws of abstract space and those of the human organism: Invisibly interwoven with all these laws is the Human Dancer (Tänzer Mensch). He obeys the law of the body as well as the law of space. Schlemmer's choreography aimed to make visible these invisible networks, functions, and laws.

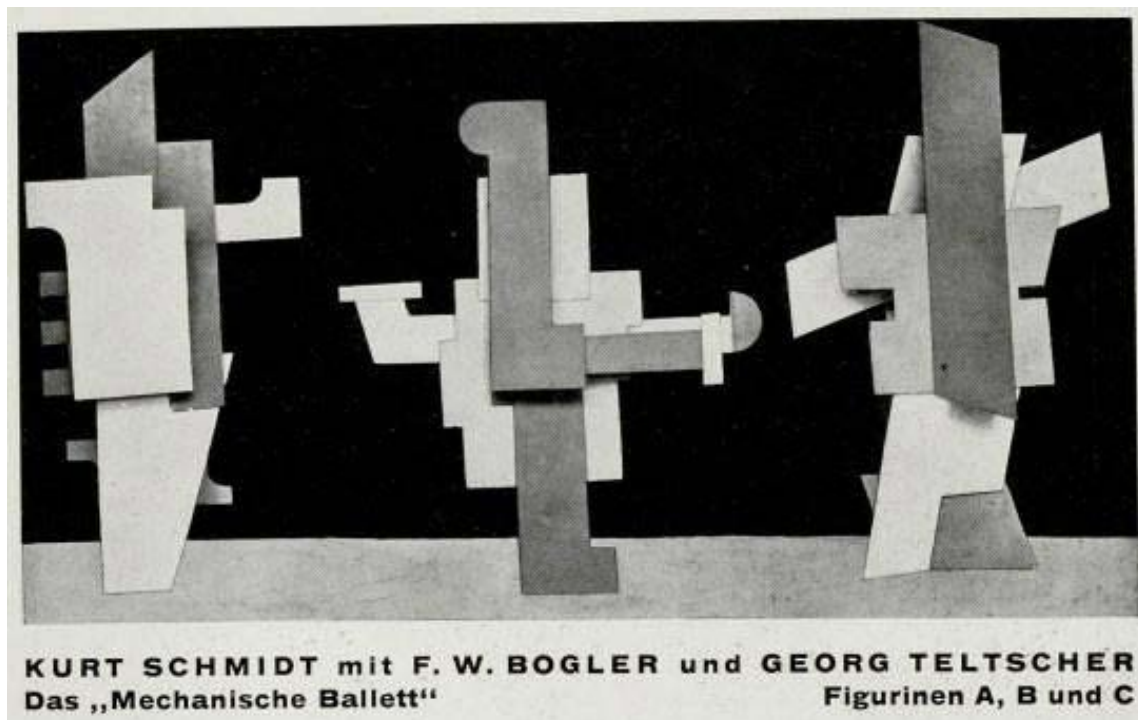




# Historical references: theatre

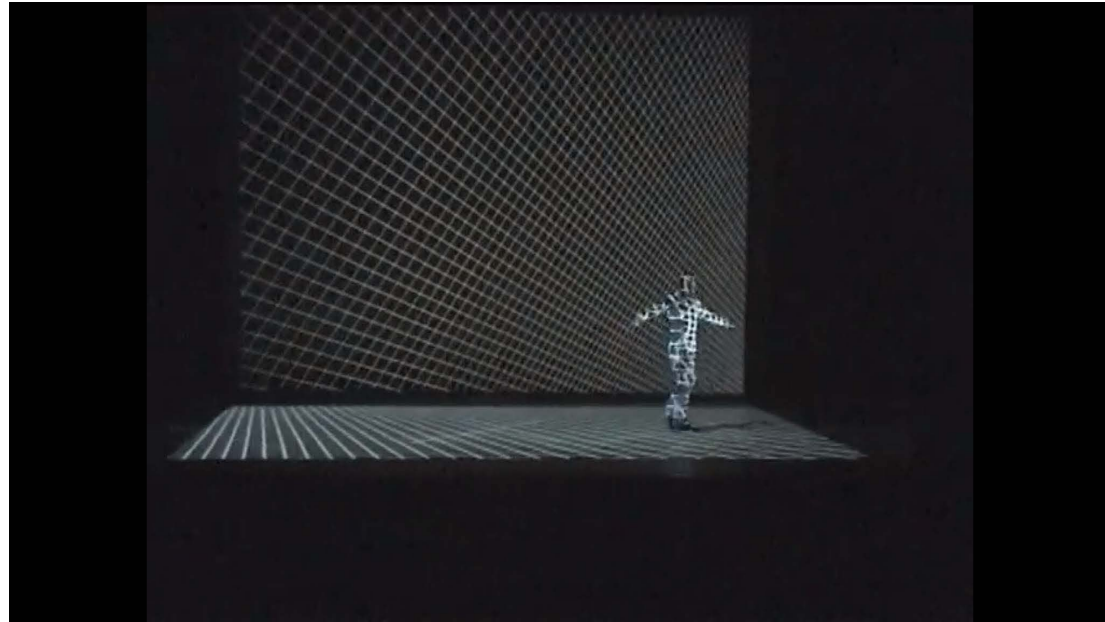
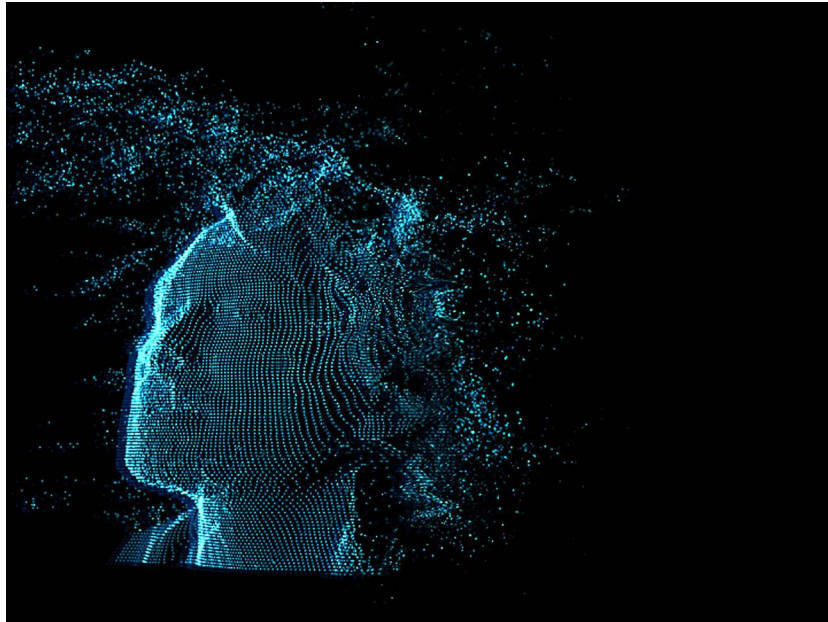
Kurt Schmidt, Mechanisches Ballett, 1923

The Mechanisches Ballett has a basic theatrical format (mechanical cabaret) with technical configuration (humanoid or abstract forms manipulated by black-clad actors against a strictly delimited black ground). The Mechanisches Ballett asserted itself and its mechano-humanoid forms through the total negation of the human dancer.

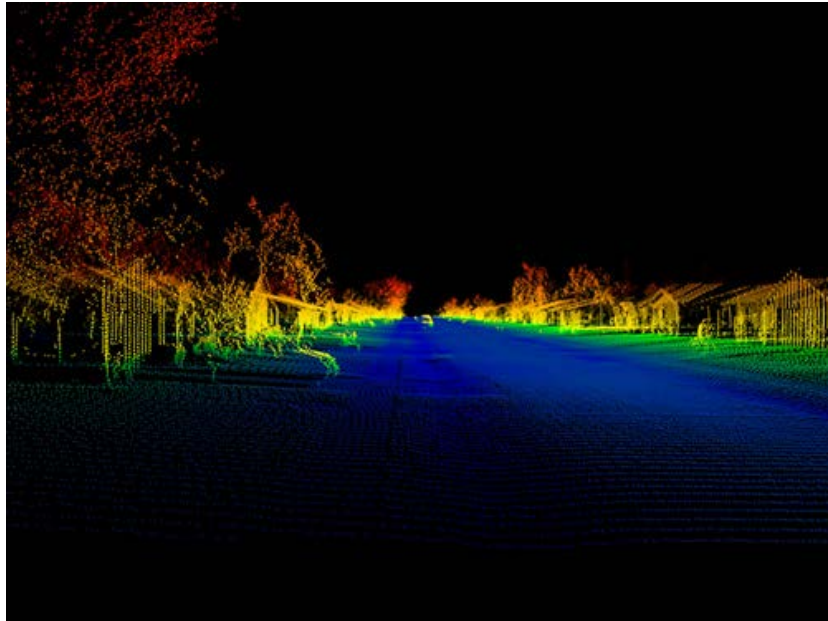




# Contemporary references



Hiroki Umeda, Adapting for distortion, 2010



Radiohead, House of Cards, music video 2008

# Computer vision

Computer vision refers to a broad class of algorithms that allow computers to make intelligent assertions about digital images and videos.

# Motion tracking

There exist different motion tracking devices, which were developed to track motion with high accuracy.



Kinect: body tracking



Leap Motion: hand tracking



Myo armband: arm tracking



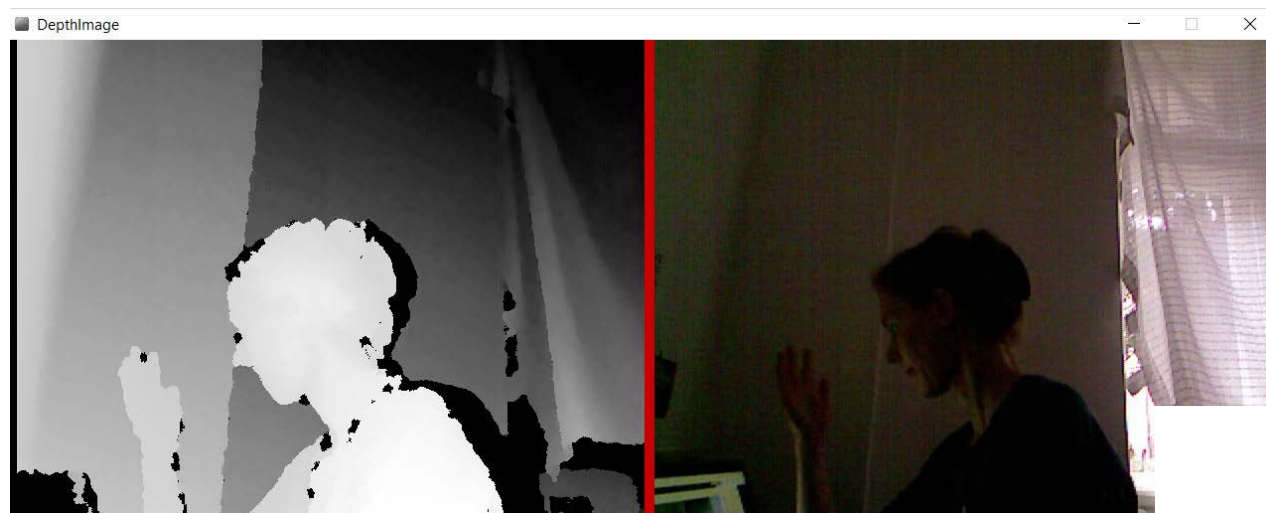
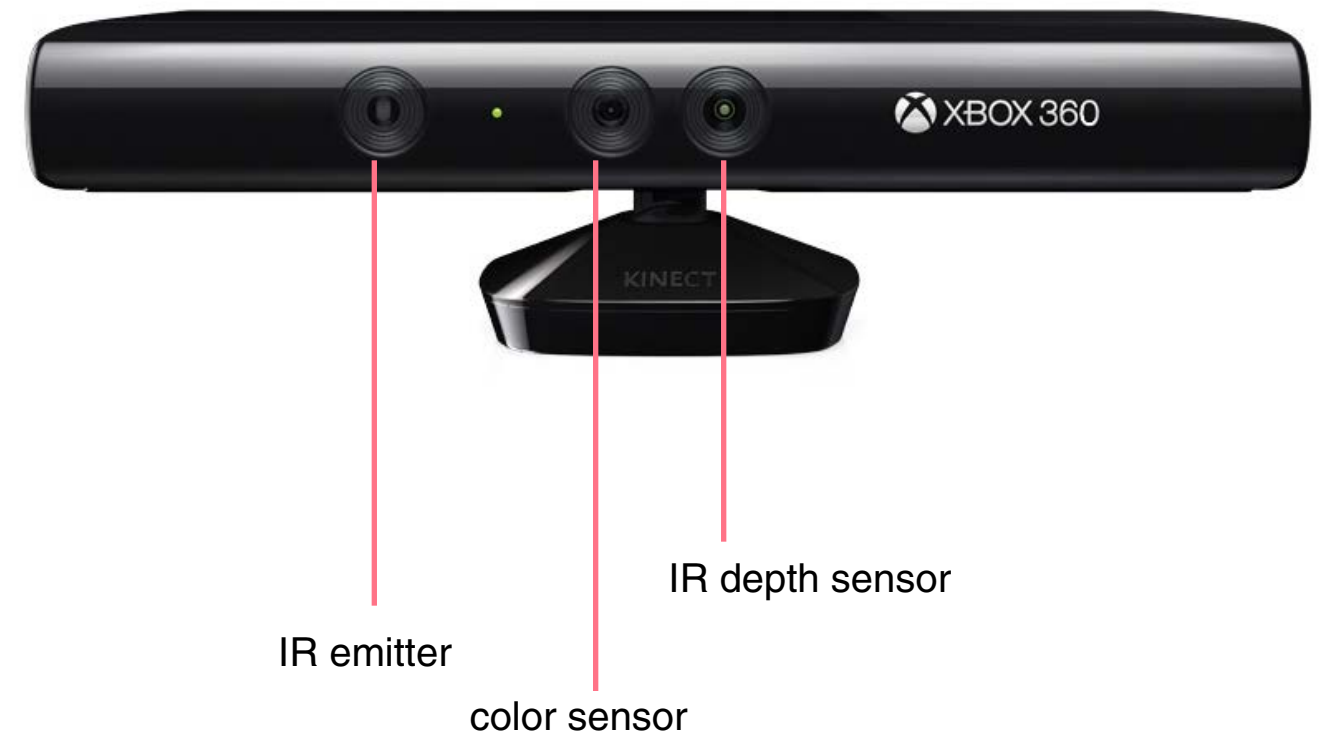
Tobii Eye Tracker 4C: eye tracking



# Kinect

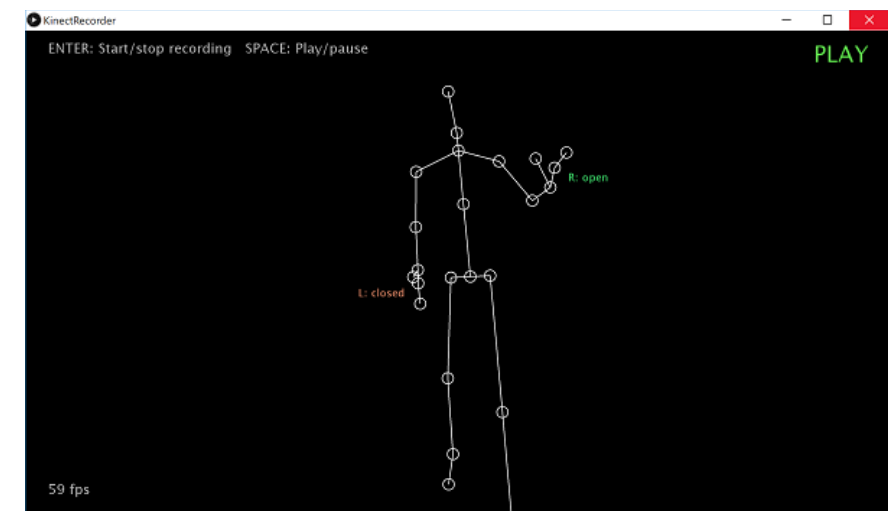
The Kinect scans the space with an infrared sensor and generates a depth image.

Unlike conventional images in which each pixel records the color of light that reached the camera from that part of the scene, each pixel of the depth image records the distance of the object in part of the scene from the Kinect.



Raw depth image, the Hello World of Kinect. Close pixels appear lighter than distant pixels.

Rgb image in comparison



Skeleton data generated with OpenNI

# Technology



Kinect

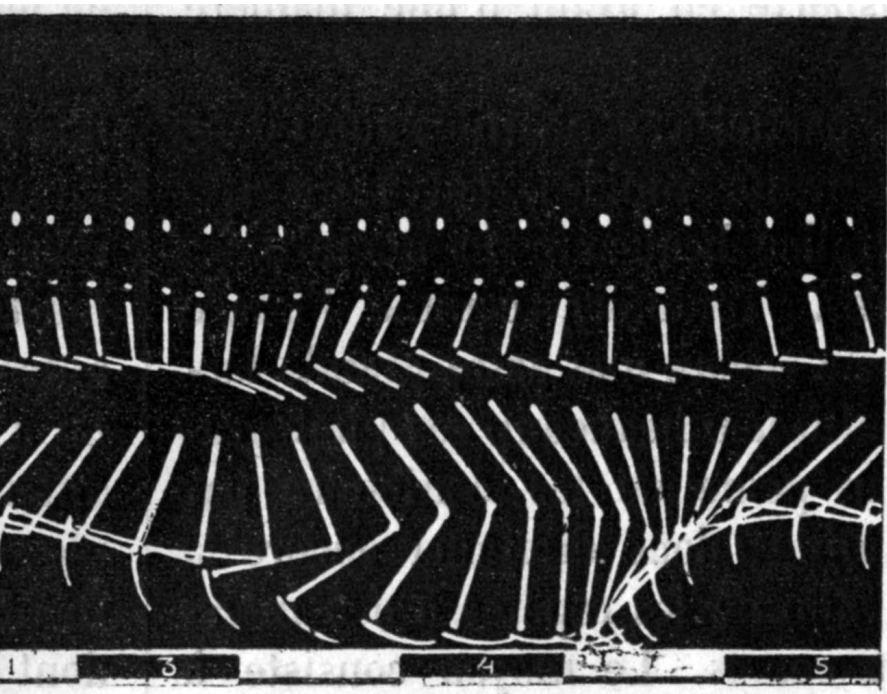


Processing

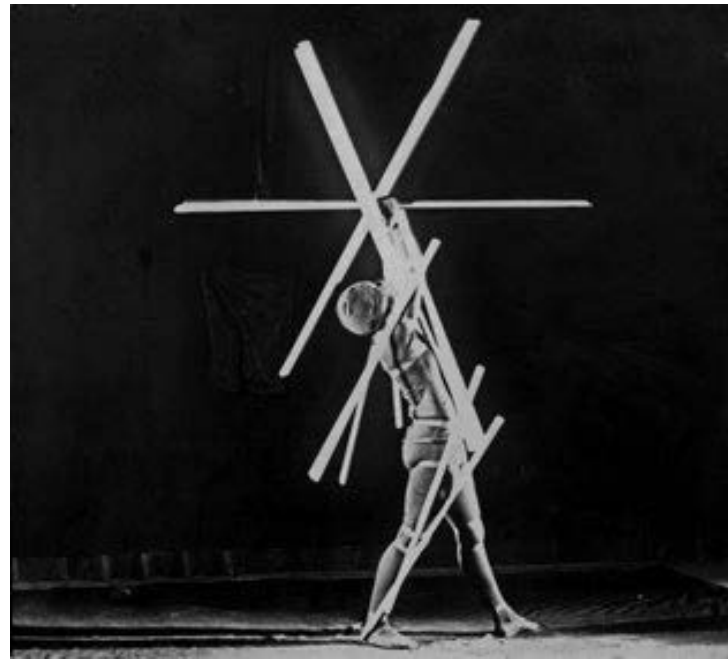


OpenNI

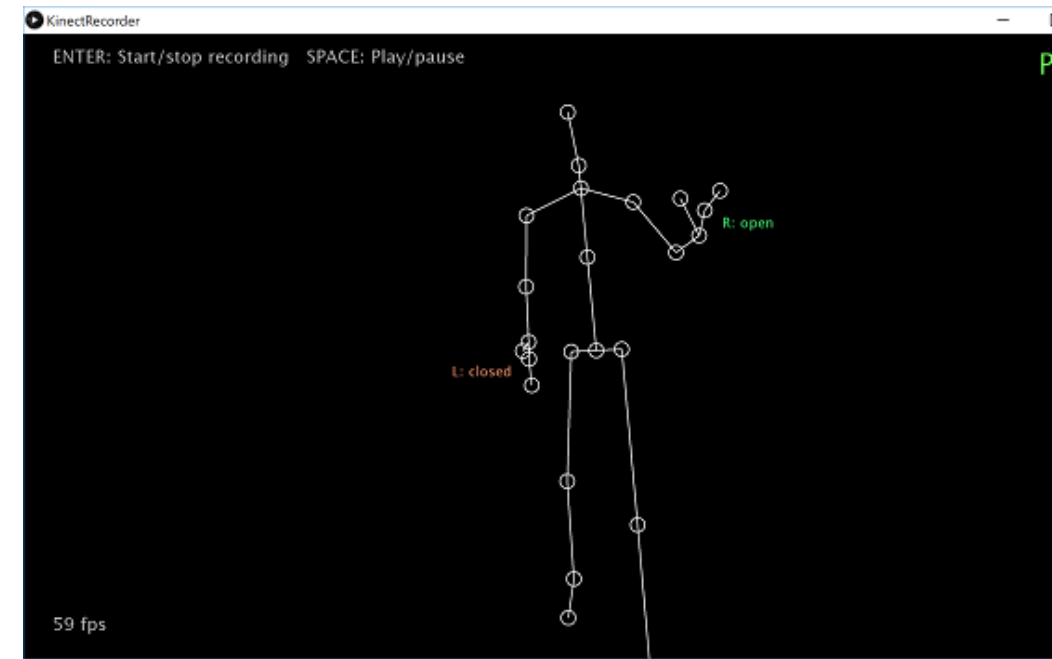
# Similarities



Étienne-Jules Marey, Walking Man, 1884



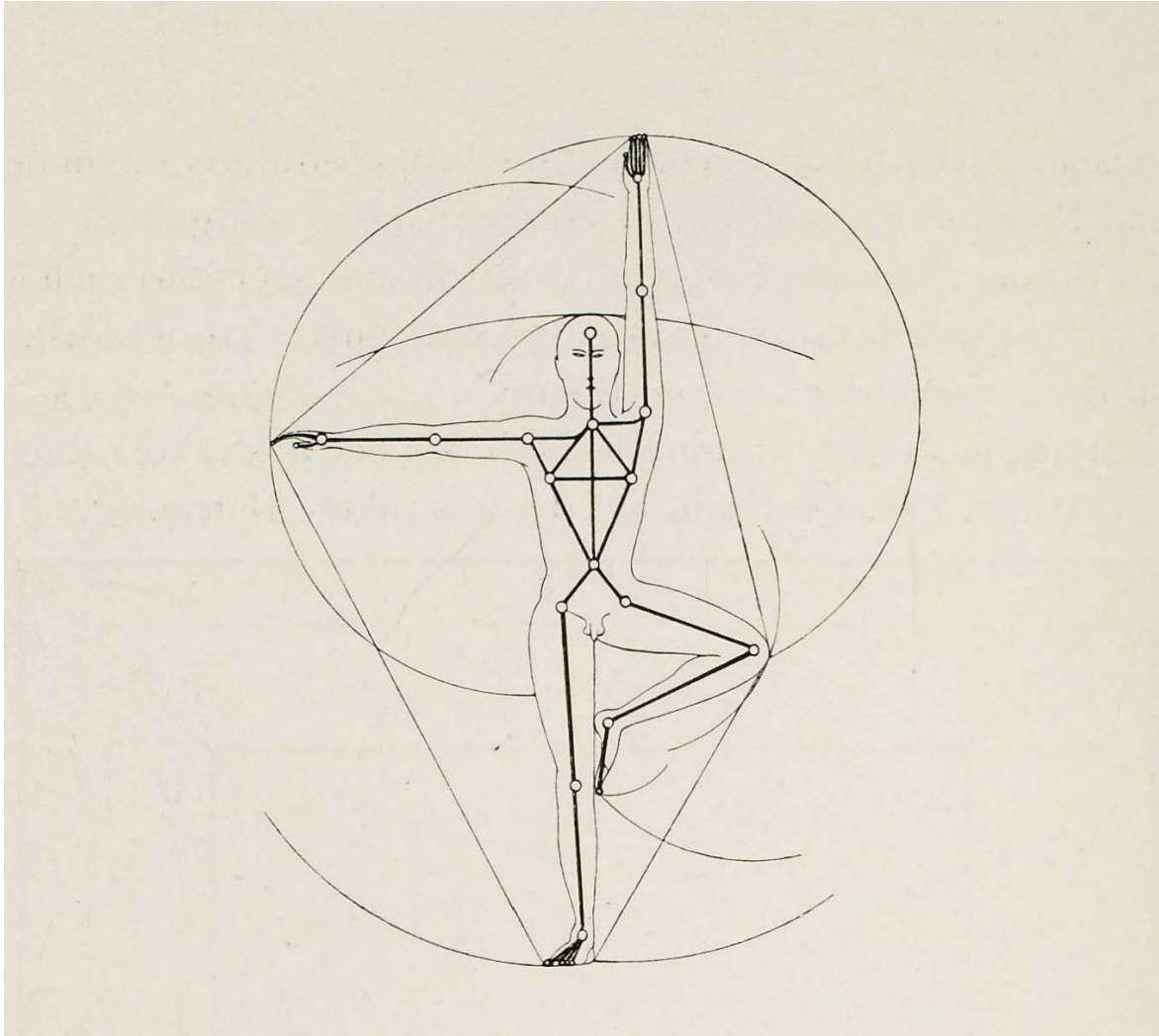
Oskar Schlemmer, Poles Dance, 1928-29



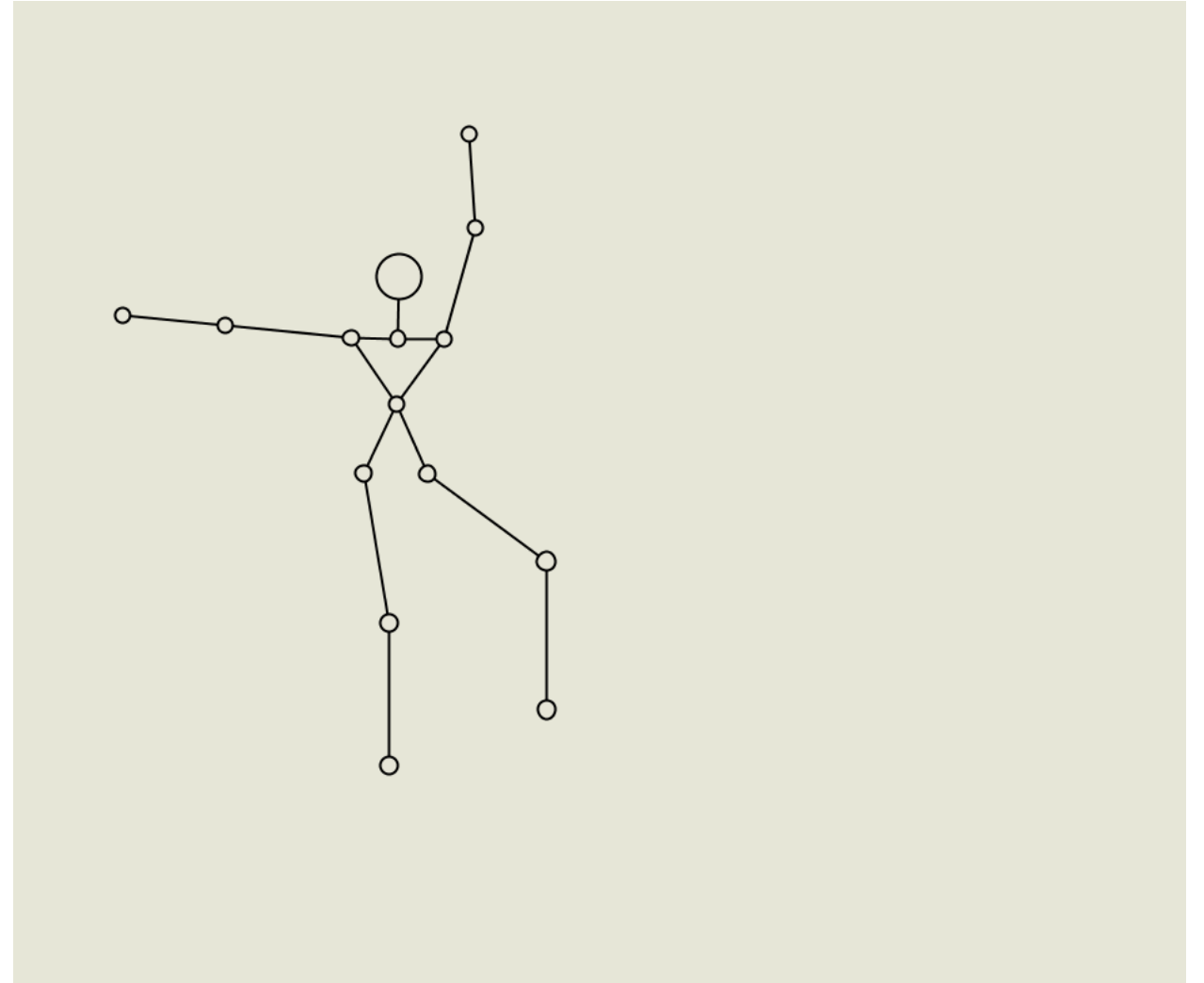
Kinect, Skeleton tracking, 2010s



# Convergence through imitation

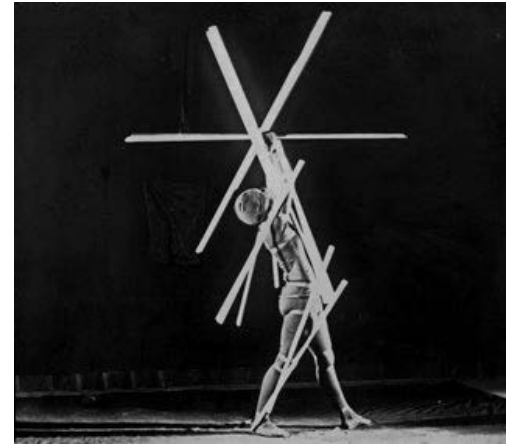


Oskar Schlemmer, Mensch und Kunstfigur, 1925

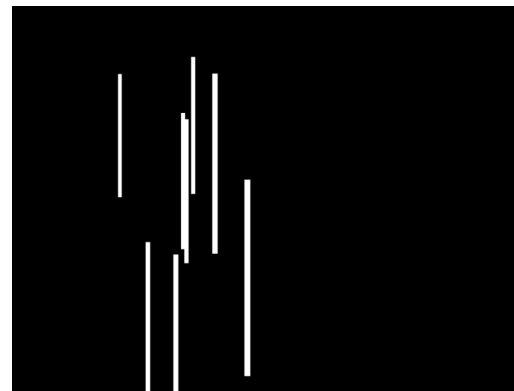
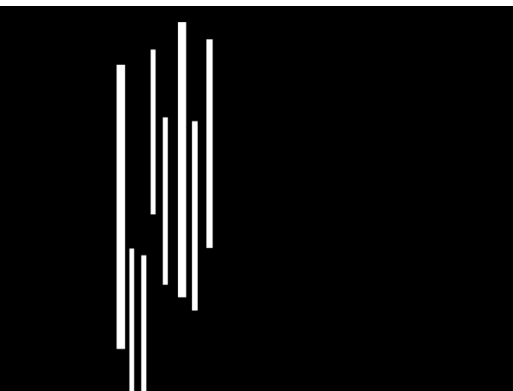


Kinect, Skeleton joints, 2018

# Convergence through imitation



Oskar Schlemmer,  
Poles Dance, 1928-29

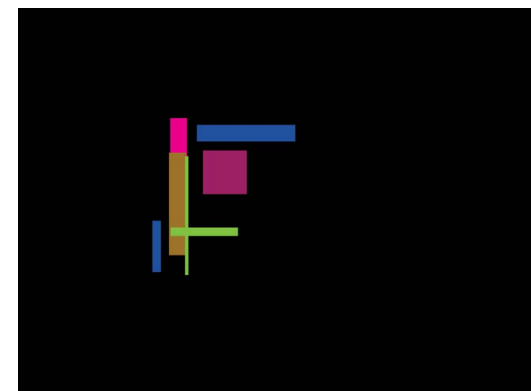
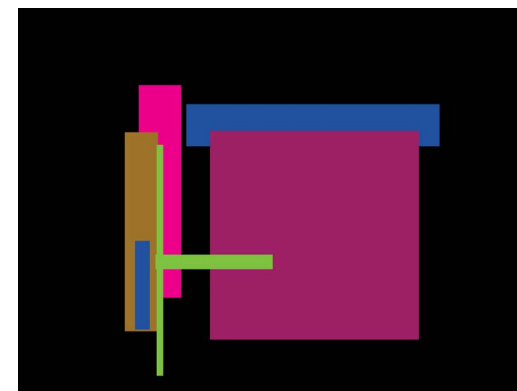
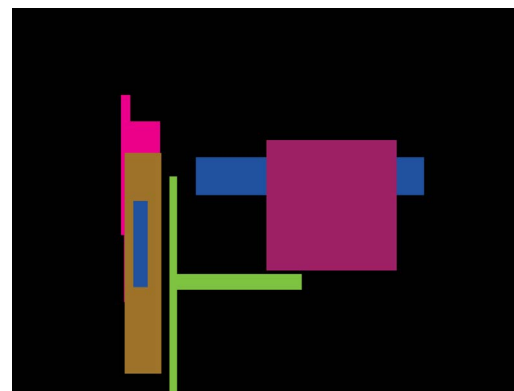
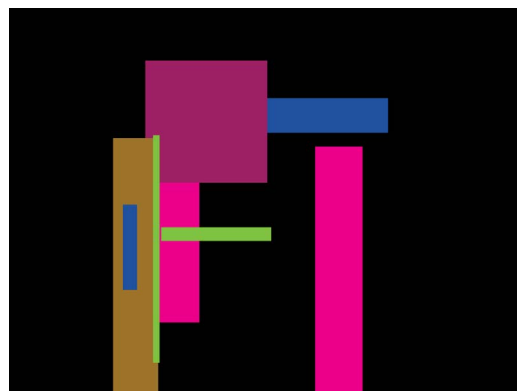
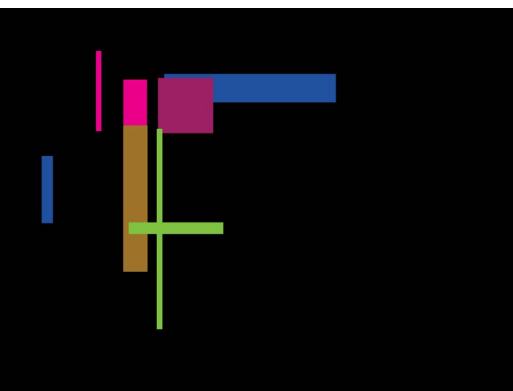


Kinect, Poles Dance, 2018

# Convergence through imitation



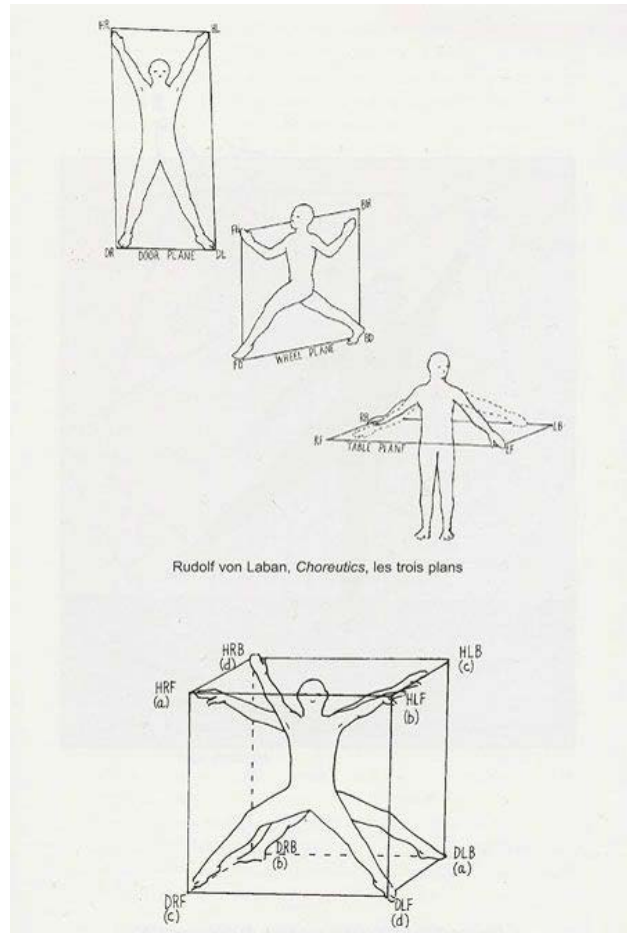
Kurt Schmidt,  
Mechanisches Ballett, 1923



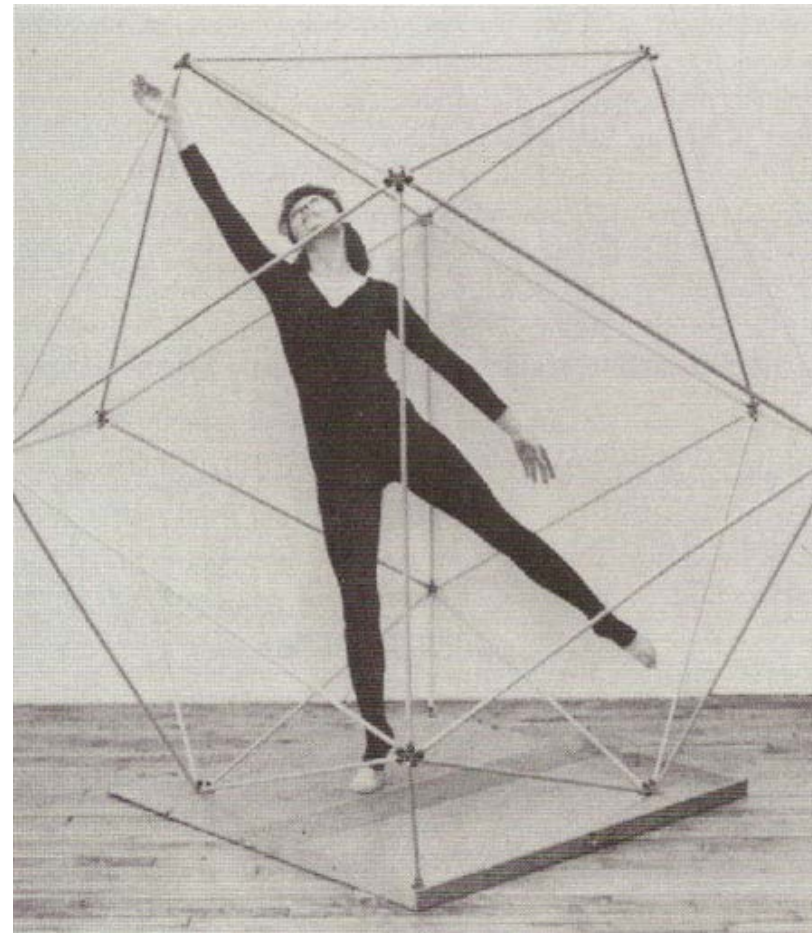
Kinect, Mechanisches  
Ballett, 2018



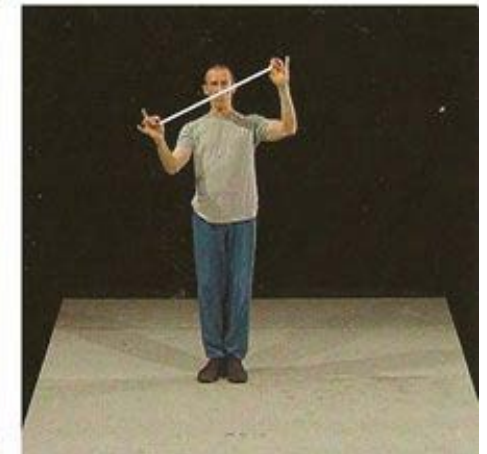
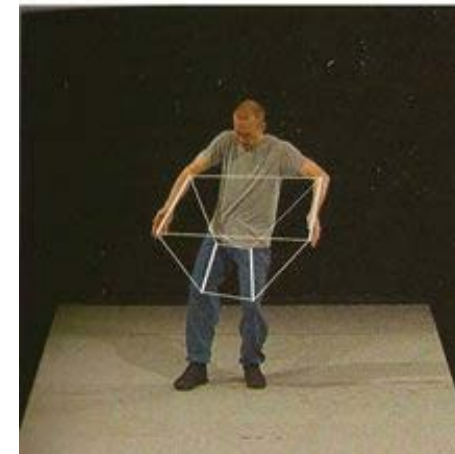
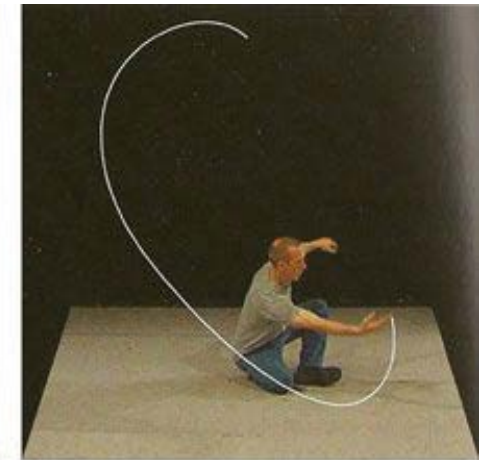
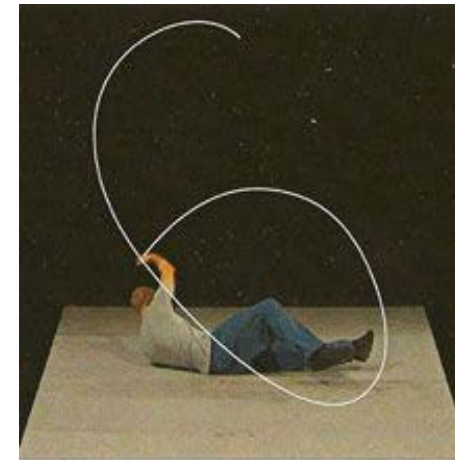
# Movement analysis



Rudolf Von Laban, *Choreutics*,  
Dance notation 1942/43

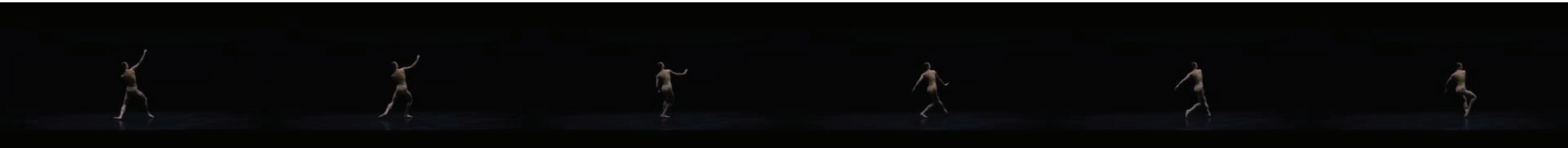


Rudolf Von Laban, *Gammes  
Dynamosphériques*, 1942/43



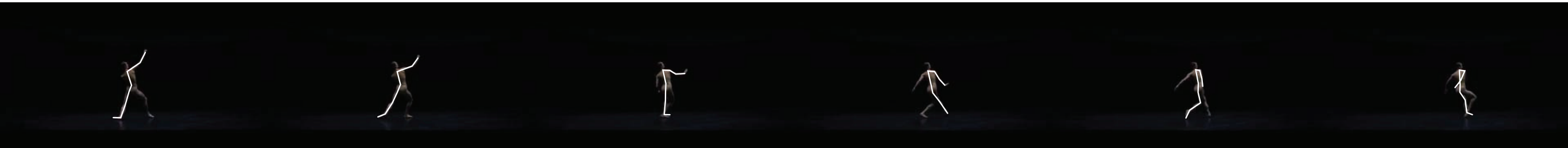
William Forsythe, *Lectures from improvisation  
technologies*, 2011

# Movement analysis



Video frames:  
Sidi Larbi Cherkaoui & Woodkid, I will fall for you

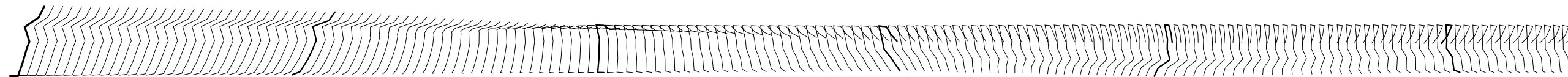
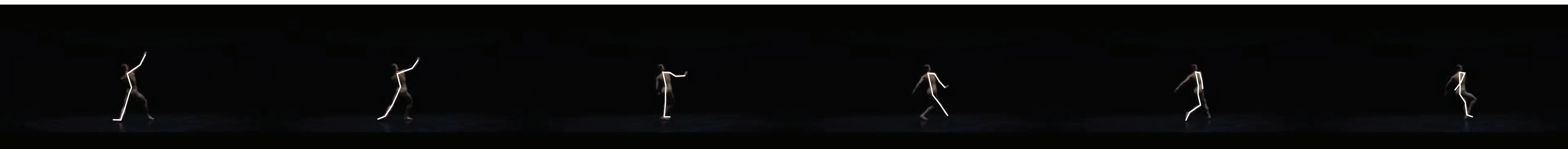
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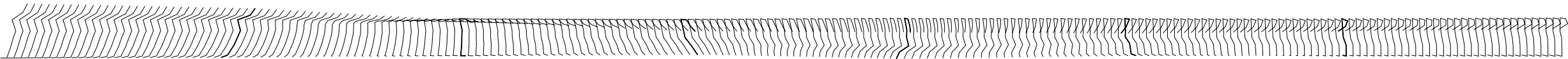
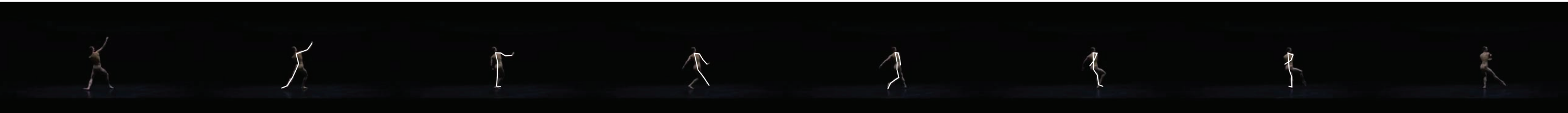


# Movement analysis

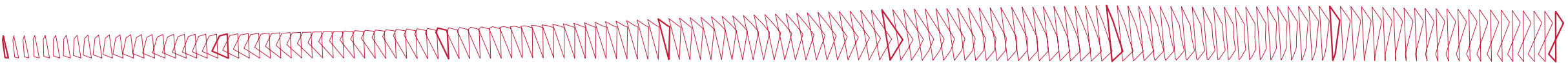
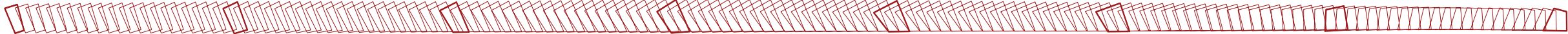
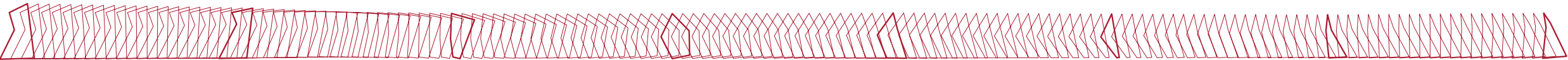


Video frames:  
Sidi Larbi Cherkaoui & Woodkid, I will fall for you

# Movement analysis



# Movement analysis



# References

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The viewer completes the work of art.

– Marcel Duchamp