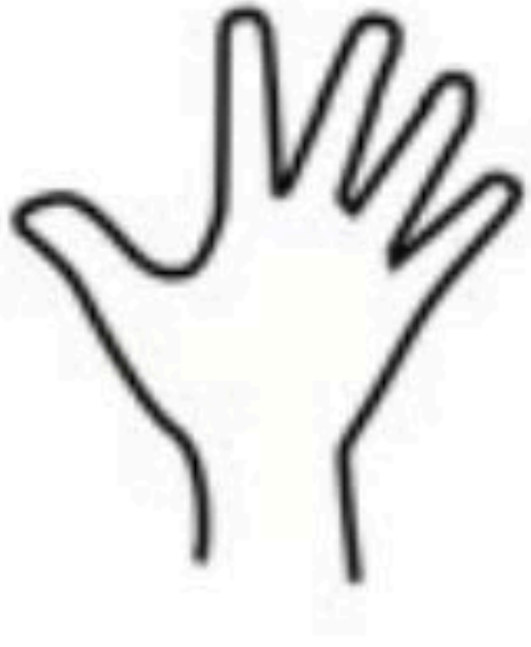
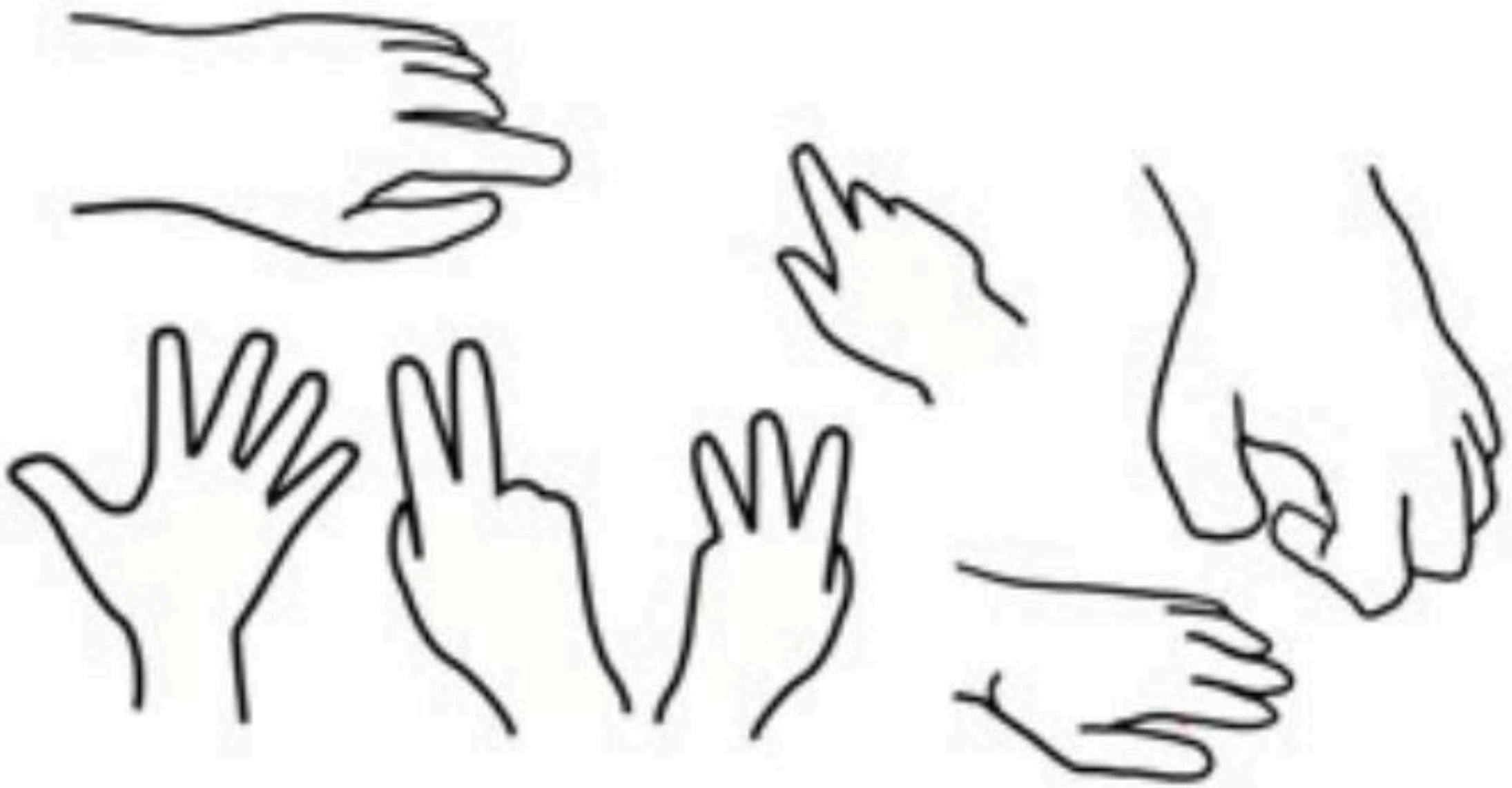
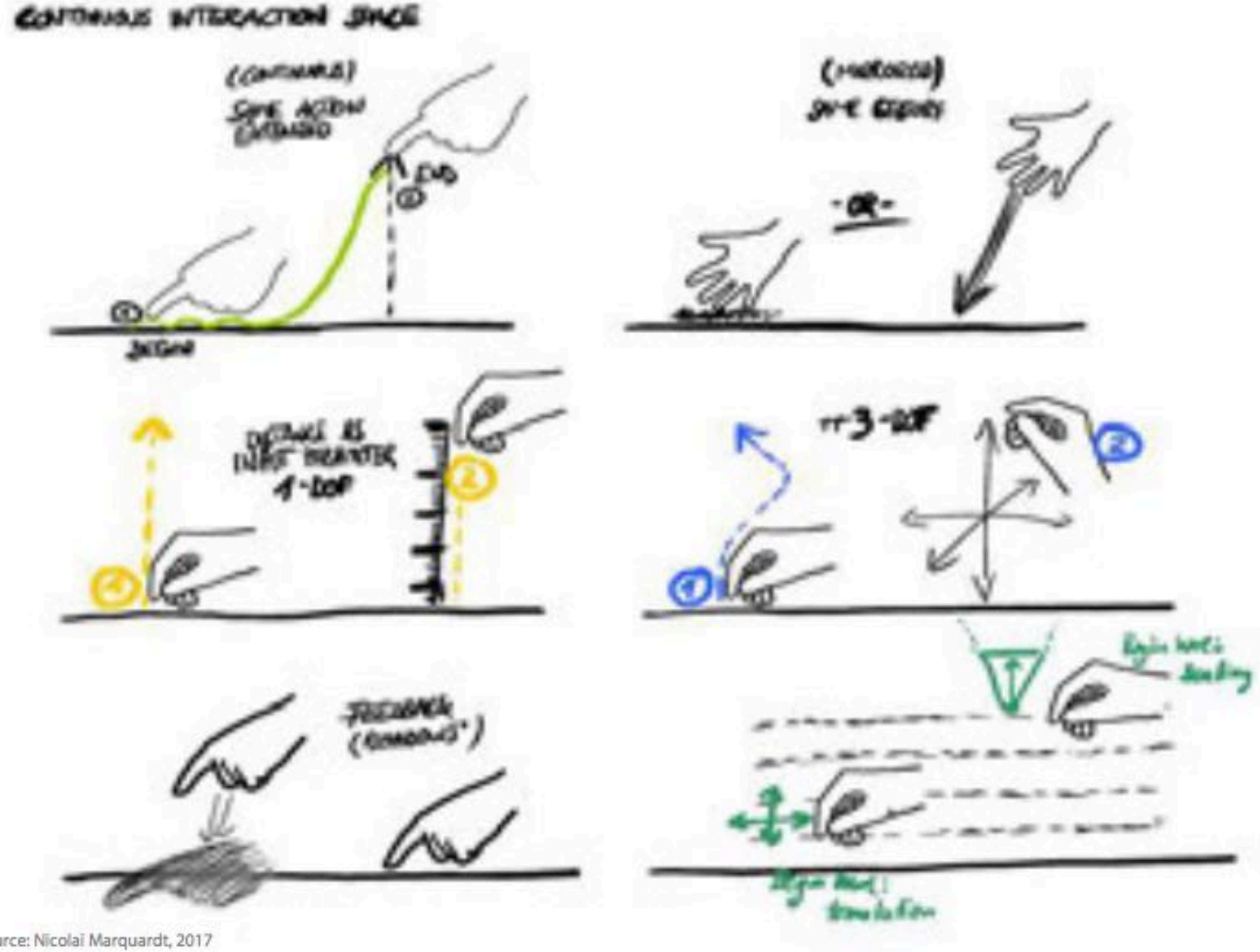
UCL
University College London
Interaction Centre

Sketching Hands and Gestures



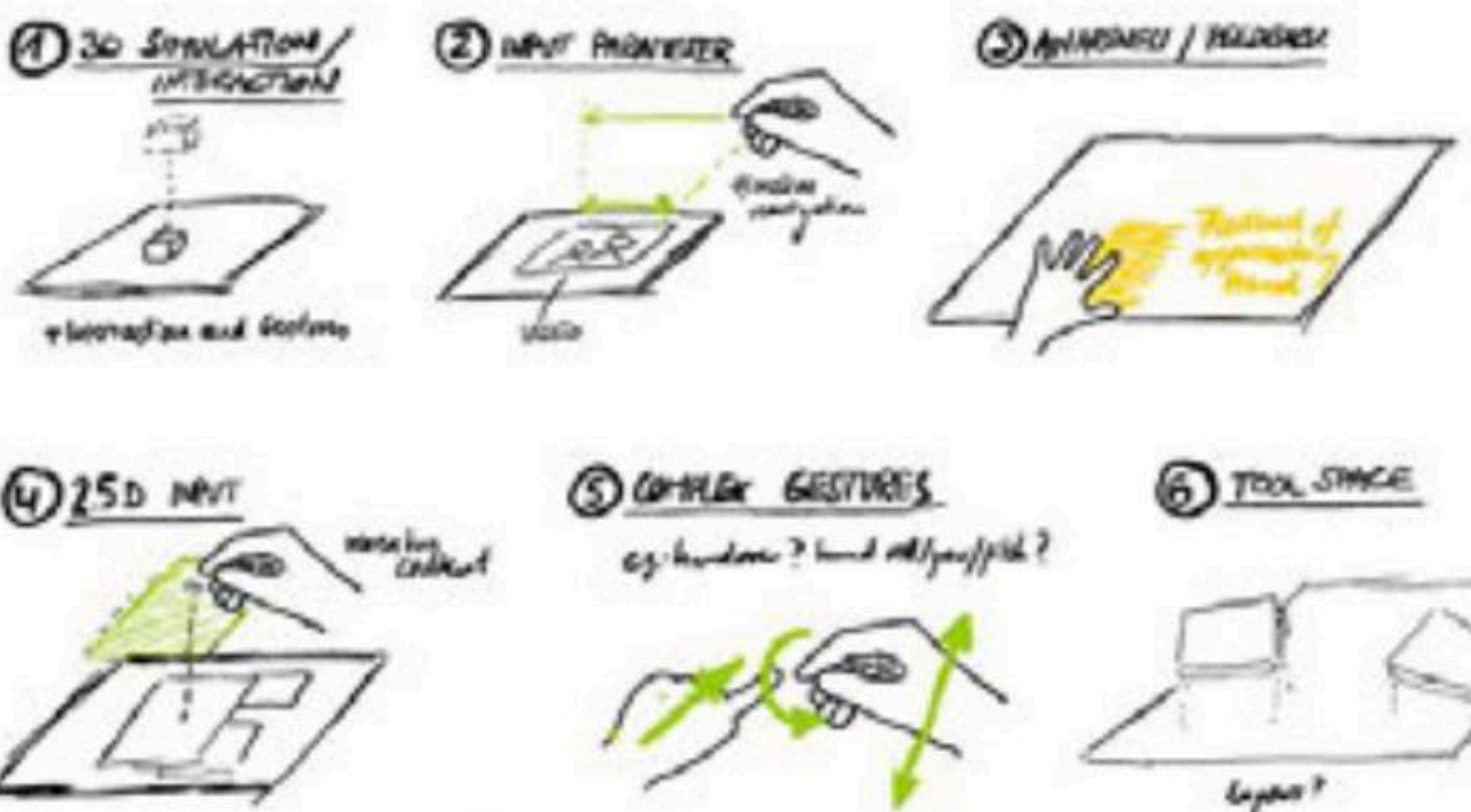


Source: Nicolai Marquardt, 2017



Source: Nicolai Marquardt, 2017

Sides Above Surfaces



Source: Nicolai Marquardt, 2017

But: “I really, really can’t draw hands…”

rotoscoping

Rotoscoping:: an animation technique in which animators trace over footage, frame by frame, for use in live-action and animated movies.

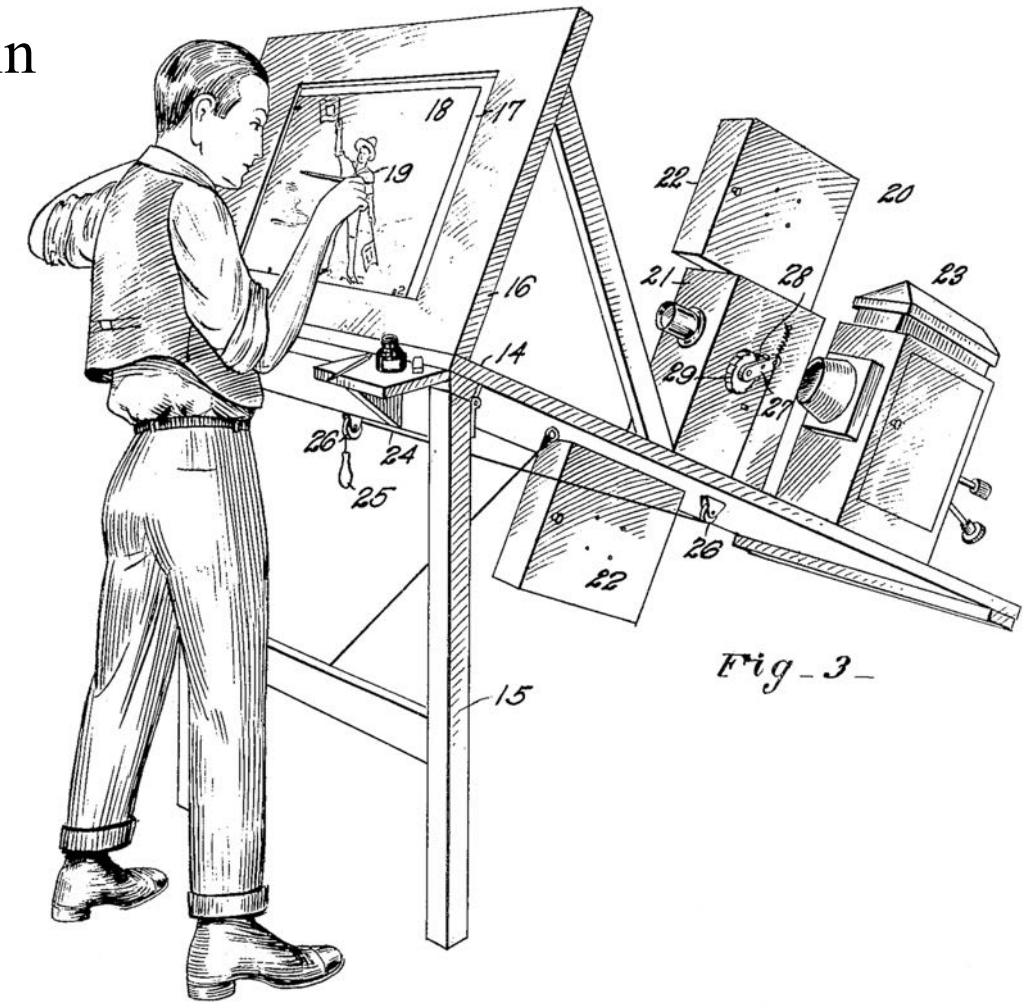
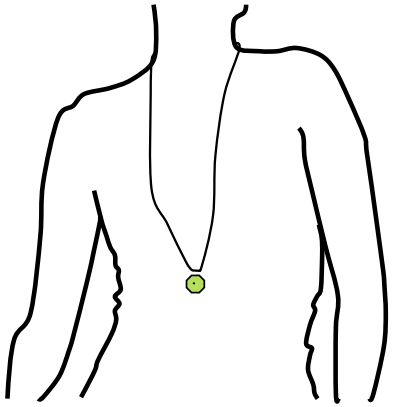


Fig_3_

take/import photo

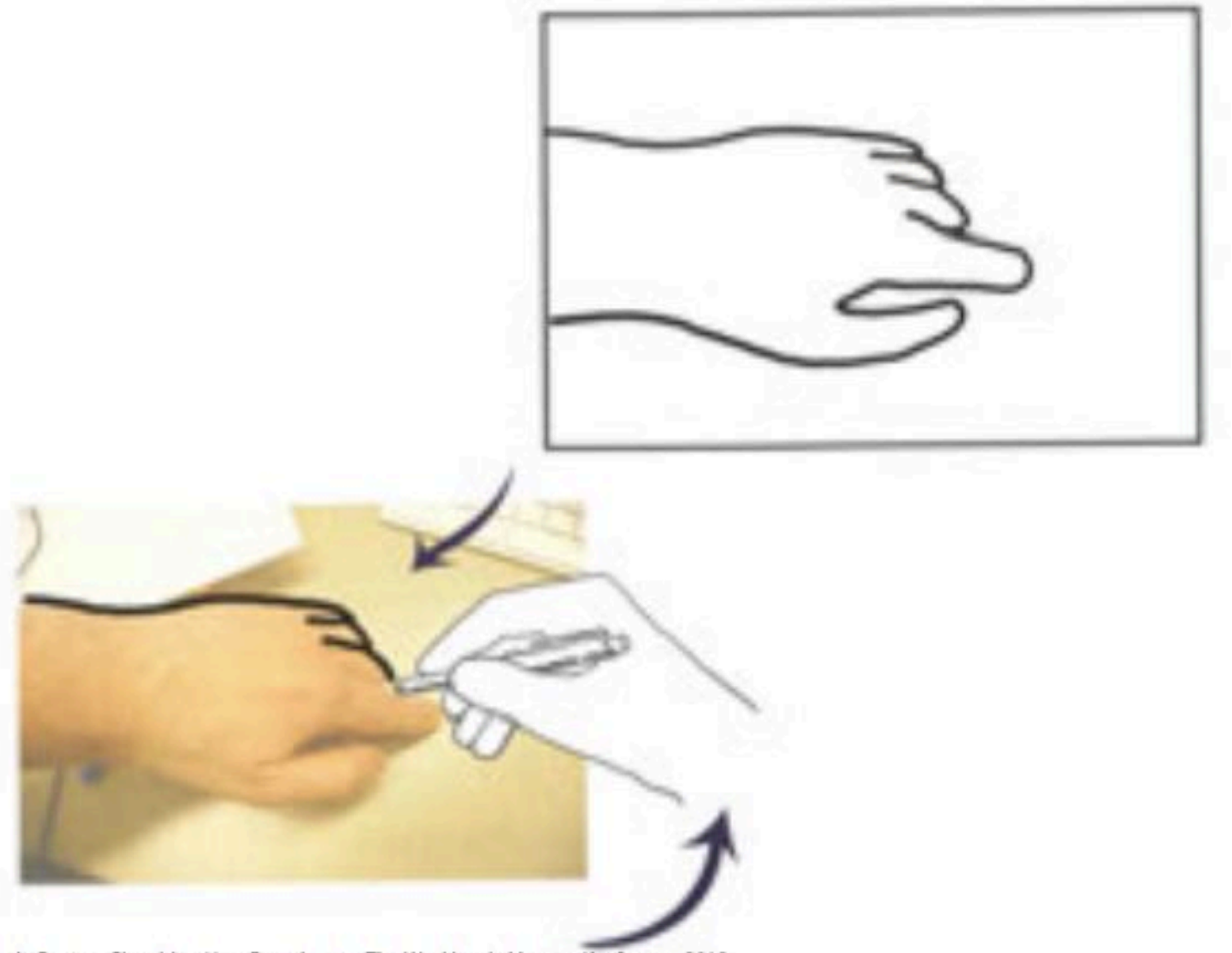
trace important lines

result

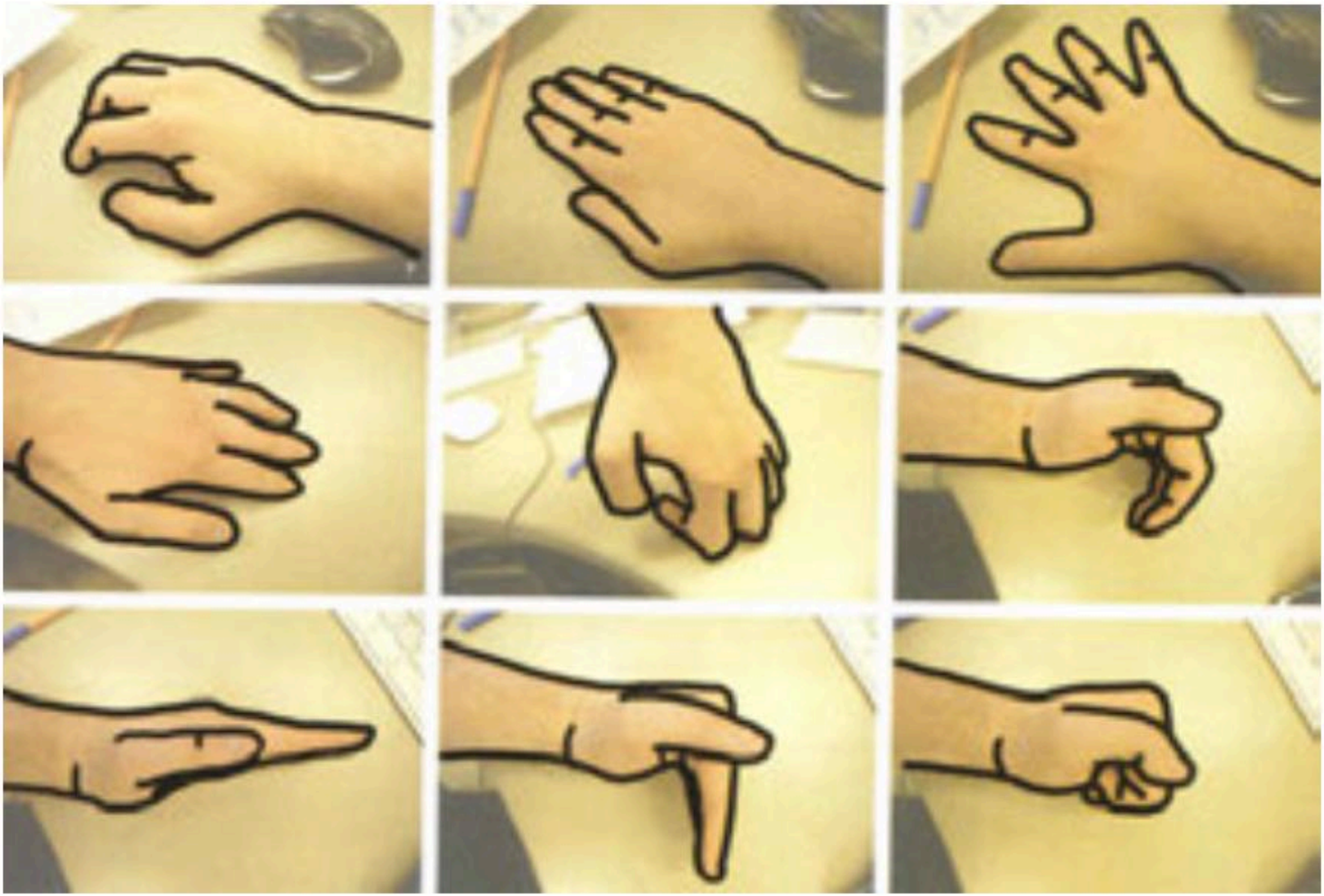


rotoscoping

Sketching Technique: Photo Tracing



Source: Greenberg, Carpendale, Marquardt, Buxton. Sketching User Experiences: The Workbook, Morgan Kaufmann, 2012



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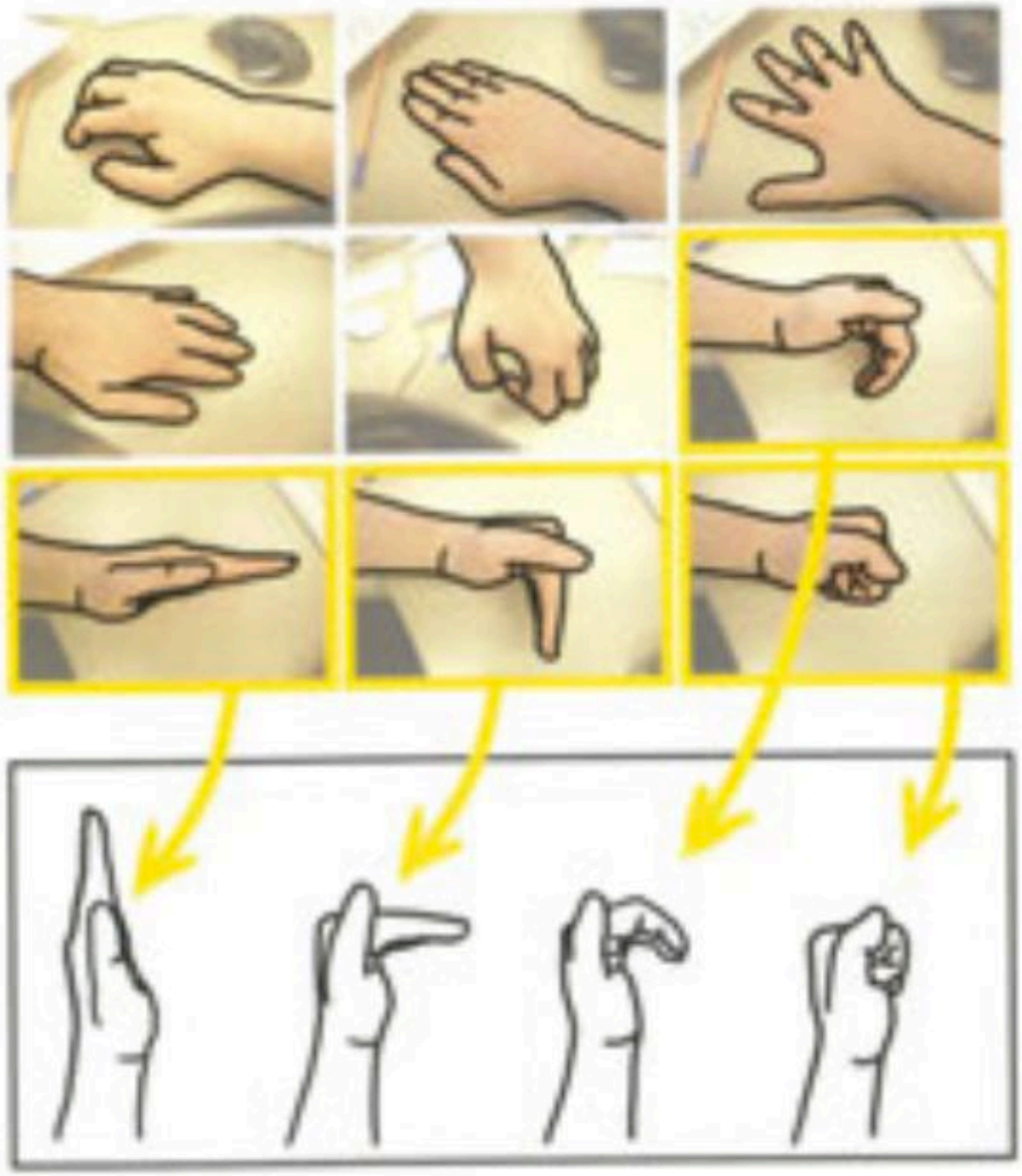
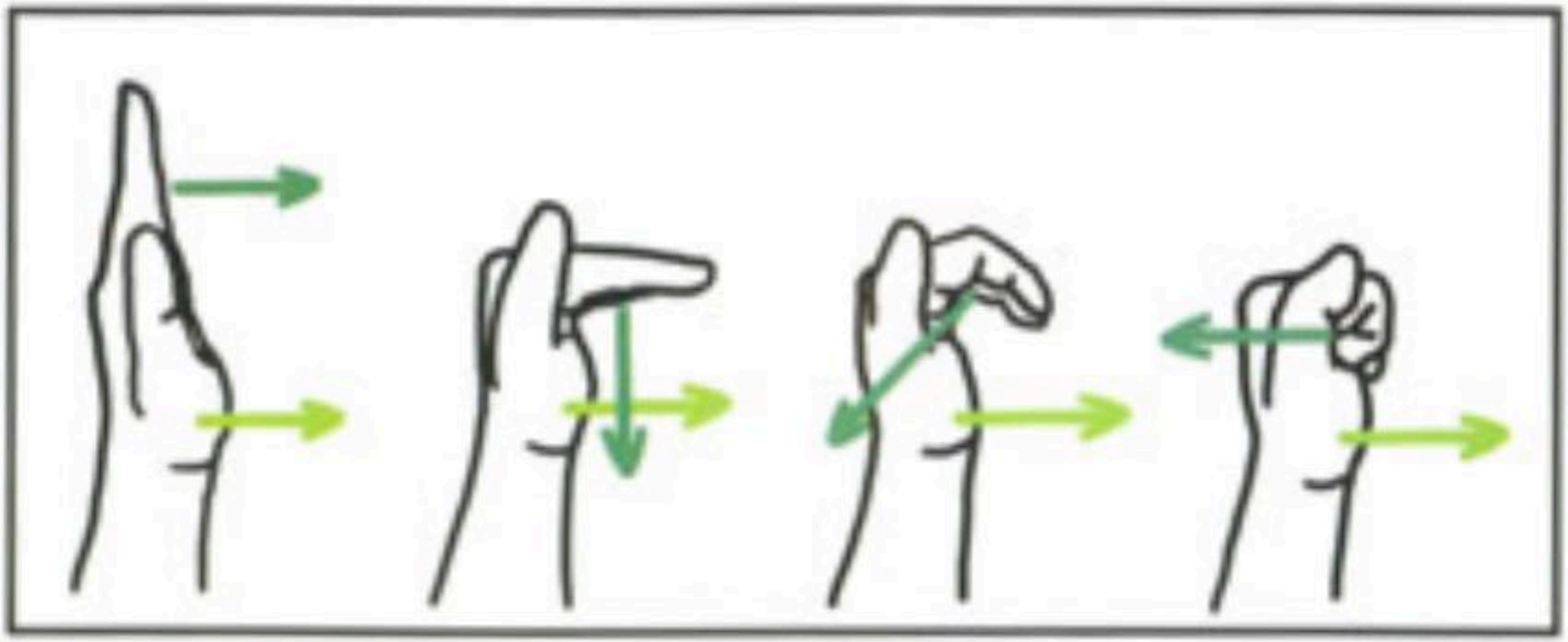
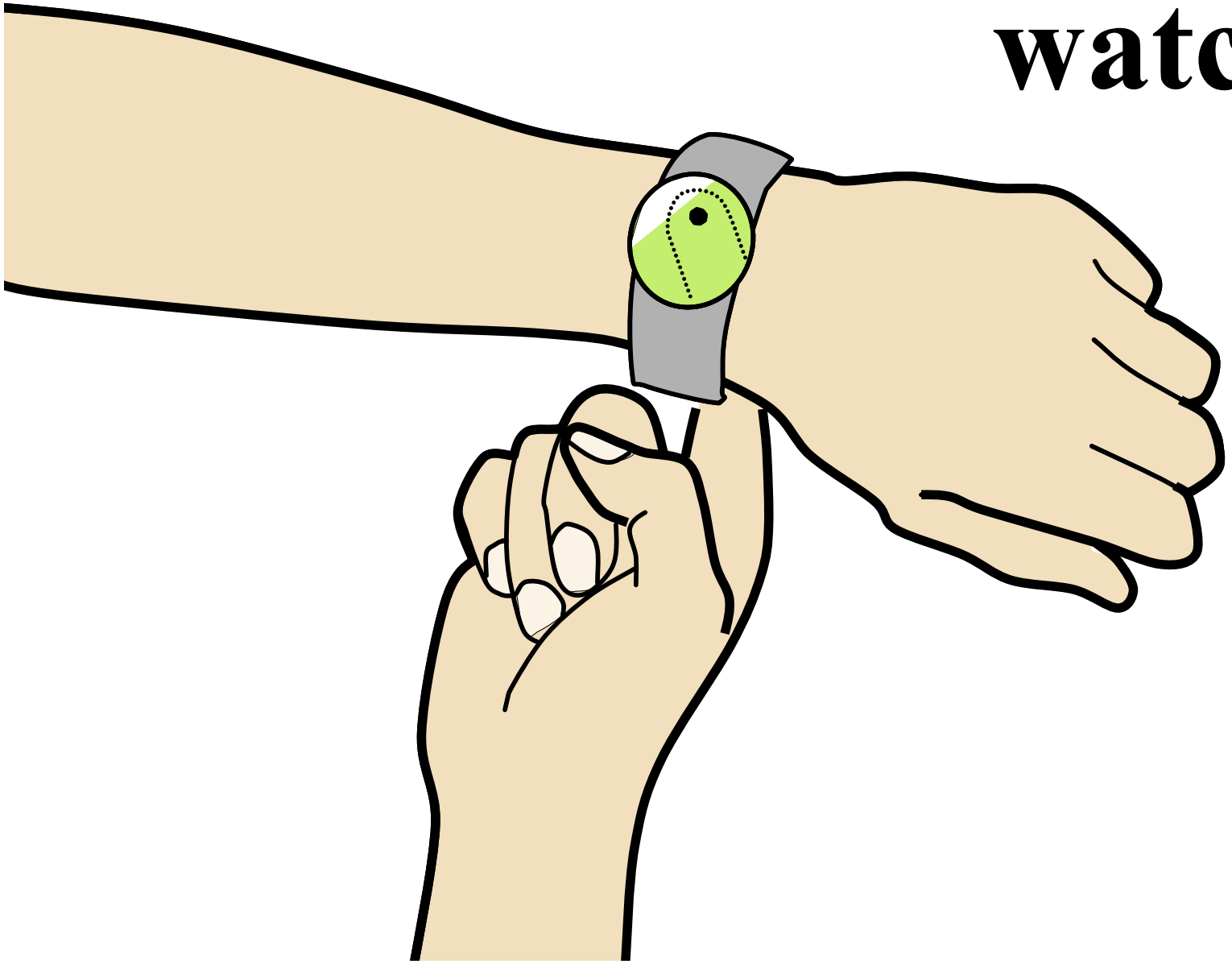


Source: Greenberg, Carpendale, Marquardt, Buxton. Sketching User Experiences: The Workbook, Morgan Kaufmann, 2012

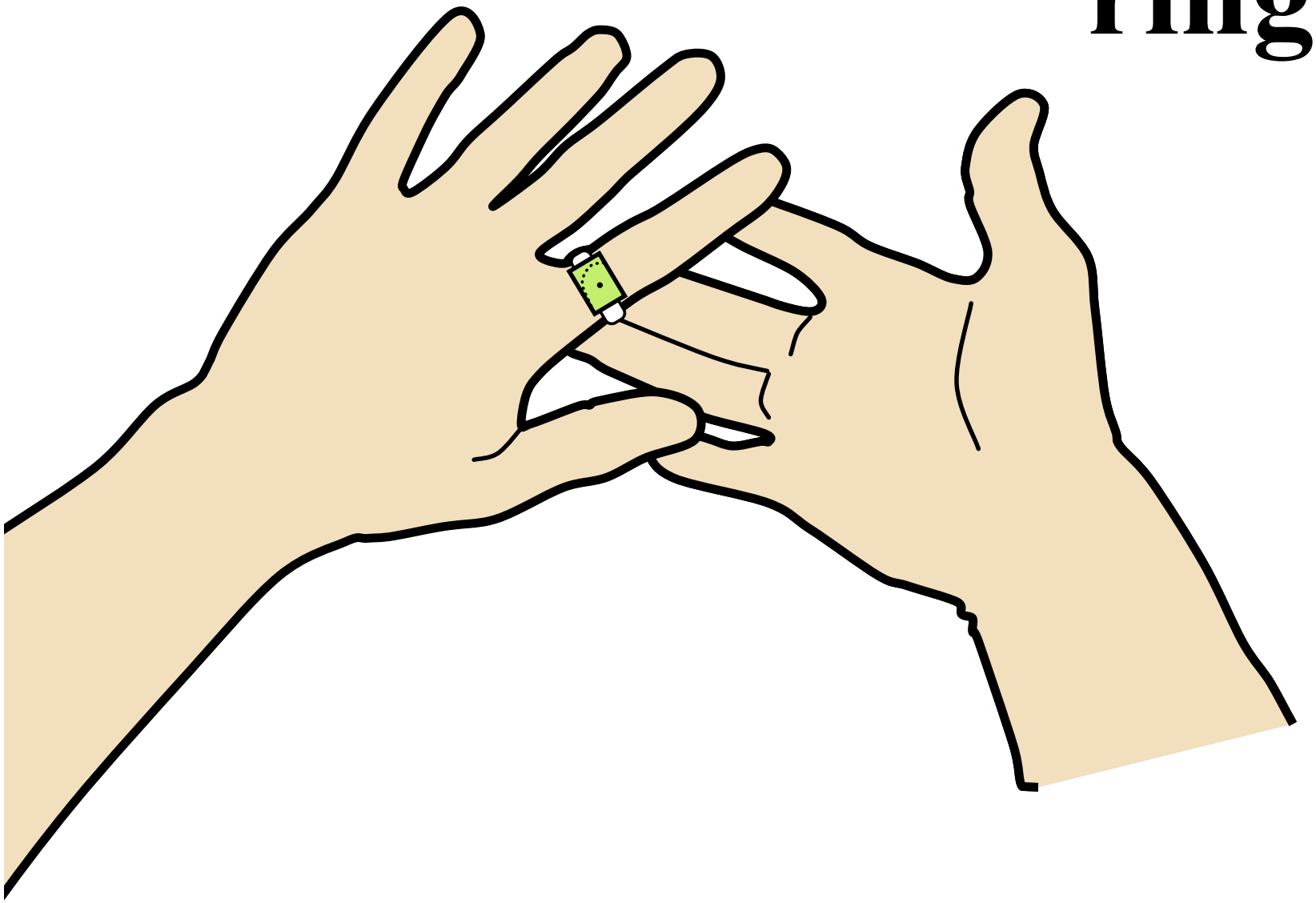


Source: Greenberg, Carpendale, Marquardt, Buxton. Sketching User Experiences: The Workbook, Morgan Kaufmann, 2012

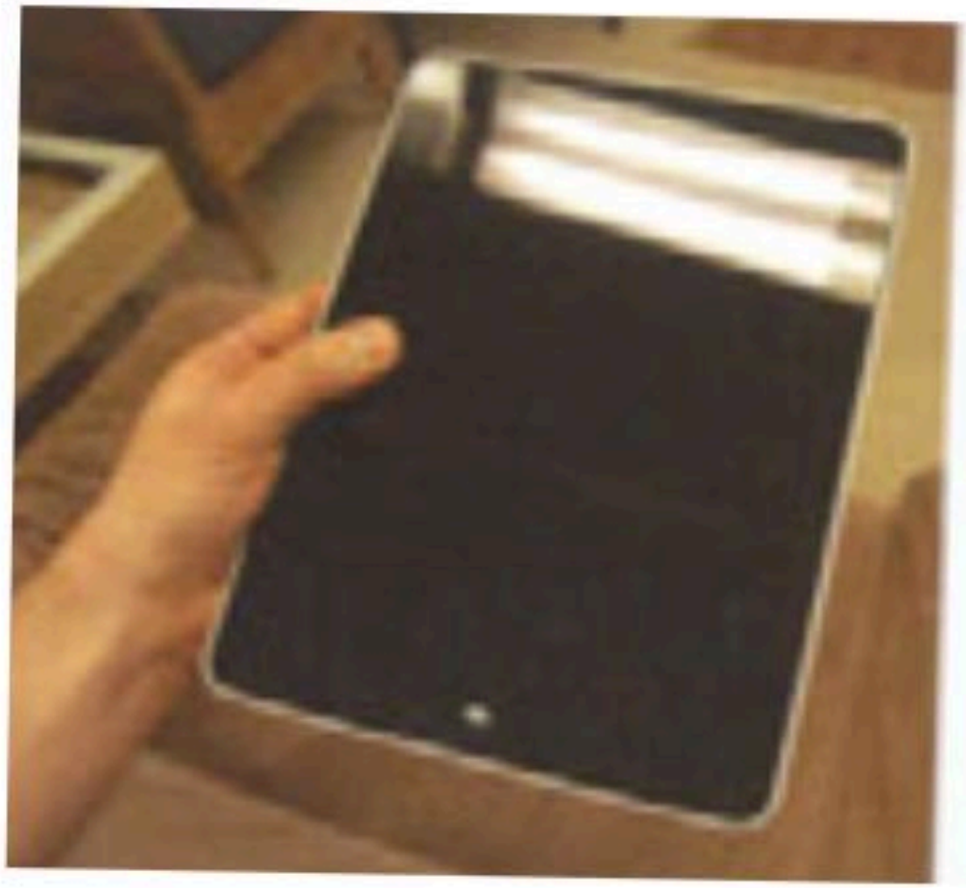
watch

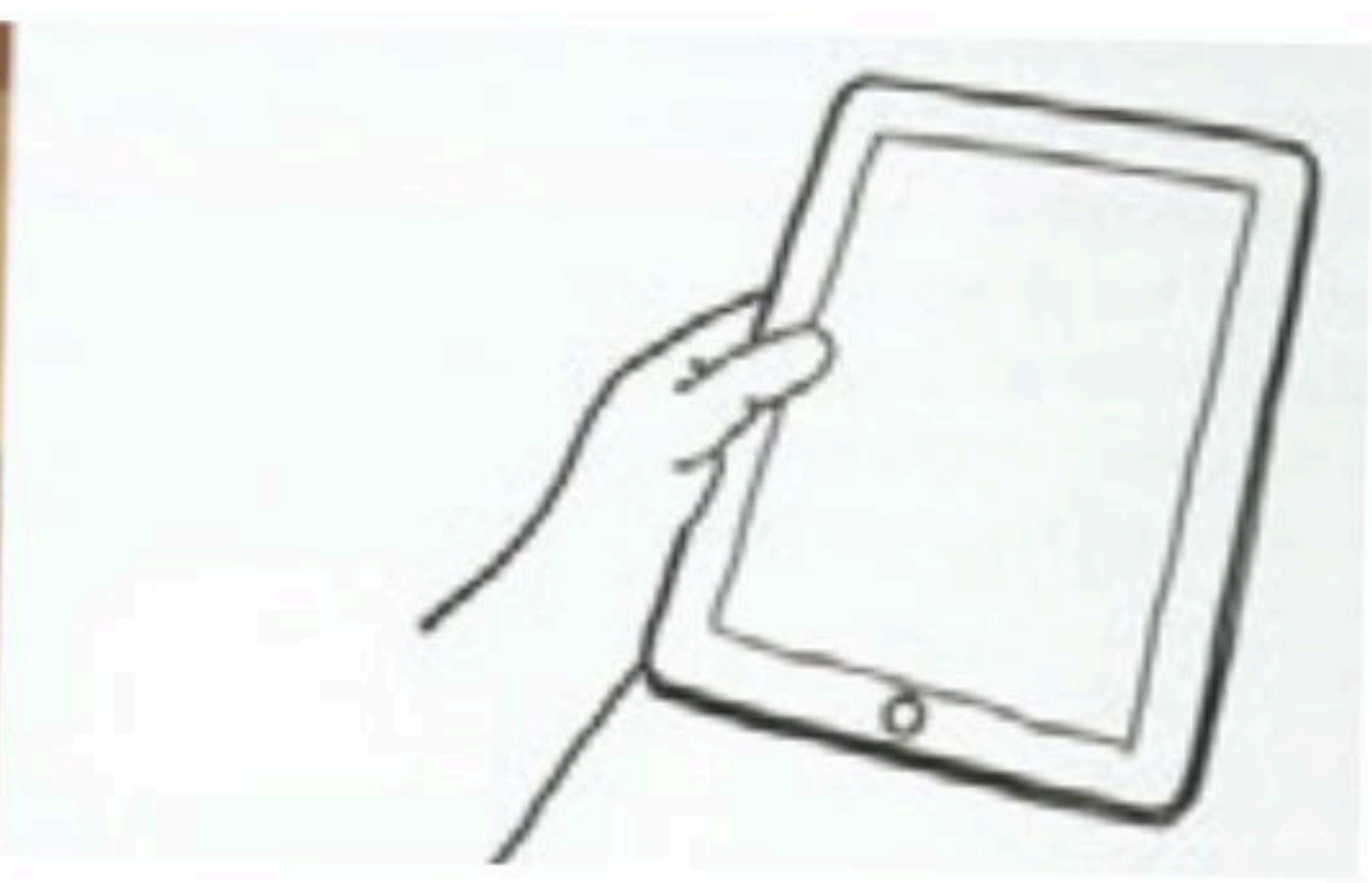


ring



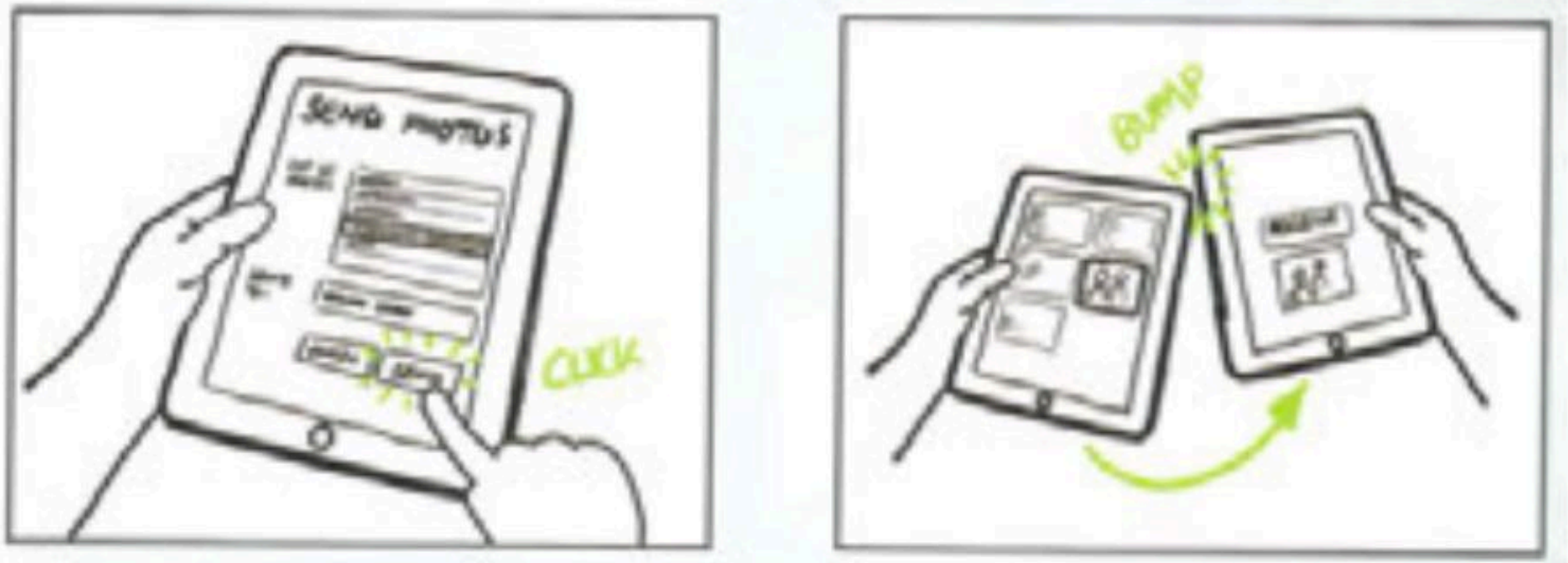
Sketching Technique: Templates





Source: Greenberg, Carpendale, Marquardt, Buxton. Sketching User Experiences: The Workbook, Morgan Kaufmann, 2012

Sketching Technique: Templates

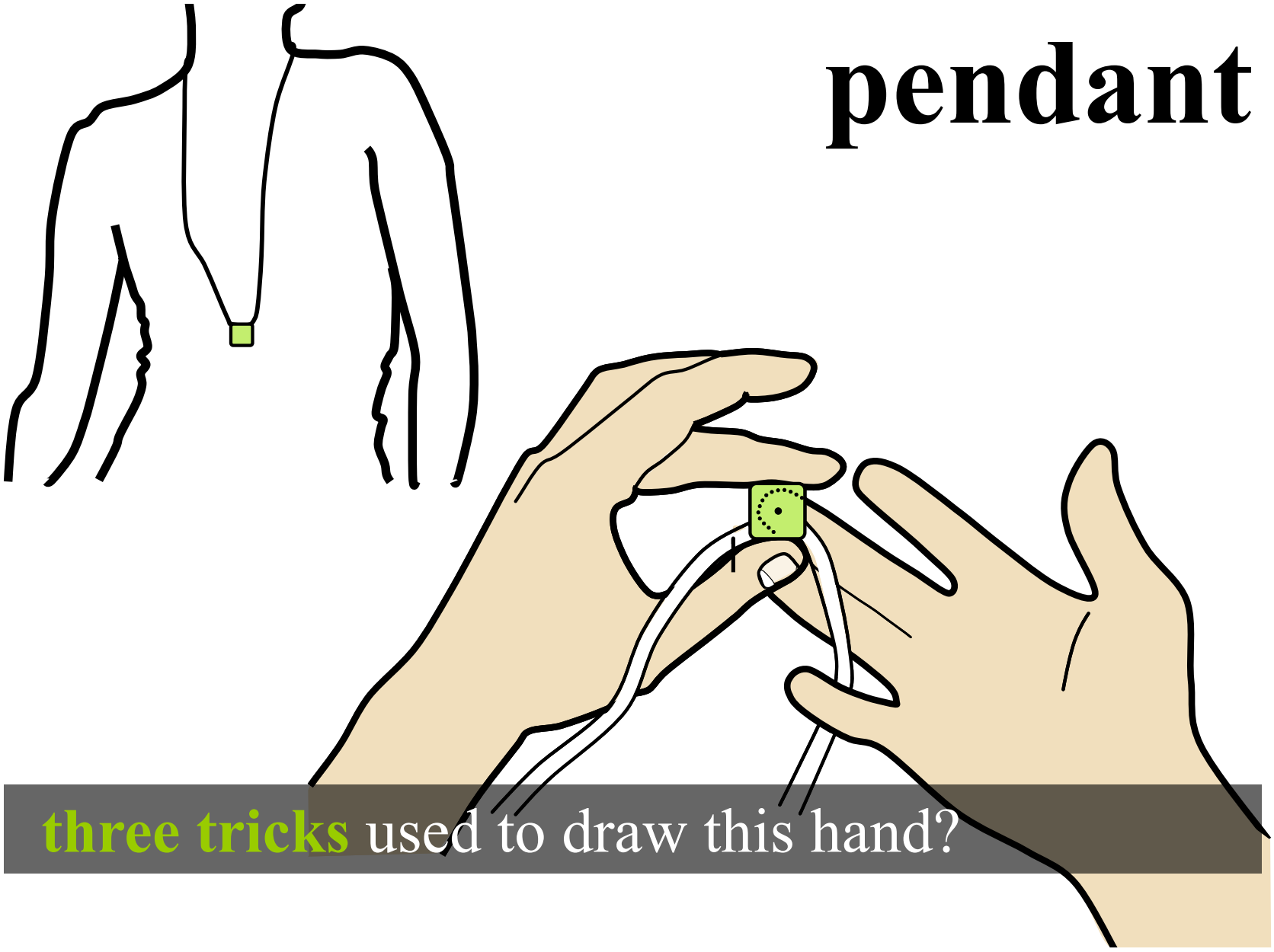


Source: Greenberg, Carpendale, Marquardt, Buxton. Sketching User Experiences: The Workbook, Morgan Kaufmann, 2012

Source: Nicolai Marquardt, 2017

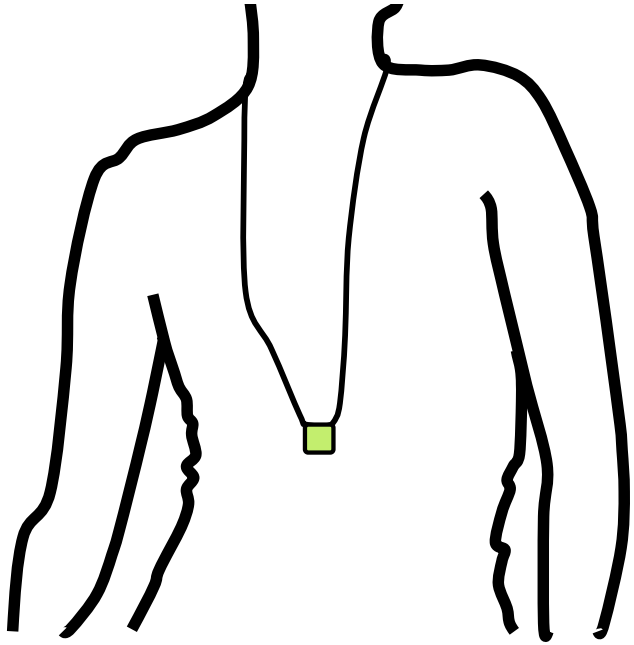
tricks in Rotoscoping

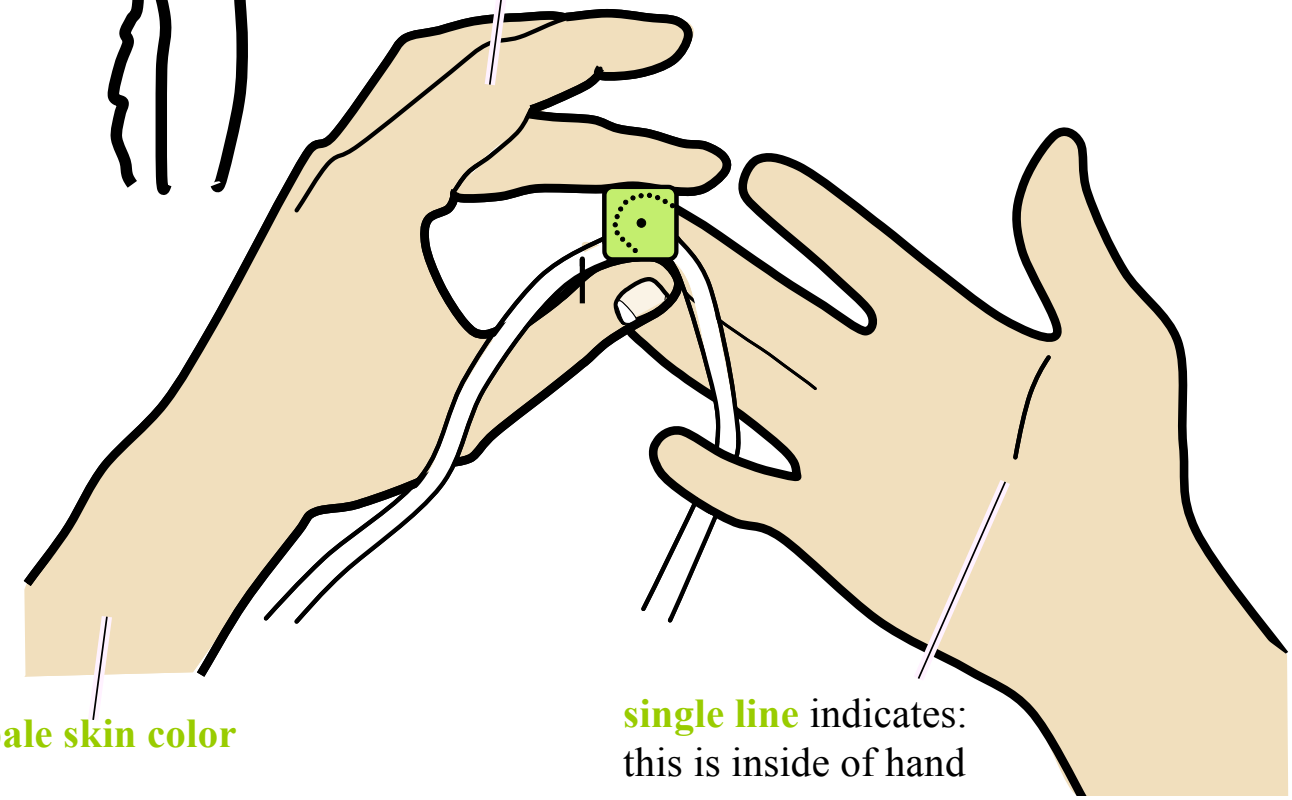
pendant



three tricks used to draw this hand?

pendant





only outer lines are thick, **same line** is thin when inside the hand.

single, flat, **pale skin color**

single line indicates: this is inside of hand

Tricks for photo tracing:

Begin with major outline, then add minimal details

Source: Nicolai Marquardt, 2017

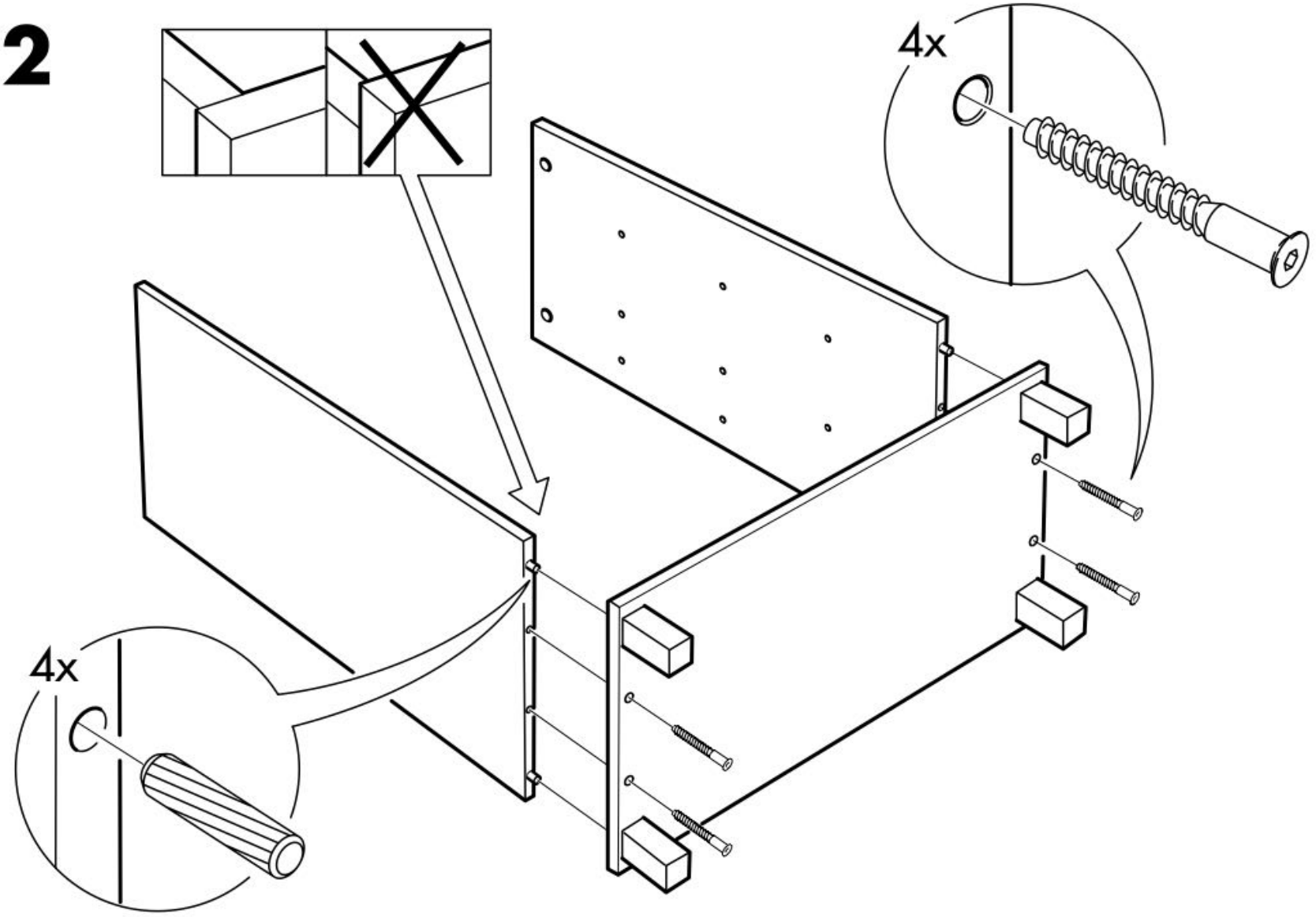
Tricks for photo tracing:

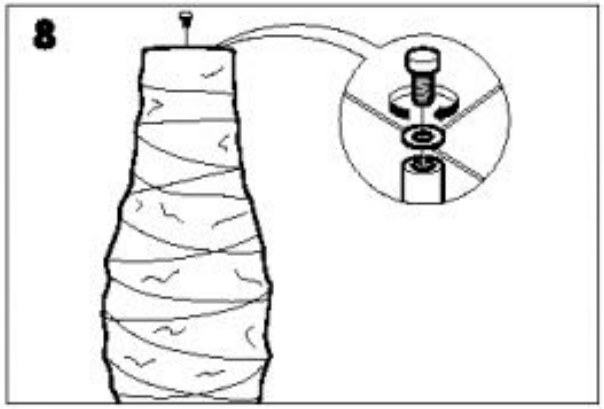
Begin with major outline, then add minimal details

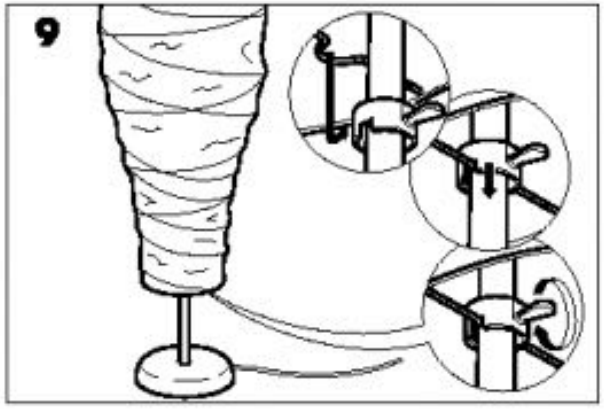
Source: Nicolai Marquardt, 2017

IKEA Construction Guide !!

2

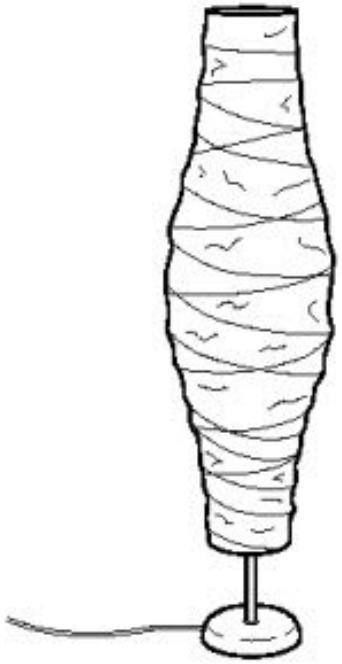






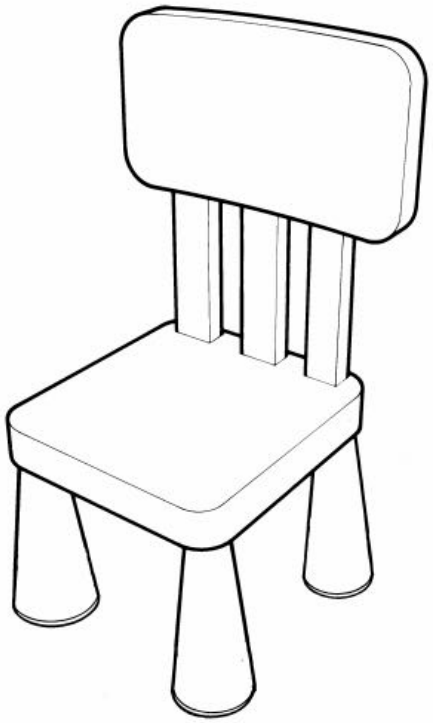
DUDERÖ

ENGLISH
FRANÇAIS
ESPAÑOL

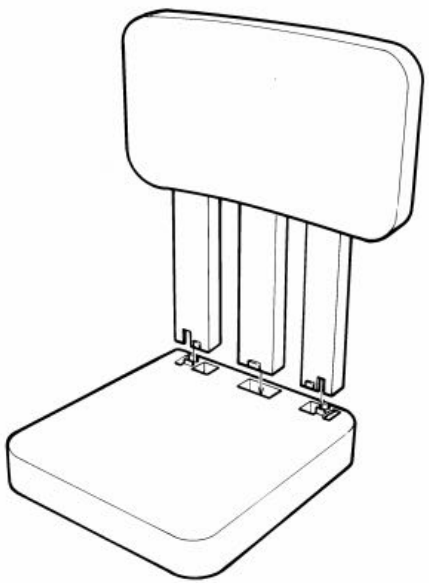


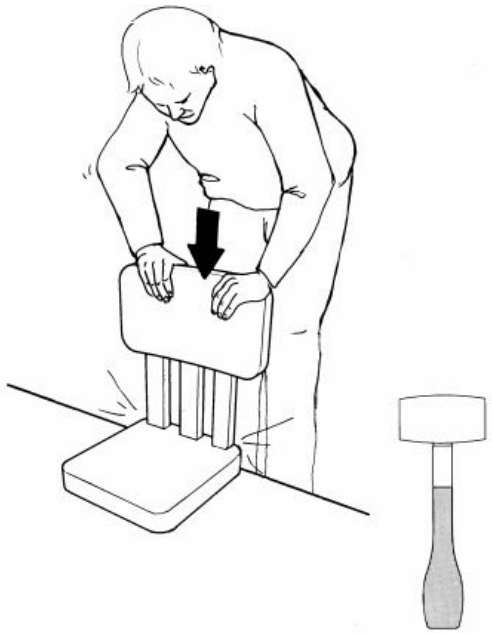
AA-180293-2

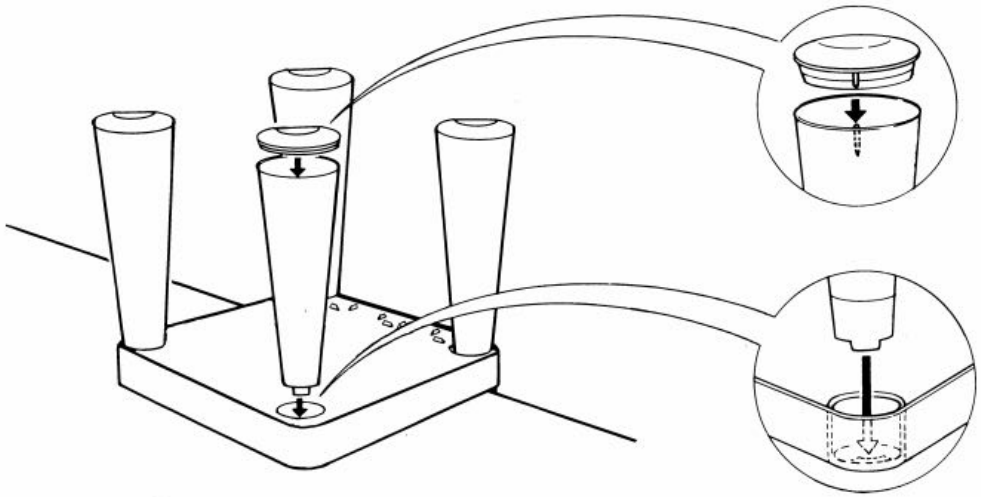
Mammut



IKEA®
Design and Quality
IKEA of Sweden







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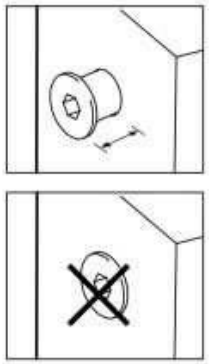
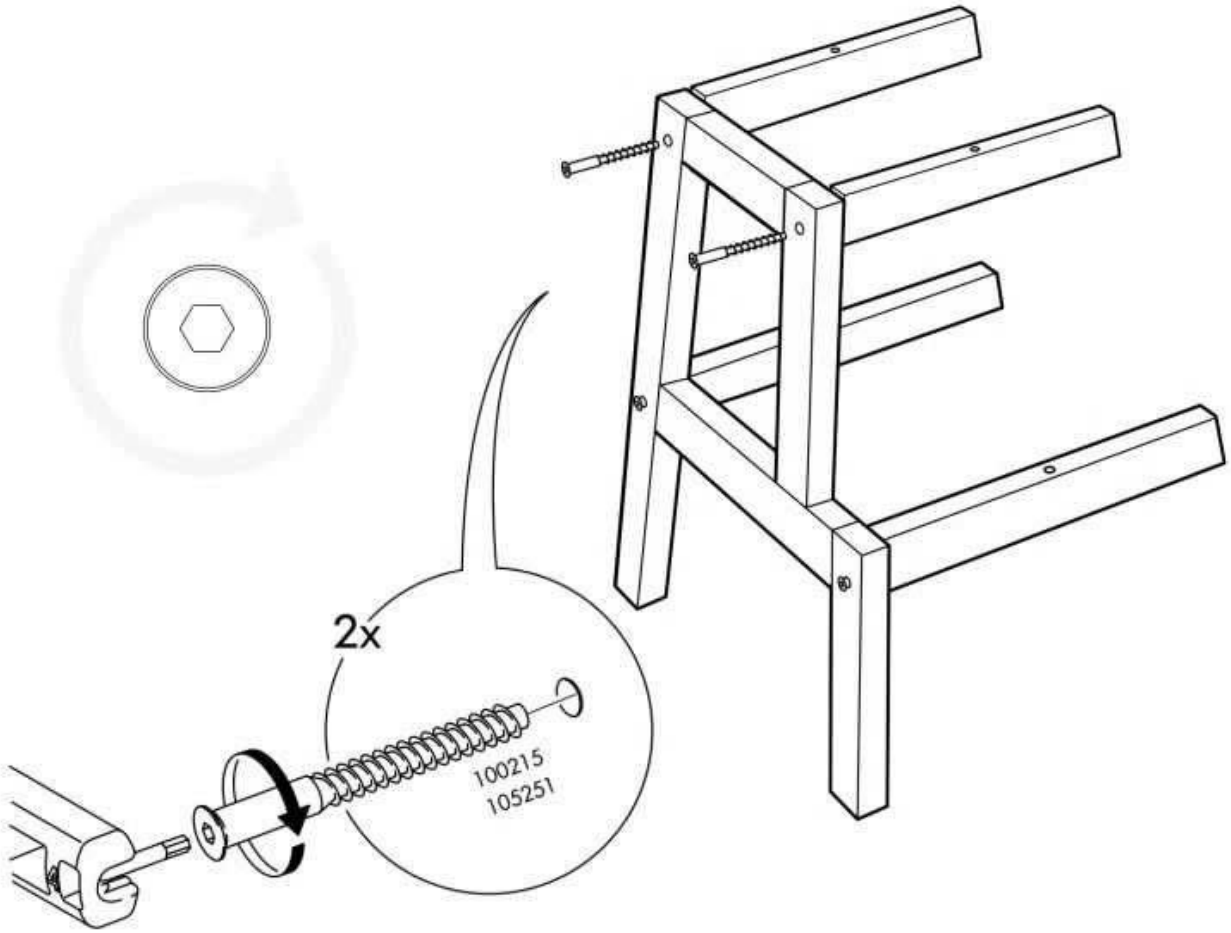
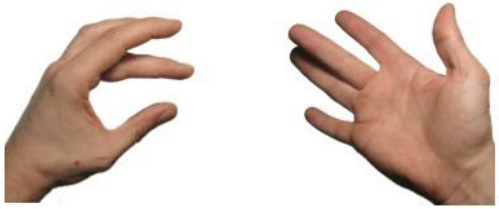
2

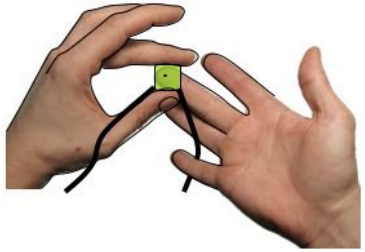






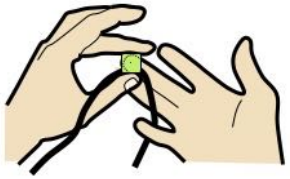
take elements separately
& matt (“freistellen”)

combine



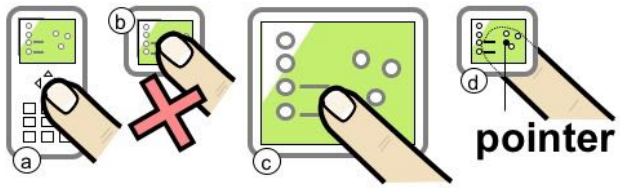
draw over

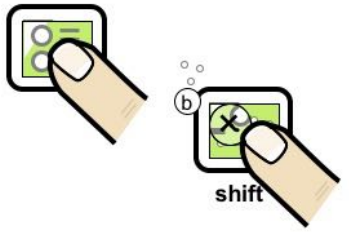
colorize

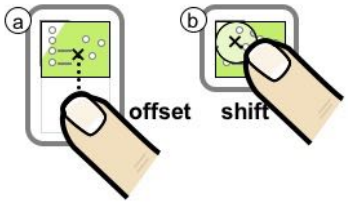


try multiple versions & keep them

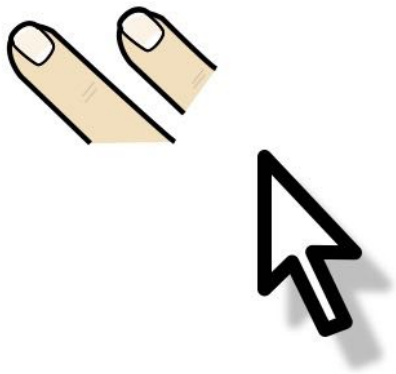
reuse



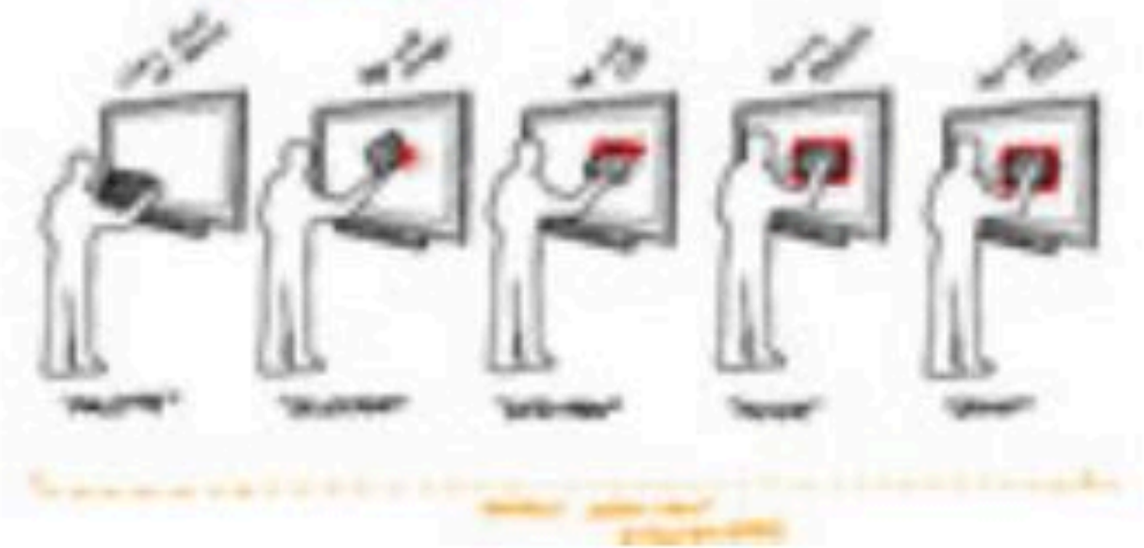


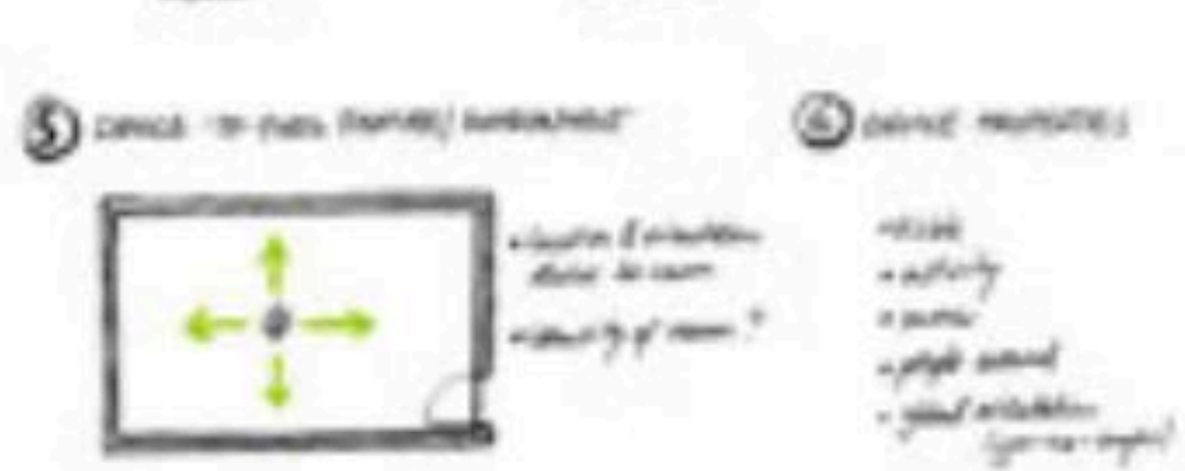


make one good finger,
pointer, device and reuse



Source: Nicolai Marquardt, 2017





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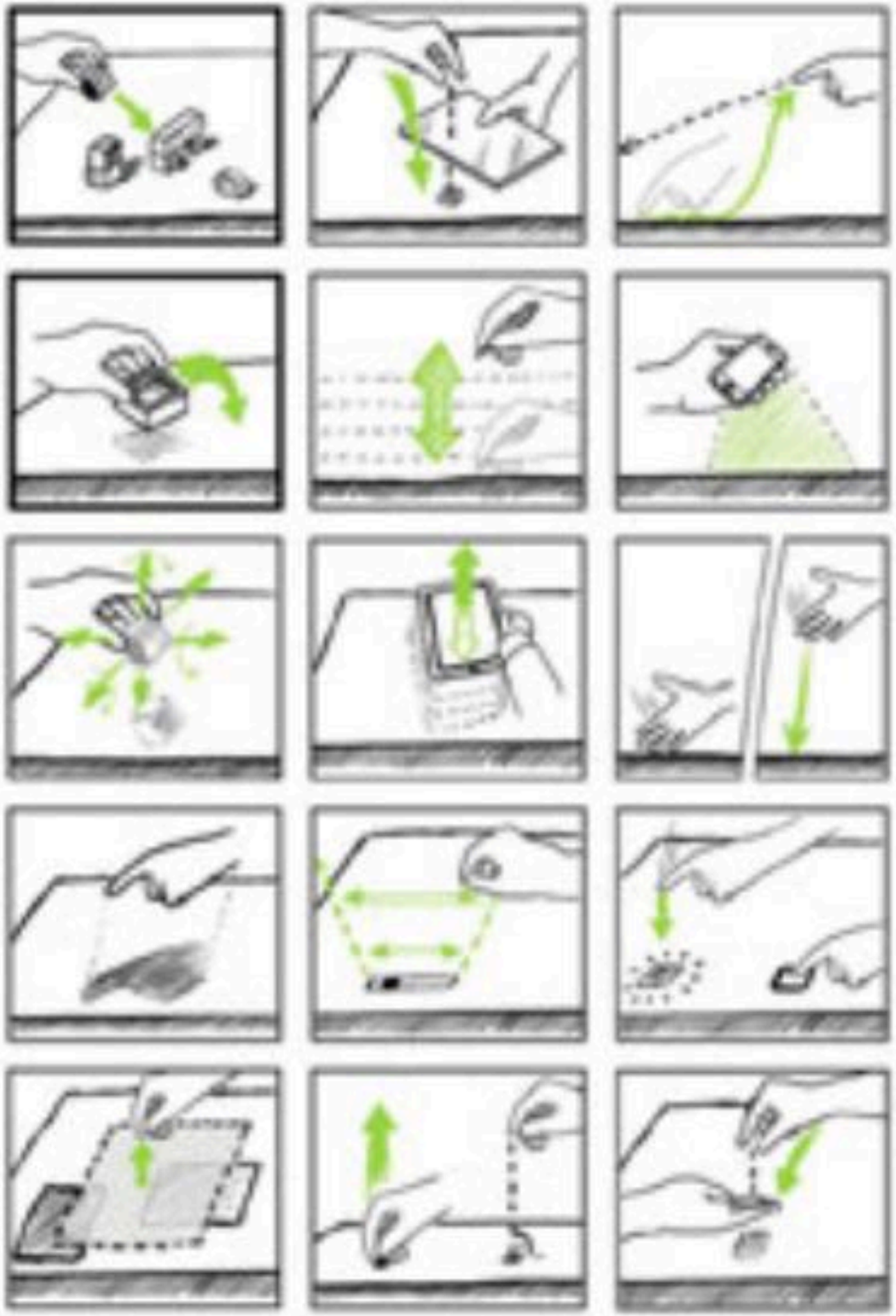

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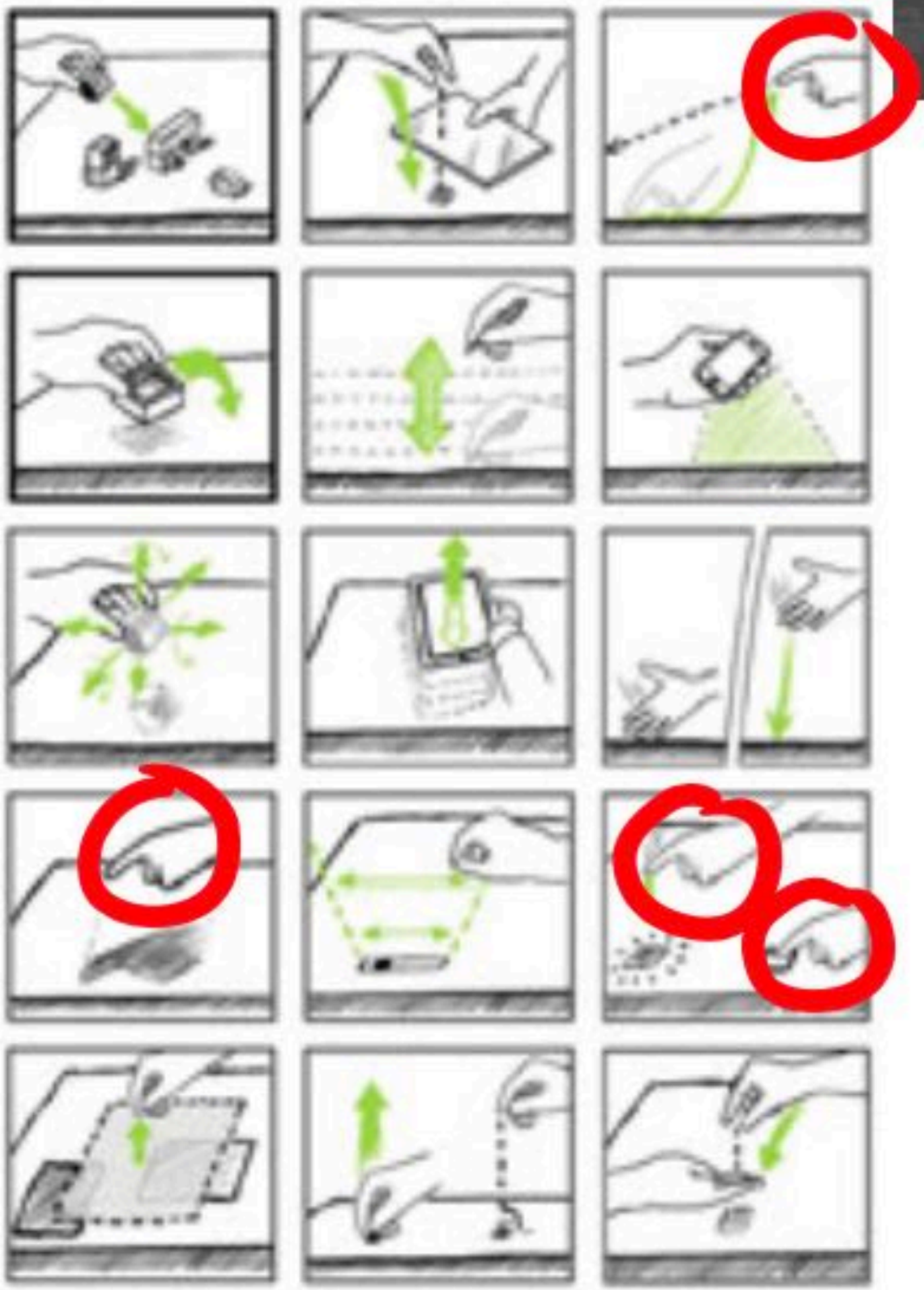

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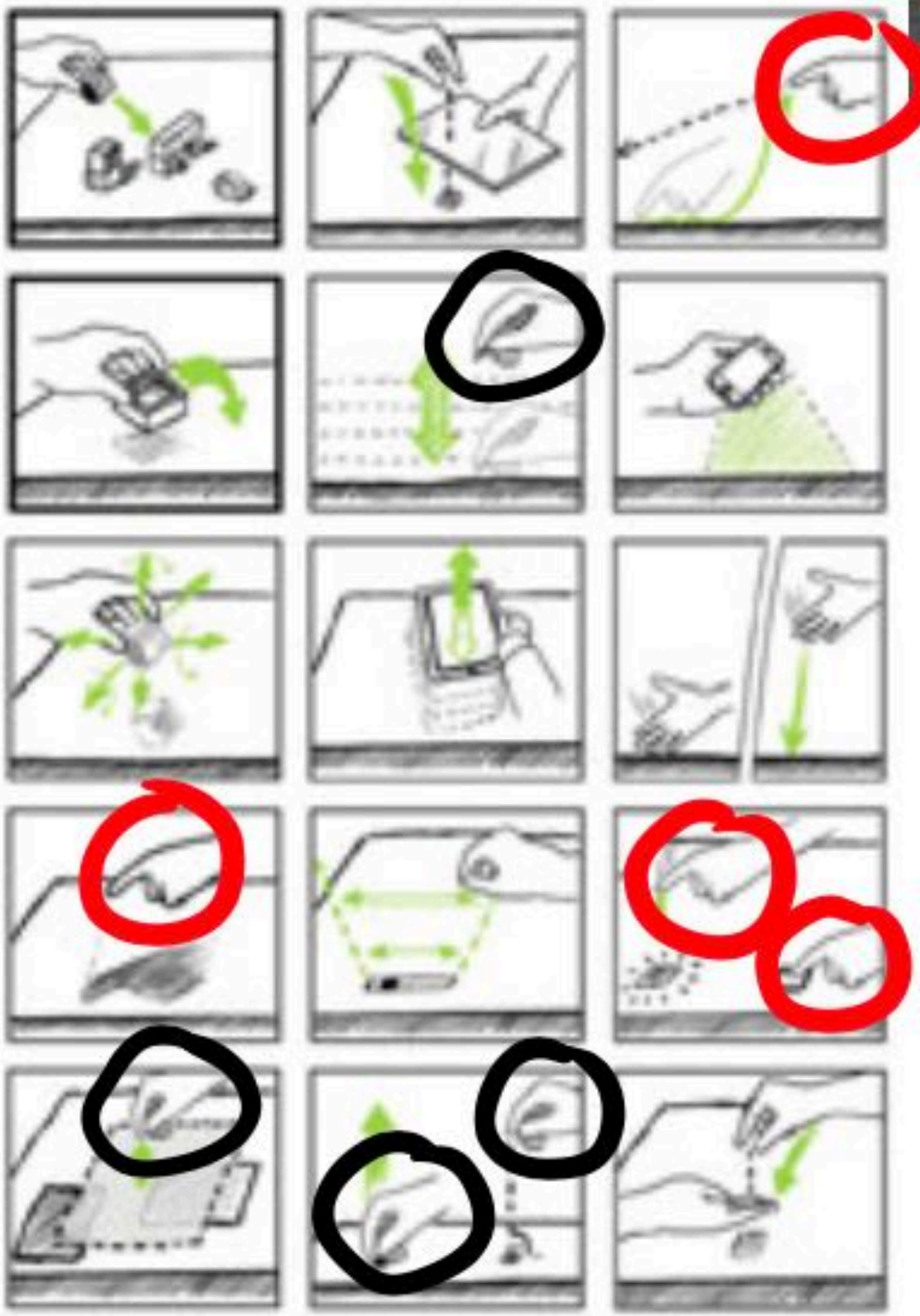
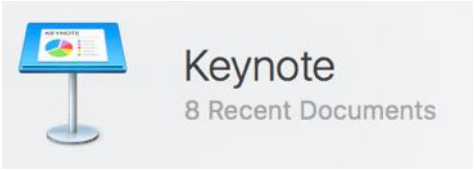


Source: Nicolai Marquardt, 2017

Tools for Rotoscoping



we use this today

Adobe
Animation CC

Download this image here

Memo

Canvas size: 1280 * 1024

Create two symbols (e.g., objects) for photo and sketch

thick line: 6
thin line: 3

Shortcut
Ctrl+t: transform
P: pen tool
V: selection tool

Skin color:
250, 231, 207

TouchSense: Direct Mode Switching Using Different Areas on Users' Finger Pads

Da-Yuan Huang* **Min-Lun Tsai*** **Ming-Chang Tsai***
Liwei Chan* **Mike Chen*** **Yi-Ping Hung***

*National Taiwan University
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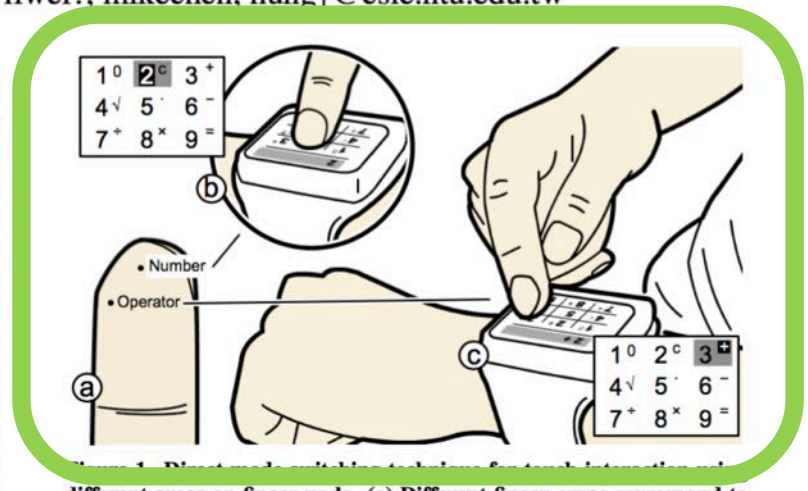
ABSTRACT
We propose TouchSense, a direct-touch interaction technique that enables *direct mode switching* using different areas on the finger pads. It enables fast switching between input modes by single tapping with different areas of users' finger pads, while requiring minimal input area. For example, when using a calculator app on a smart watch, users can tap normally to enter numbers and tap with the right side of their fingers to enter the operators. We conducted two human factors studies which showed that users can tap on a touchscreen with five or more distinct areas on their finger pads. Also, users are able to tap towards their hSense proto- lications: cal- dback from an

augmented finger input, input modality, smart watch, small screen mobile devices

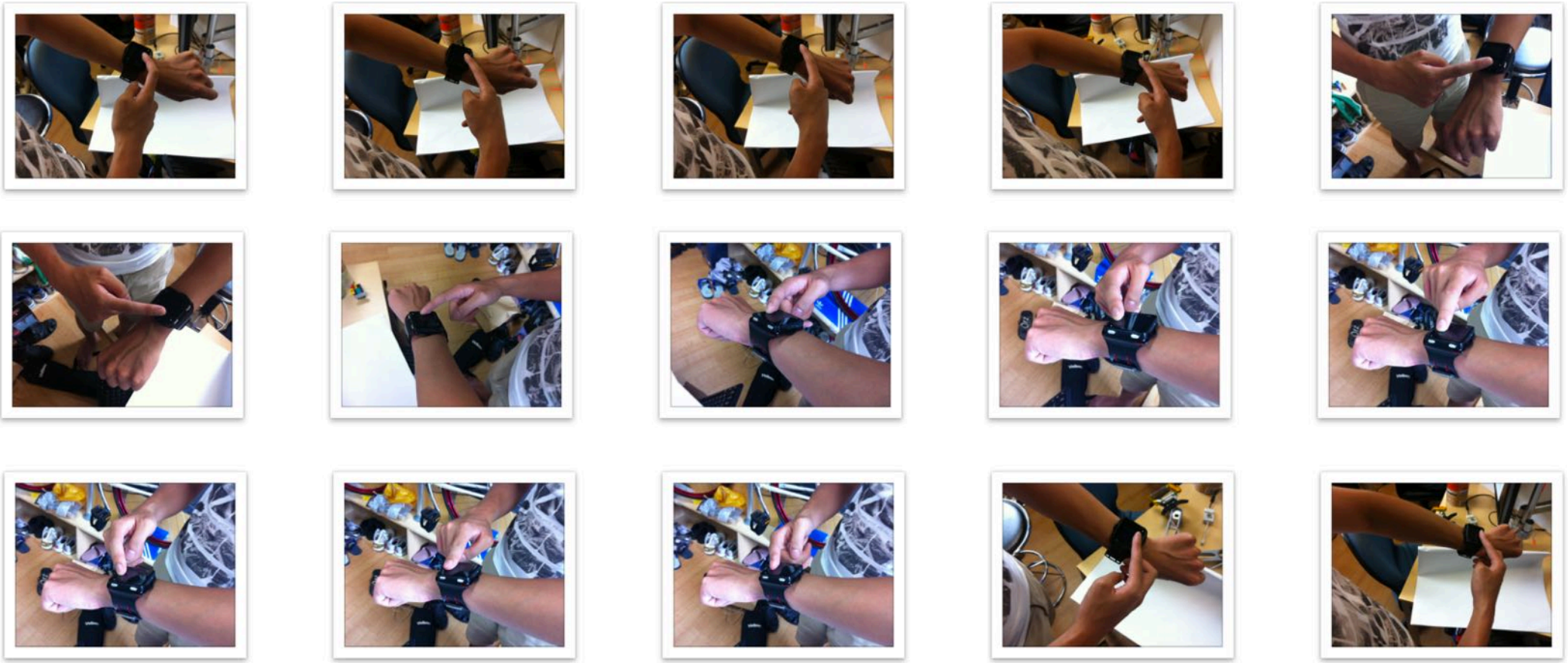
ACM Classification Keywords



different areas on finger pads. (a) Different finger areas correspond to numbers vs operators. (b) The number '2' is entered by using a normal tap. (c) The '+' operator is entered by tapping the key '3' with the right-side of the finger. The gray highlight indicates the on-screen key touched, and the black highlight indicates the mode invoked.

the devices [7, ?, ?]. While these techniques provide a richer

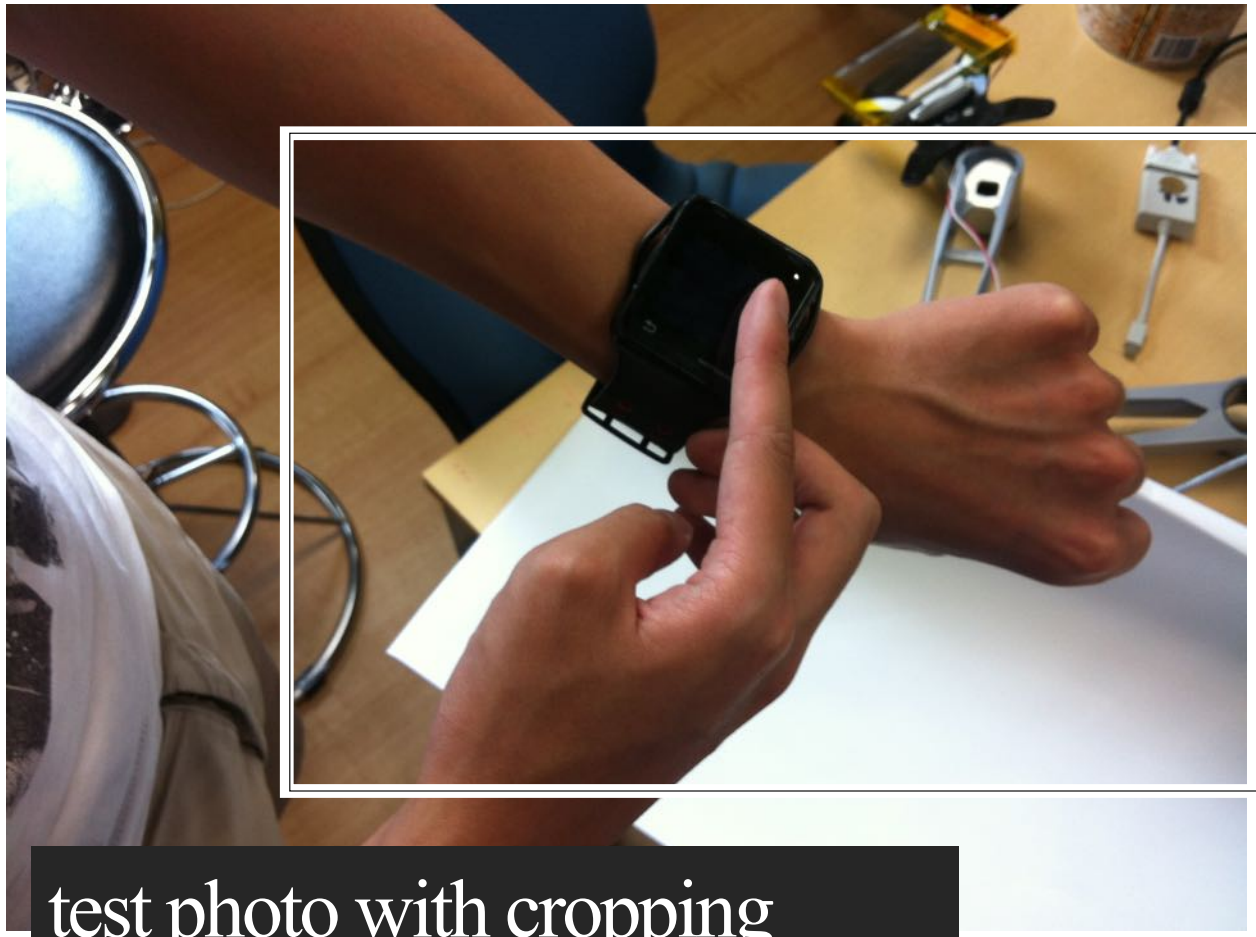
Rotoscoping –
a walkthrough example



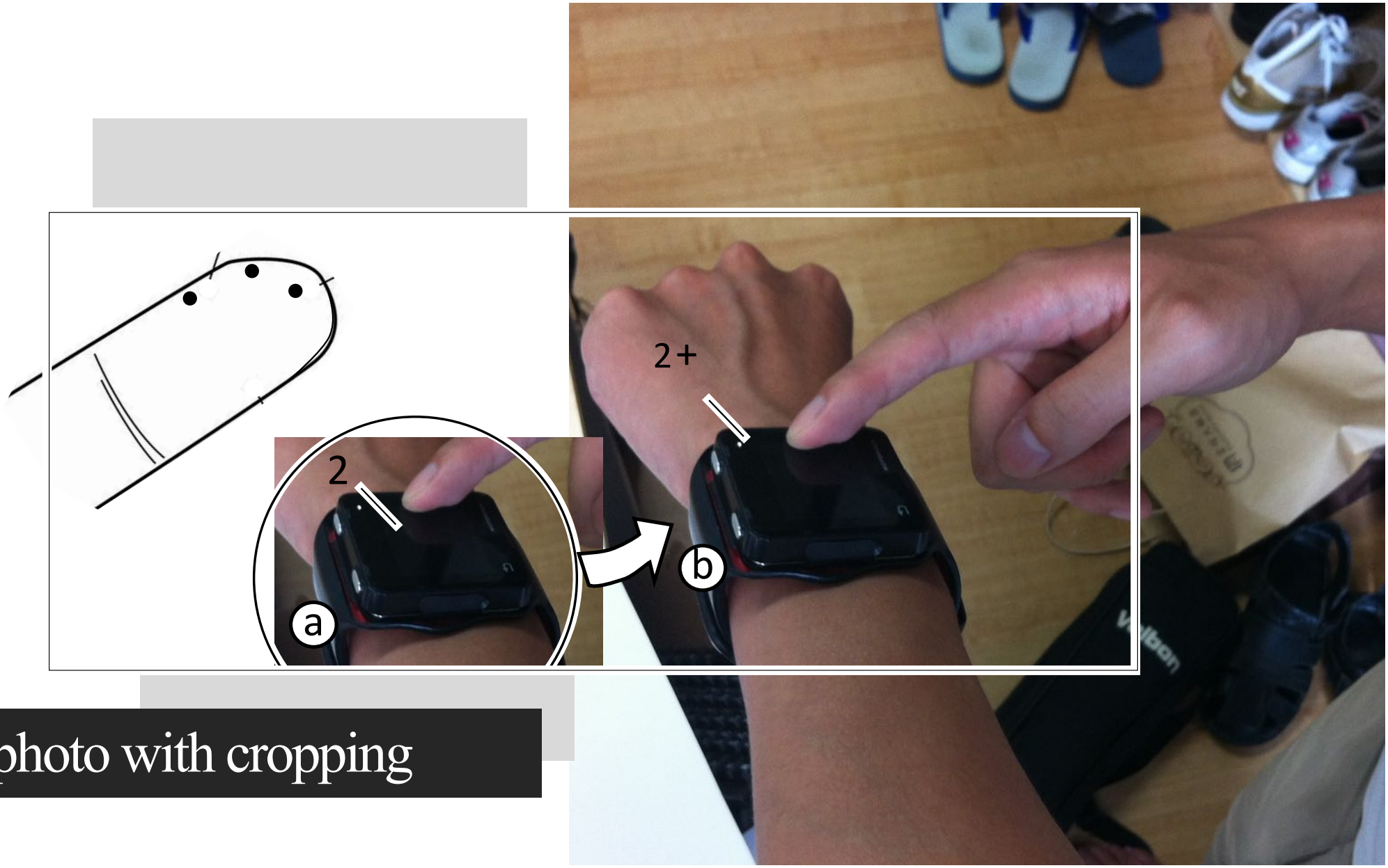
- Take many photos
- Search possible angles which describe context the best
- Image quality / lighting is not important in this stage


Velbon

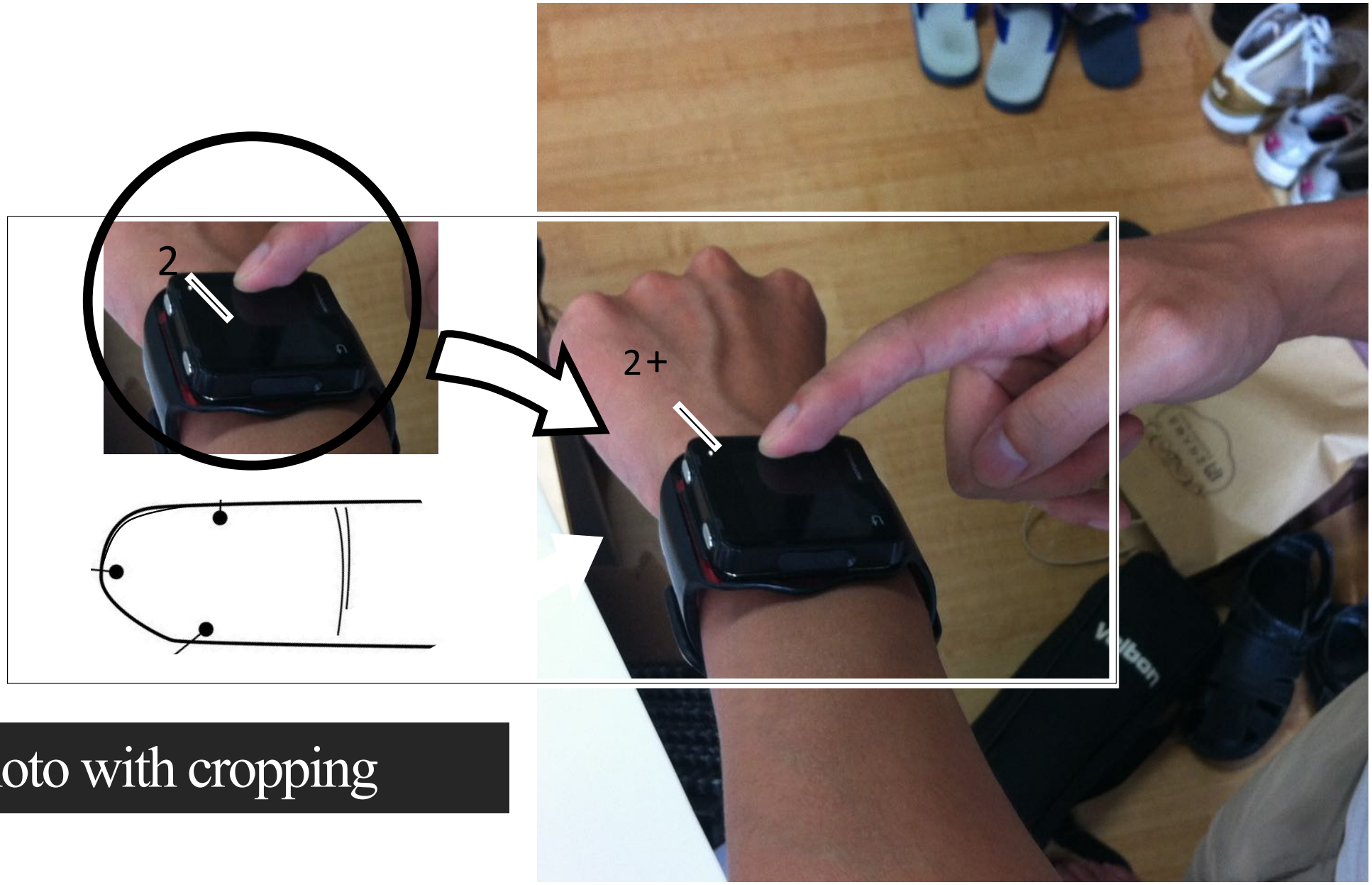

RULES R O E DETERMINE



test photo with cropping

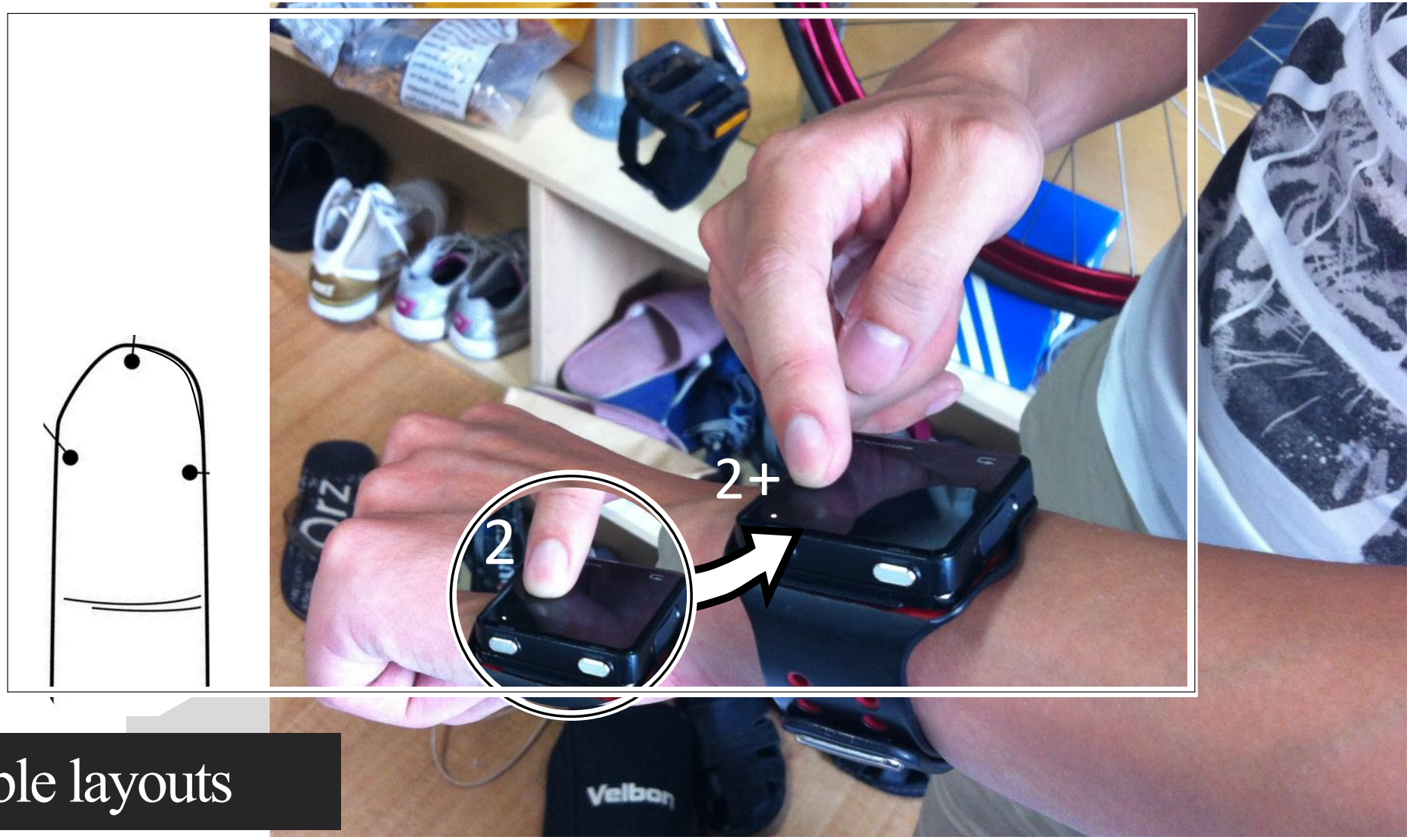


test photo with cropping

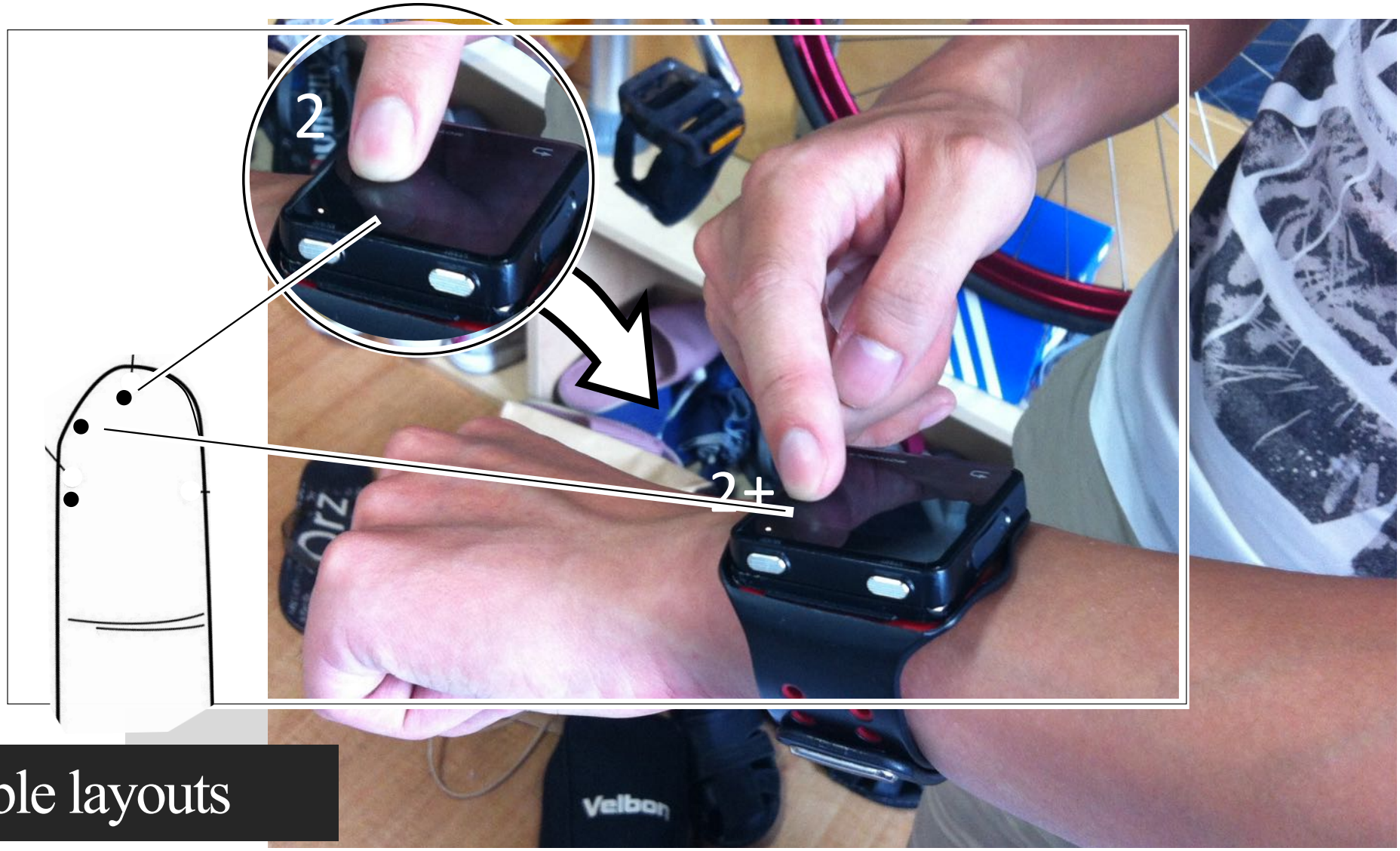


test photo with cropping

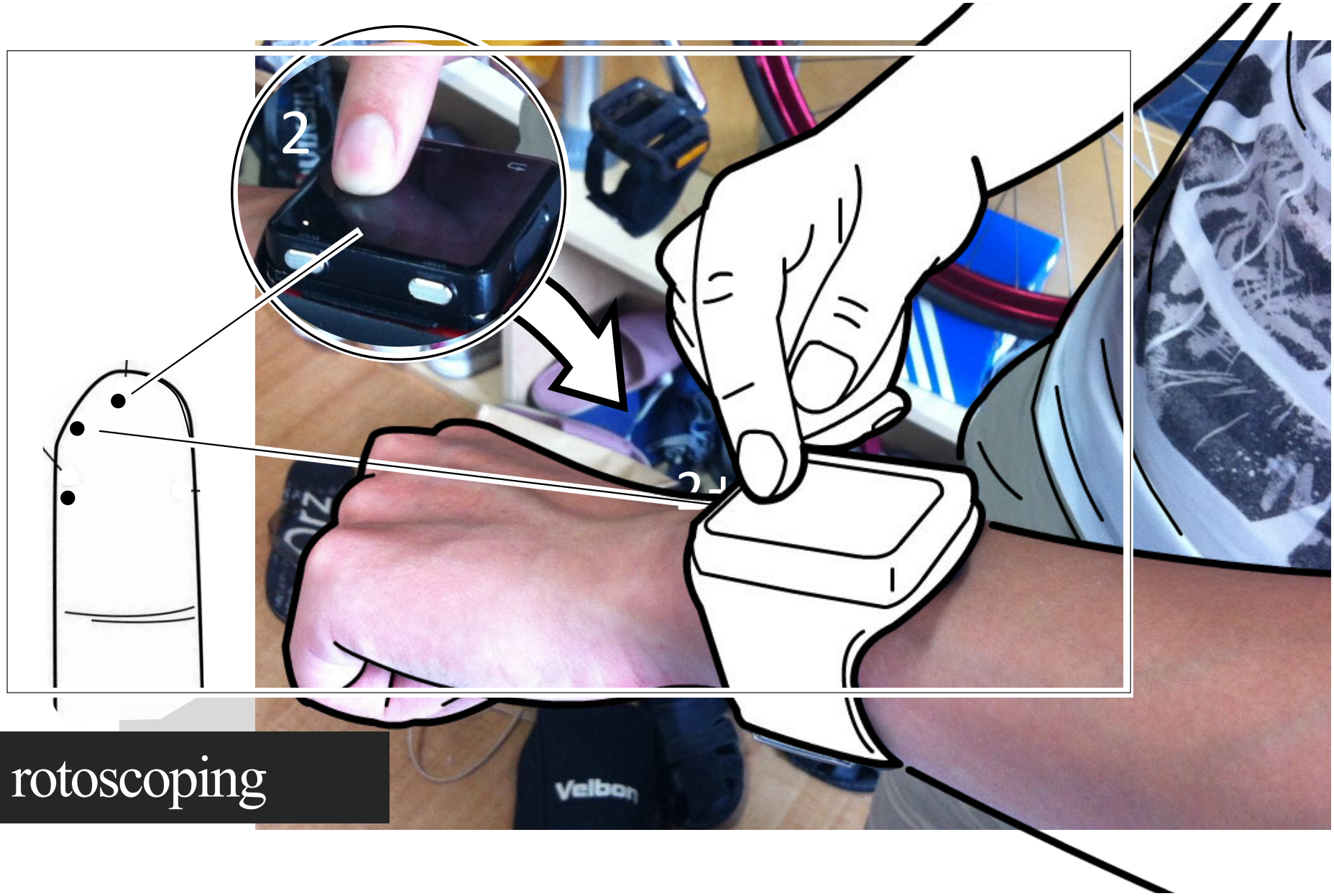
test photo with cropping



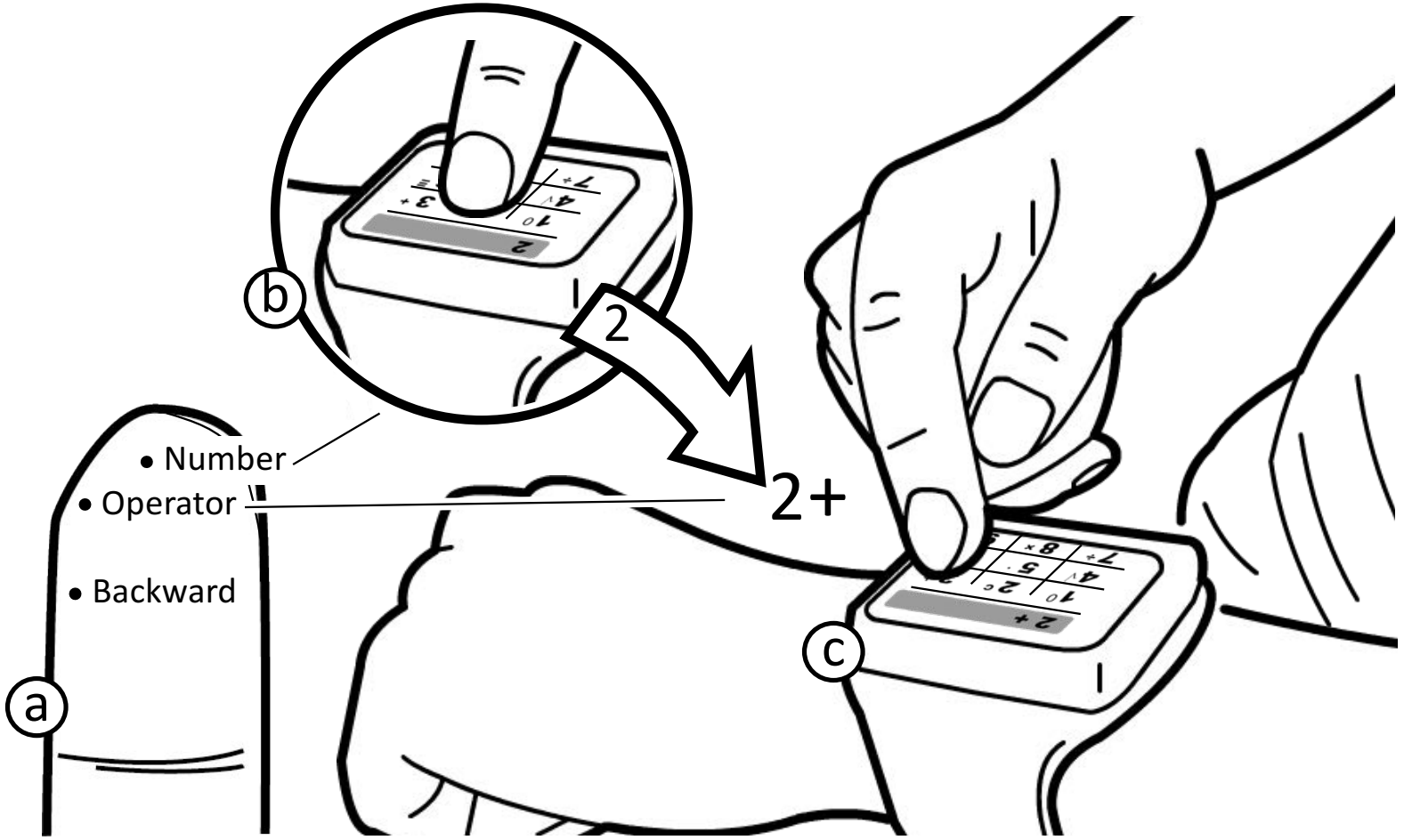
try possible layouts



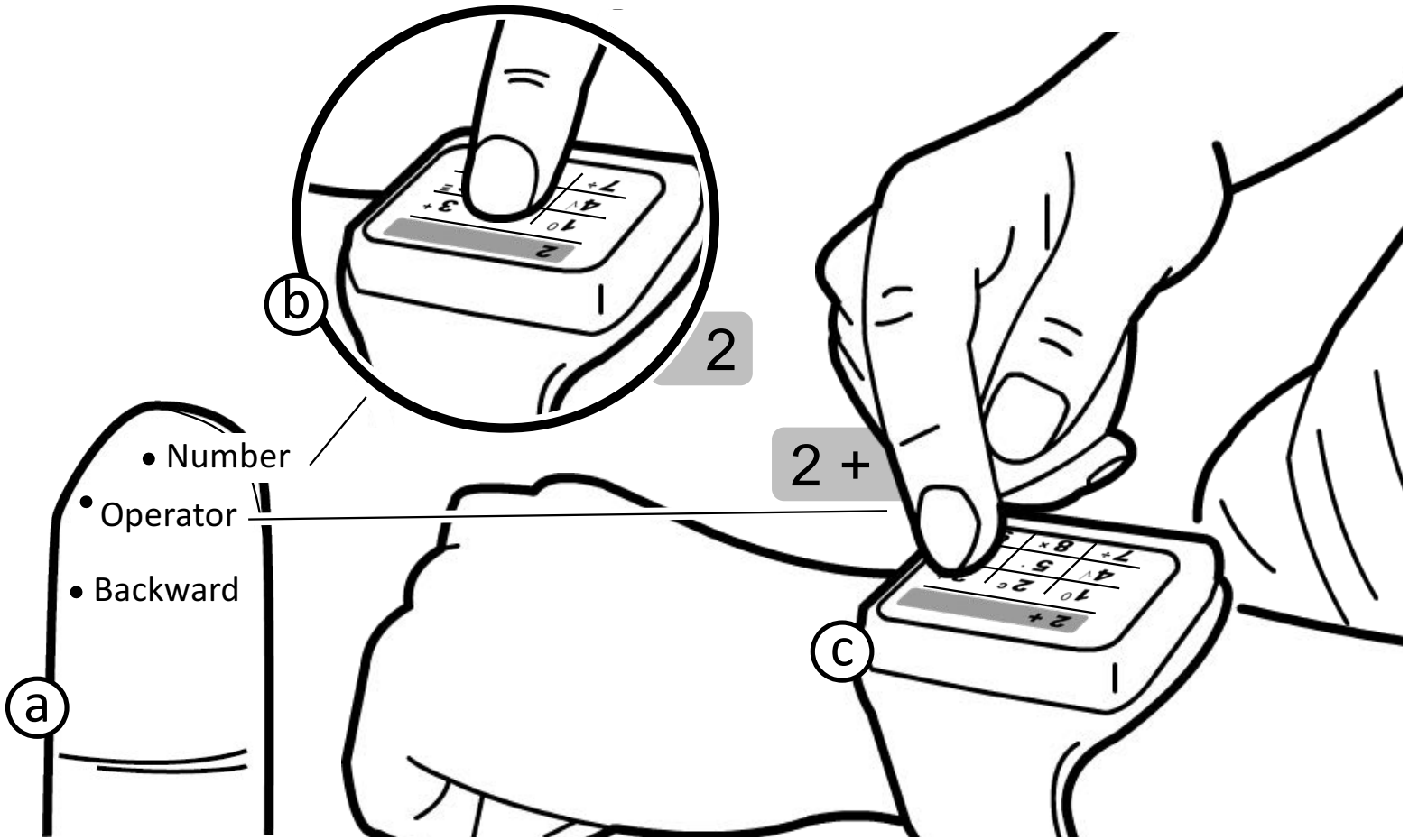
try possible layouts



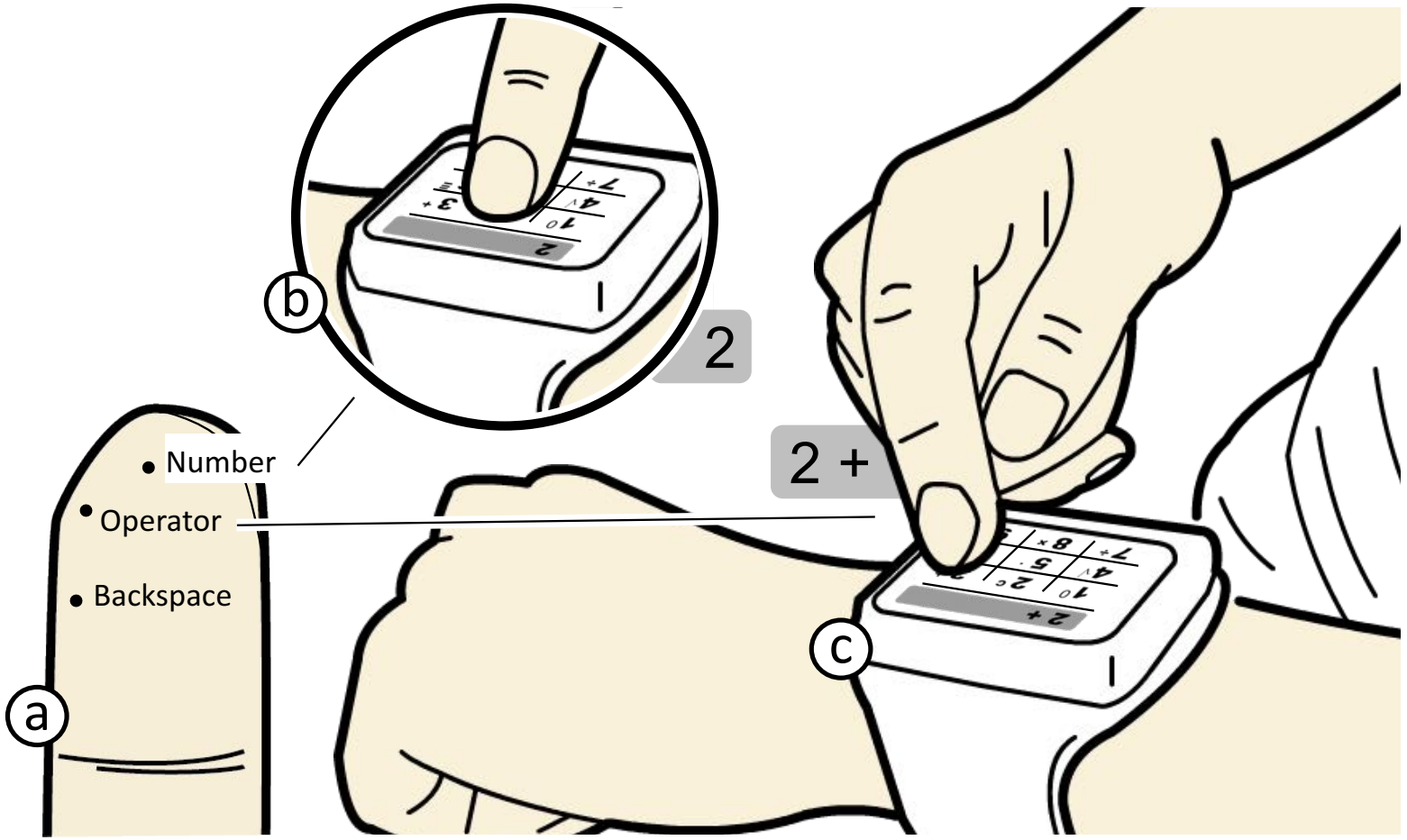
turn into rotoscoping



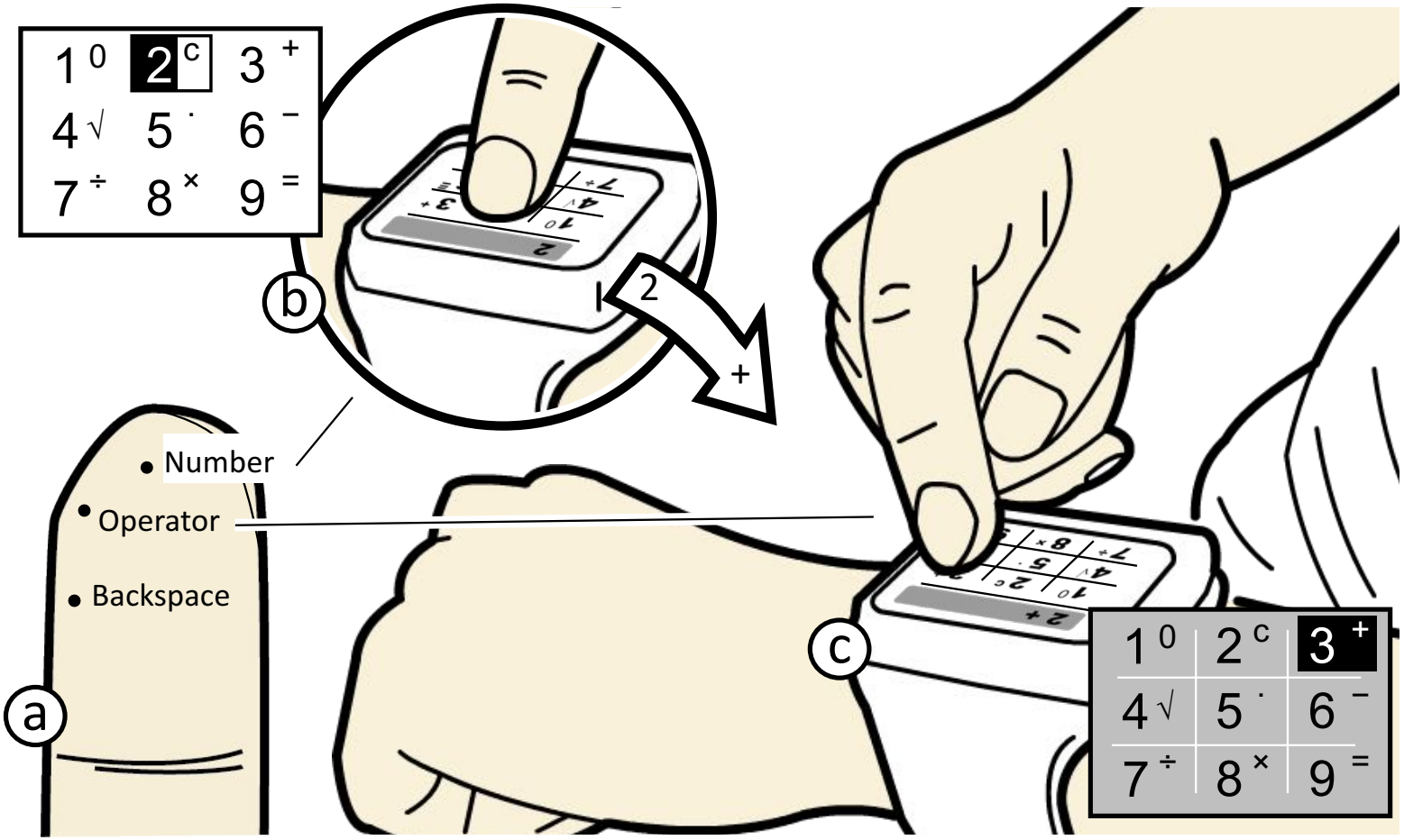
turn into rotoscoping



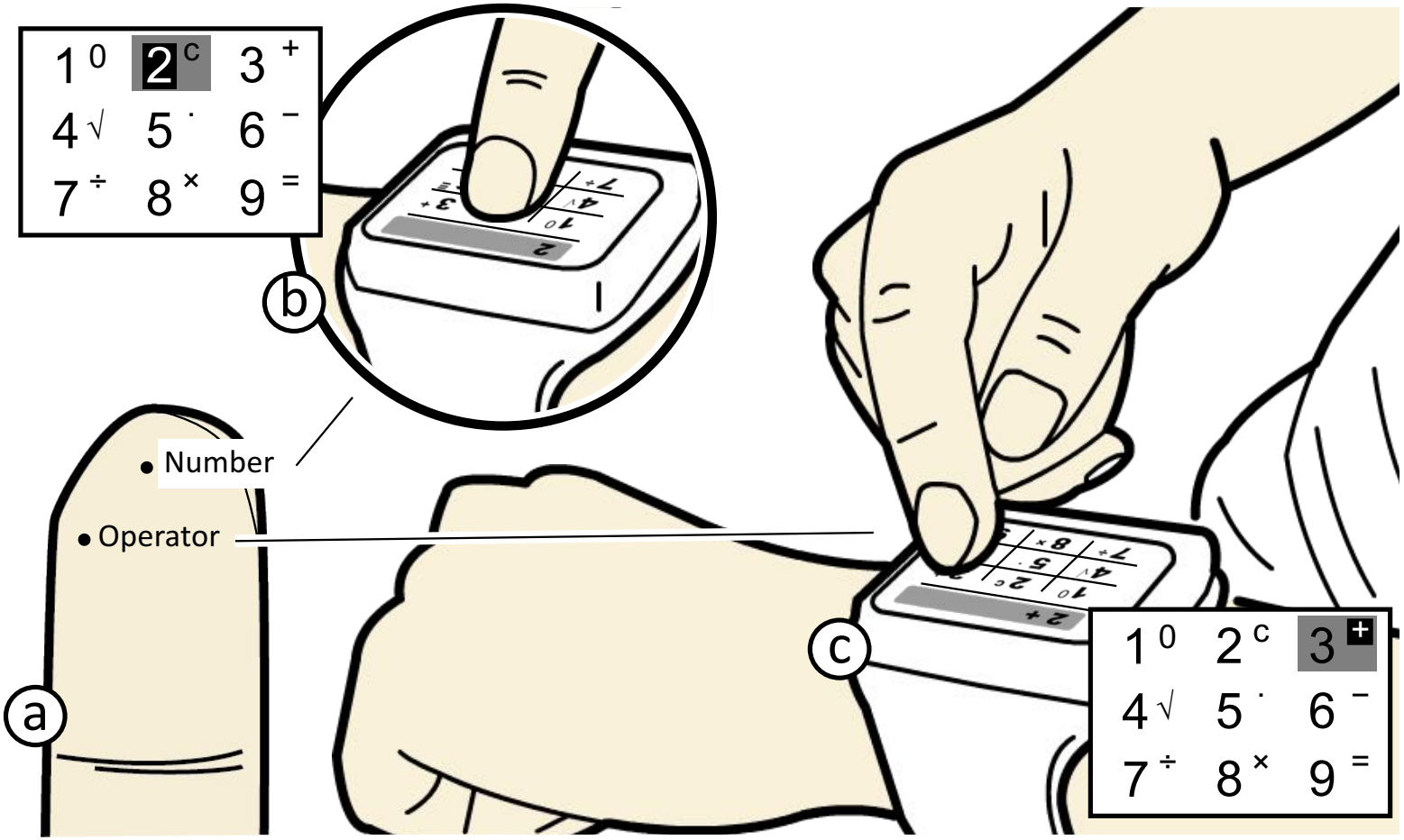
fine tune



coloring (use minimal colors)



fine tune



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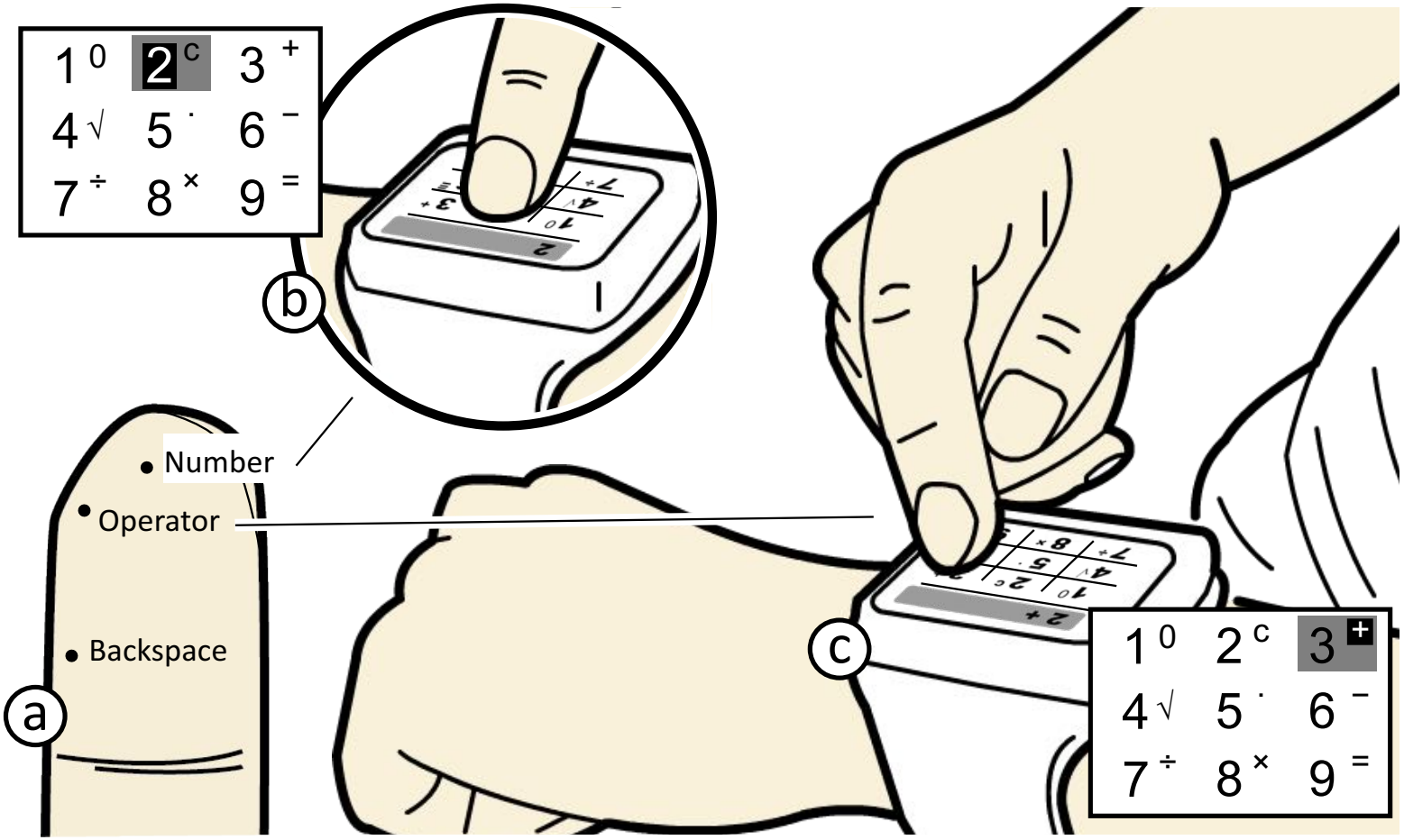

fine tune

TouchSense: Direct Mode Switching Using Different Areas on Users' Finger Pads

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ABSTRACT

We propose TouchSense, a direct-touch interaction technique that enables *direct mode switching* using different areas on the finger pads. It enables fast switching between input modes by single tapping with different areas of users' finger pads, while requiring minimal input area. For example, when using a calculator app on a smart watch, users can tap normally to enter numbers and tap with the right side of their fingers to enter the operators. We conducted two human factors studies which showed that users can tap on a touchscreen with five or more distinct areas on their finger pads. Also, users are able to tap with smaller distinct areas on their finger pads towards their fingertips. We developed a smart watch TouchSense prototype using IMU sensors with two example applications: calculator and text editor, and collected user feedback from an explorative study.

Author Keywords

augmented finger input, input modality, smart watch, small screen mobile devices

ACM Classification Keywords

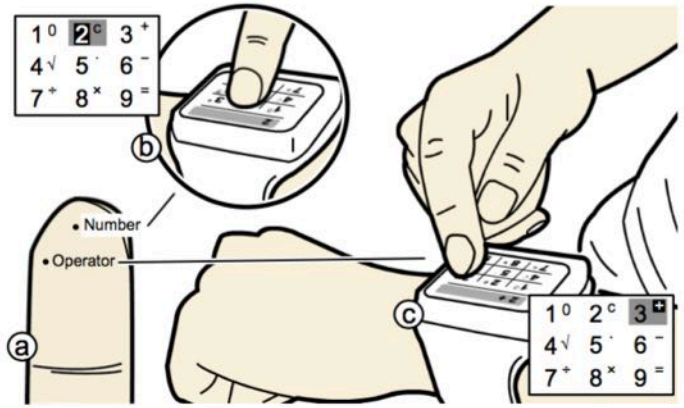

Figure 1. Direct mode switching technique for touch interaction using different areas on finger pads. (a) Different finger areas correspond to numbers vs operators. (b) The number '2' is entered by using a normal tap. (c) The '+' operator is entered by tapping the key '3' with the right-side of the finger. The gray highlight indicates the on-screen key touched, and the black highlight indicates the mode invoked.

the devices [7, ?, ?]. While these techniques provide a richer

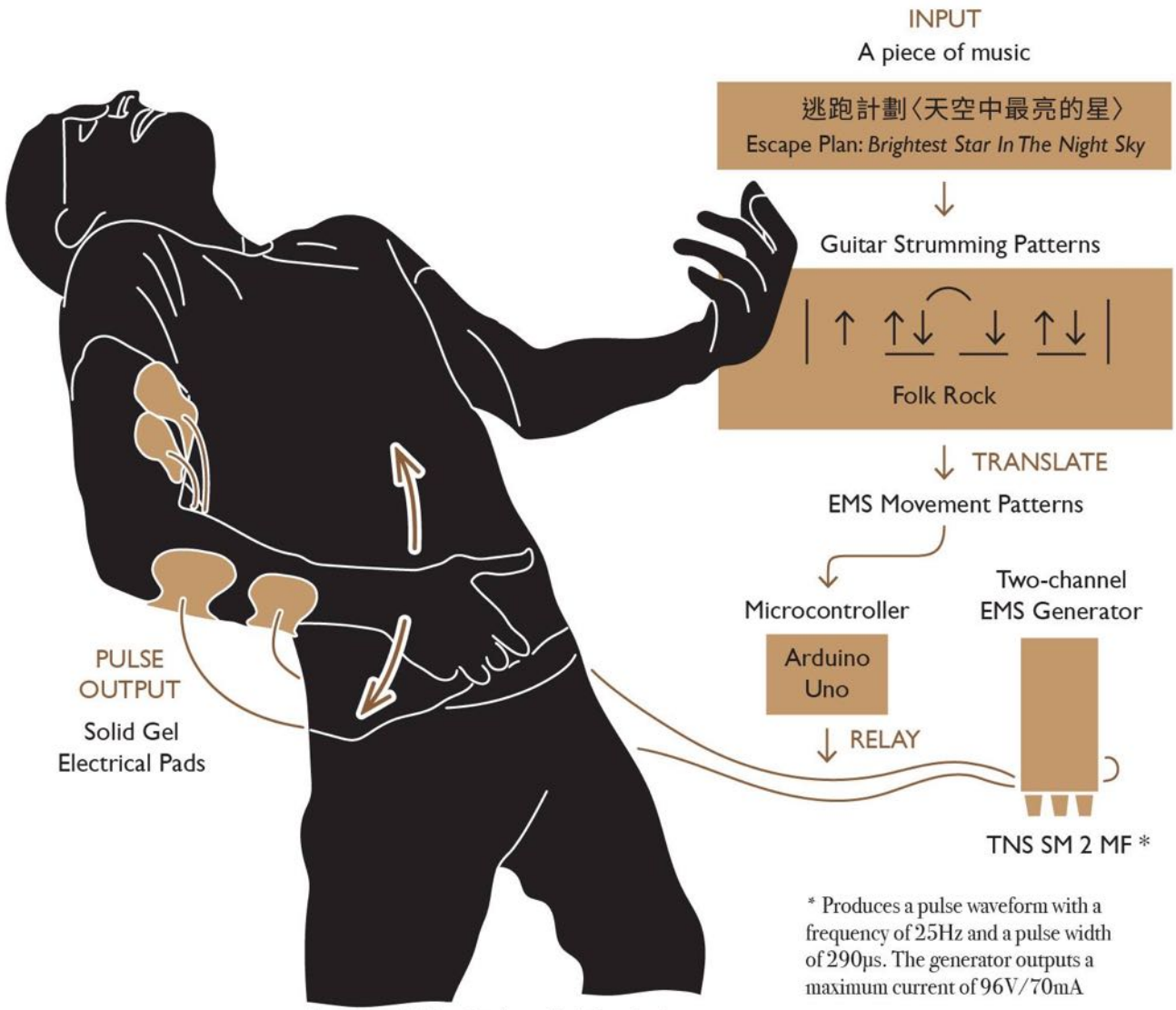

Illustration modified from Getty Images (Credit: SensorSpot)

* Produces a pulse waveform with a frequency of 25Hz and a pulse width of 290μs. The generator outputs a maximum current of 96V/70mA

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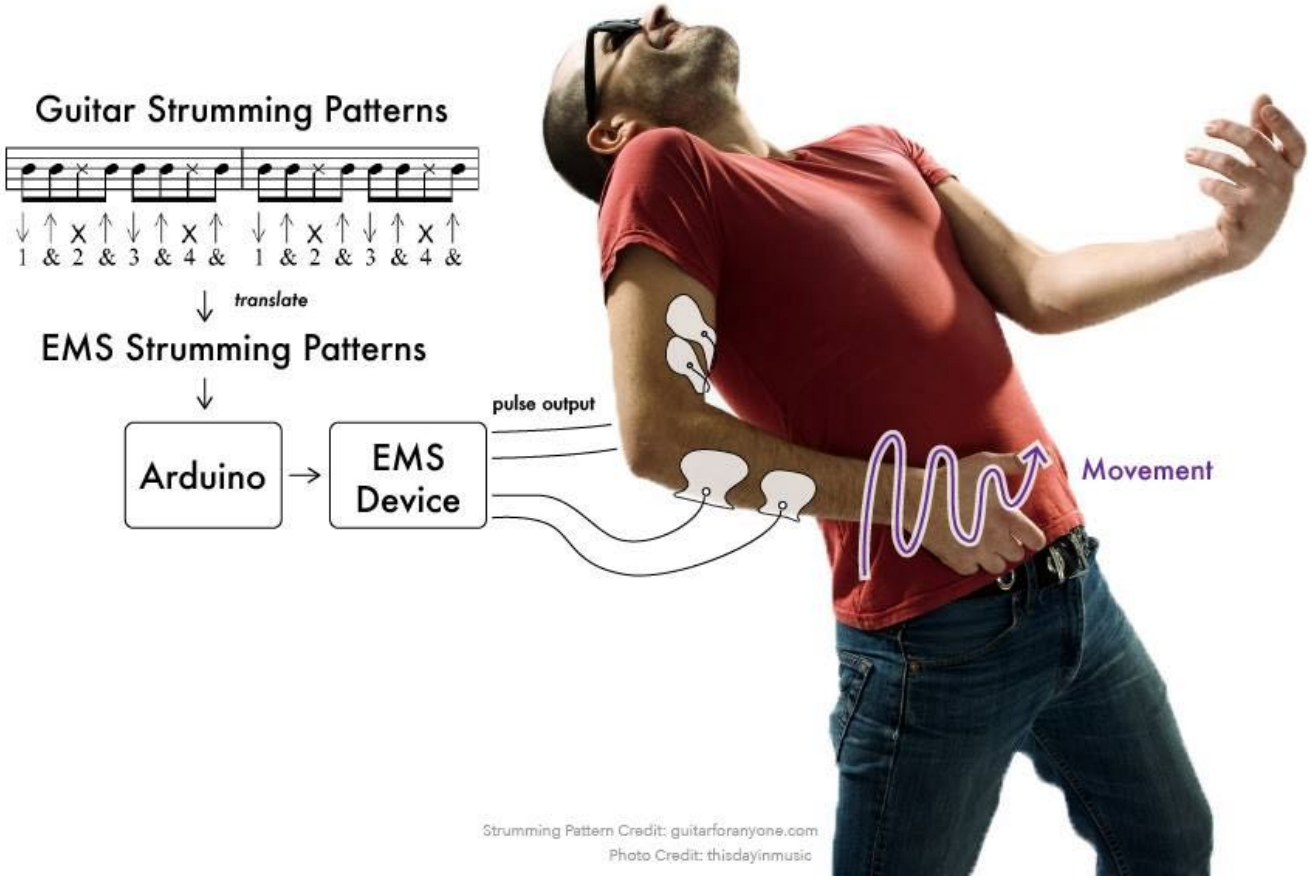
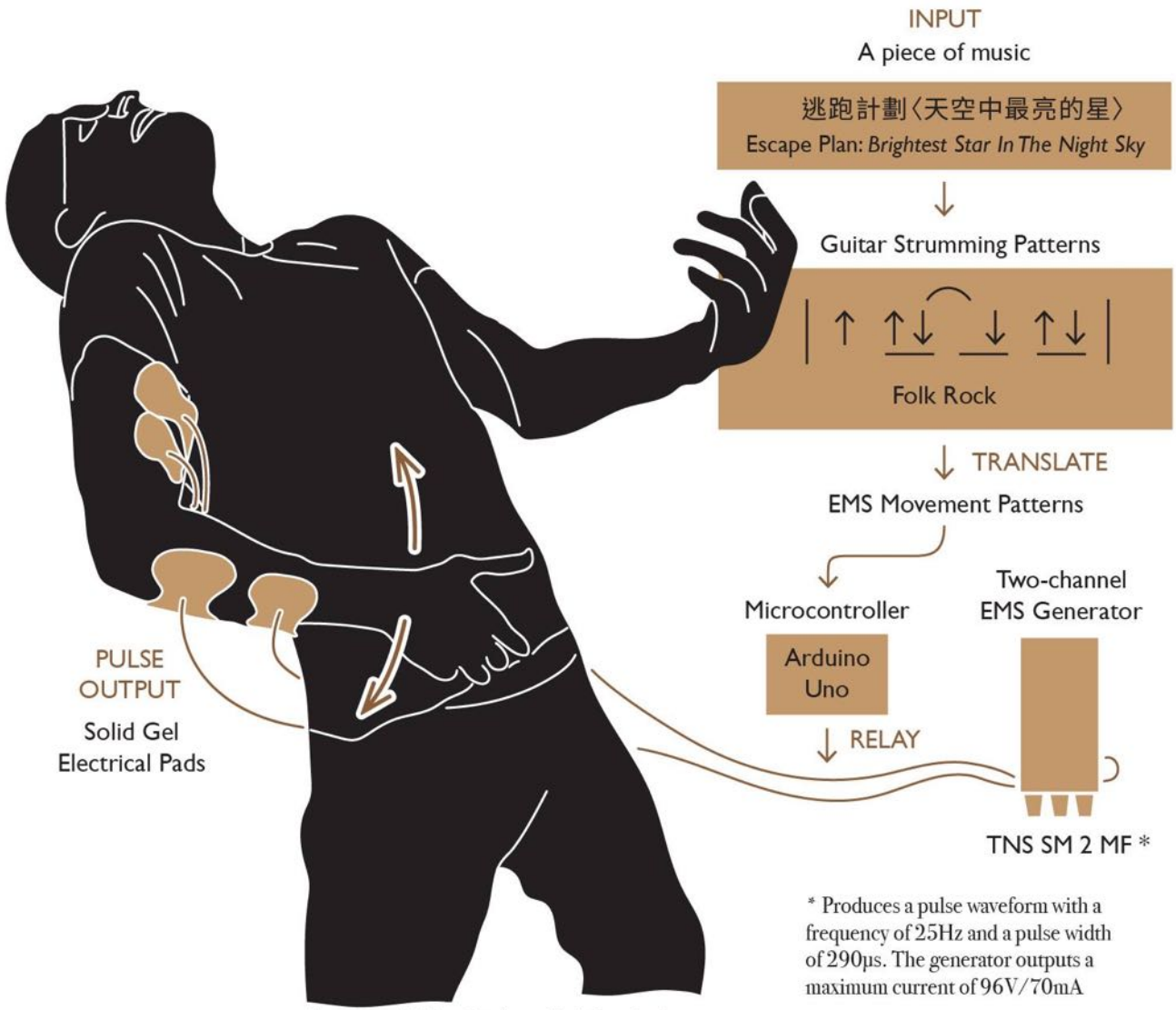


Strumming Pattern Credit: guitarforanyone.com
Photo Credit: thisdayinmusic



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assignment

1. Find a phot relevant to VR with a certain level of visual complexity. (e.g., ~~body / hand / objects~~ multi-users)
2. Complete your Rotoscoping.
3. Submit by 10/4 (next Thu.) 12:00pm.