

COMPUTER SCIENCE AND HUMAN-COMPUTER INTERACTION

Alessio Bellino

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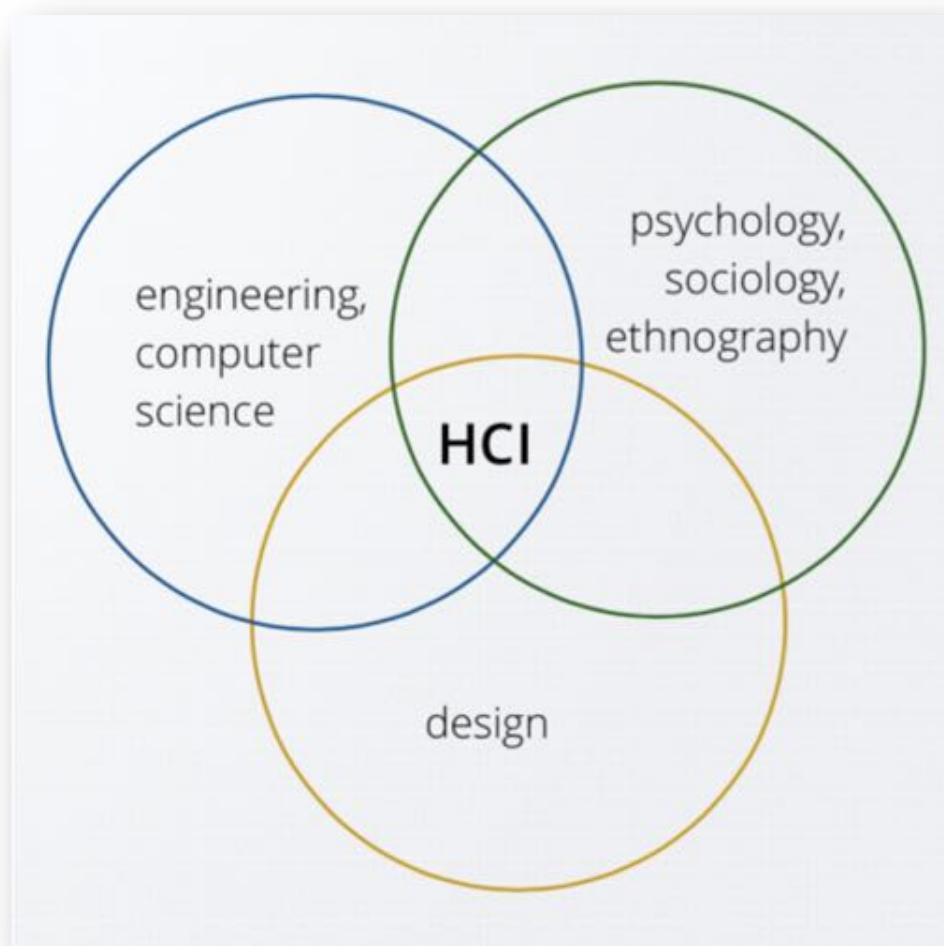
Assistant Professor (from July 2019)
Universidad Diego Portales

ABOUT ME

PhD in Computer Science, master degree in Theory and Technology of Communication (between psychology and computer science) and *bachelor degree in Communication Studies* (social science).

<https://alessiobellino.com>

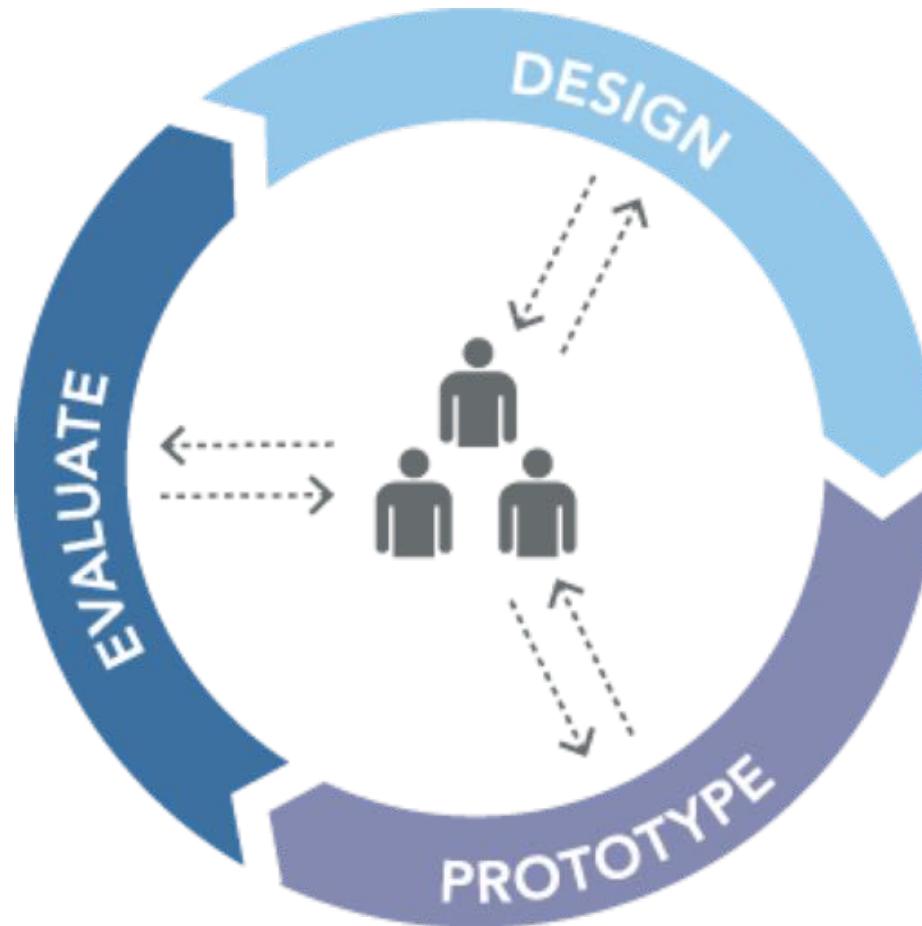
Interdisciplinarity in HCI



- Accessibility
 - Aesthetics
 - Ambient Devices / Internet of Things
 - Analysis Methods
 - Application Instrumentation / Usage Logs
 - Applying Development Theory
 - Applying Theories on Learning
 - Architecture
 - Art
 - Artifact or System
 - Assistive Technologies
 - Audio/Video
 - Automobile
 - Behavior Change
 - Biofeedback Games, Affective Games and Neurogaming
 - Camera-Based UIs
 - Children/Parents
 - City
 - Classical GUI
 - Collaboration
 - Collaboration Architectures
 - Collaborative Information Retrieval
 - Collaborative Software Development
 - Collaborative Visualization
 - Commerce / Business
 - Community Analysis and Support, Virtual or Physical
 - Computer Mediated Communication
 - Computer Vision
 - Concurrency Control
 - Content Analysis
 - Contextual Inquiry
 - Conversation Analysis
 - Creativity and Children
 - Crisis/Disaster
 - Critical/Activism/Ethics
 - Cross-Cultural Systems or Studies
 - Crowdfunding
 - Crowdsourced
 - Crowdsourcing
 - Cultural Heritage/History
 - Cultural Theory
 - Curation
 - Dataset
 - Design Case
 - Design Guidelines
 - Design Methods
 - Design Research Methods
 - Desktop/Laptop Computers
 - Diary Study
 - Digital Art
 - Distributed/Virtual Teams
 - Education/Learning
 - Email/Texting/Communication
 - Embodied Cognition
 - Embodied Interaction
 - Emotion / Affective Computing
 - Empirical Methods
 - Engineering
 - Entertainment
 - Entertainment/Games
 - Essay/Argument
 - Ethnography
 - Evaluation Methods
 - Experience Sampling
 - Eye Tracking
 - Fabrication
 - Fashion/Clothing
 - Field Study
 - Finance/Money
 - Game Design
 - Game Development and Tools
 - Game Economies and Esports
 - Game Interfaces and Controllers
 - Games for Health, Learning, Persuasion, Or Change
 - Games User Research, Evaluation, and Game Analytics
 - Games/Play
 - Gamification
 - Gender/Identity
 - Graphics / 3d
 - HCI for Development
 - Health - Clinical
 - Health - Wellbeing
 - Home
 - Humanities
 - Image and Video Processing in UI
 - Individuals with Disabilities
 - Industrial Design
 - Information Seeking & Search
 - Infrastructure
 - Innovation
 - Input Techniques
 - Installation
 - Interaction Design
 - Interview
 - Lab Study
 - Location-Aware/Contextual Computing
 - Location-Based and Context-Aware Computing
 - Machine Learning
 - Maker Culture
 - Media Studies
 - Medical and Health Support
 - Medical: Nursing Homes/Hospitals
 - Meta-Analysis/Literature Survey
 - Method
 - Methods for Involving Children in Design
 - Mixed Methods
 - Mixed Reality
 - Mixed-Reality and Alternate Reality Games
 - Mobile and Embedded Devices
 - Mobile Devices: Phones/Tablets
 - Movement / Dance / Choreography
 - Music + Audio
 - Navigation
 - Novel Applications for Children
 - Novel Interaction Techniques
 - Older Adults
 - Other Domain-Specific Support
 - Participatory Design
 - Pen-Based UIs
 - Performance Metrics
 - Personal Data/Tracking
 - Personalization
 - Pets/Animals
 - Player Experience and Motivation
 - Playfulness
 - Policy/Politics/Legal Issues
 - Privacy
 - Product Design
 - Programming Kits for Children
 - Programming/Development Support
 - Prototyping/Implementation
 - Psychology of Players and Player Typologies
 - Public Displays
 - Qualitative Methods
 - Quantitative Methods
 - Reflection on Design Processes
 - Reflection Papers on IDC
 - Robot
 - Rural Areas
 - Safety
 - Safety-Critical Systems
 - Schools/Educational Setting
 - Security
 - Sensors
- Service Design
 - Sketching
 - Smart Environments / Connected Home
 - Smart Materials
 - Social Media
 - Social Media/Online Communities
 - Social Network Analysis
 - Social Networking Site Design and Use
 - Social Psychology
 - Sociology
 - Software Architecture and Engineering
 - Sports/Exercise
 - Storytelling
 - Studies of Wikipedia/Web
 - Survey
 - Sustainability
 - Tangible
 - Tangible UIs
 - Tasks/Interruptions/Notification
 - Technical Advances
 - Telepresence/Video/Desktop Conferencing
 - Television/Video
 - Text Entry
 - Text/Speech/Language
 - Theory
 - Touch Surfaces and Touch Interaction
 - Touch/Haptic/Pointing/Gesture
 - Transportation
 - Tutorial and Help Systems
 - Ubiquitous computing
 - Usability Study
 - User Experience Design
 - User Interface Design
 - Video Analysis
 - Virtual Worlds/Avatars/Proxies
 - Virtual/Augmented Reality
 - Visions for IDC
 - Visual Art
 - Visual Design
 - Visual Thinking
 - Visualization
 - Wearable Computers
 - Workflow Management
 - Workplaces
 - World Wide Web And Hypermedia

Source: CHI conference (area of expertise)

Design Process in HCI



My research in HCI

Touch&Screen: widget collection for large screens controlled through smartphones

TraceMatch: a computer vision technique for user input by tracing of animated controls

Two new gestures to zoom: Two-Finger-Tap for tablets and Tap&Tap for smartphones

Camera Keyboard: text entry for touch devices using cameras

Probject: a rapid prototyping platform for IoT and smart home

An evaluation of WriteBetter: a concordancer integrated into a word processor

SEQUENCE: a remote control technique to select objects by matching their rhythm

My research in HCI

Protobject: a sensing tool for the rapid prototyping of UbiComp systems

Alessio Bellino

Adjunct Proceedings of the 2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing
PhD Dissertation, University of Milan-Bicocca

INTERACTION WITH THE EVERYDAY ENVIRONMENT IS SOURCE OF CONTEXT THAT CAN BE LEVERAGED TO SUPPORT USERS WITH CONTEXT-AWARE SYSTEMS.

MANY INTERACTIONS CAN BE LEVERAGED

Picking up the phone (interaction)



Skype goes to busy automatically
(context-aware application)



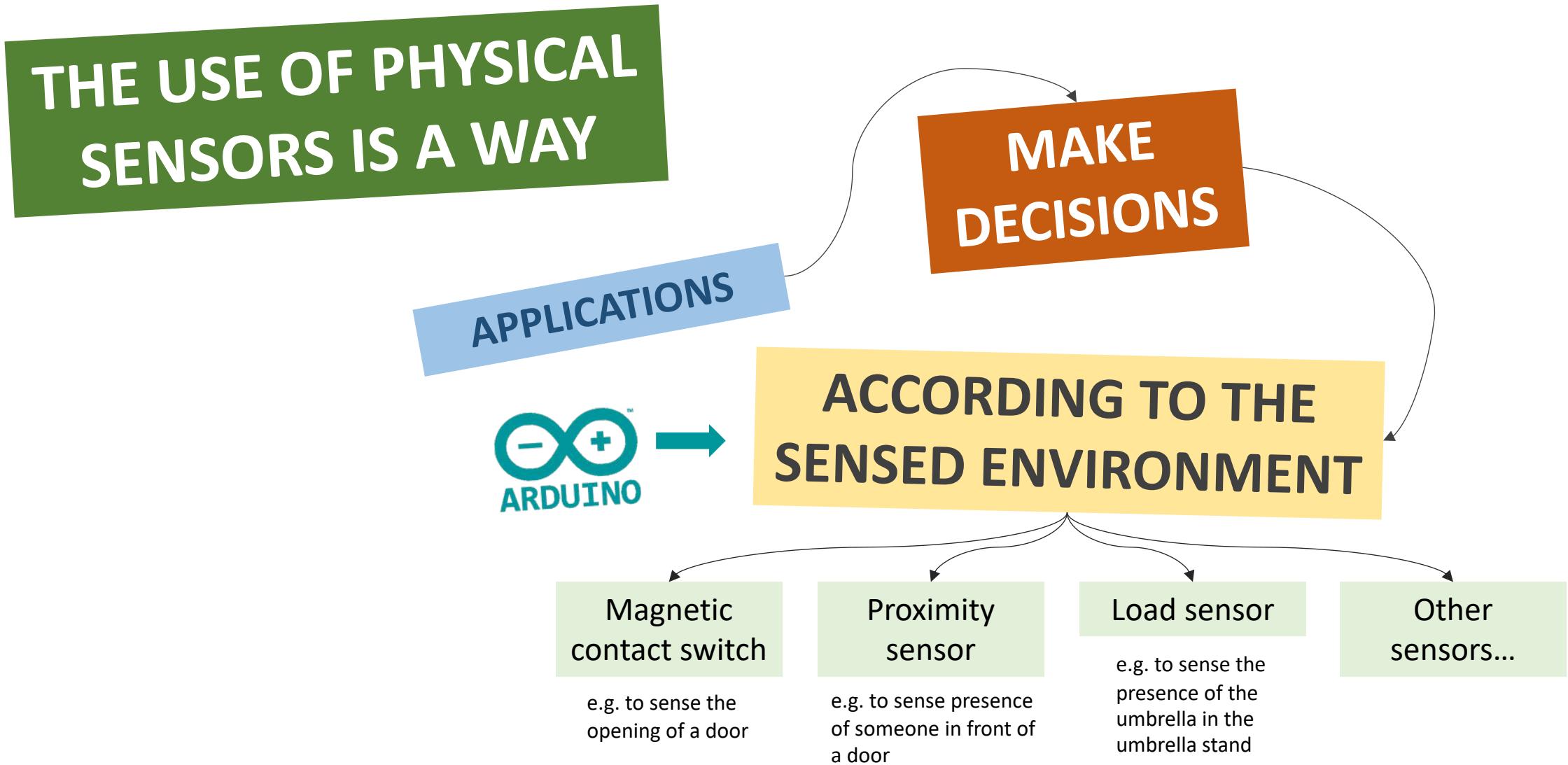
Hanging up the receiver (interaction)



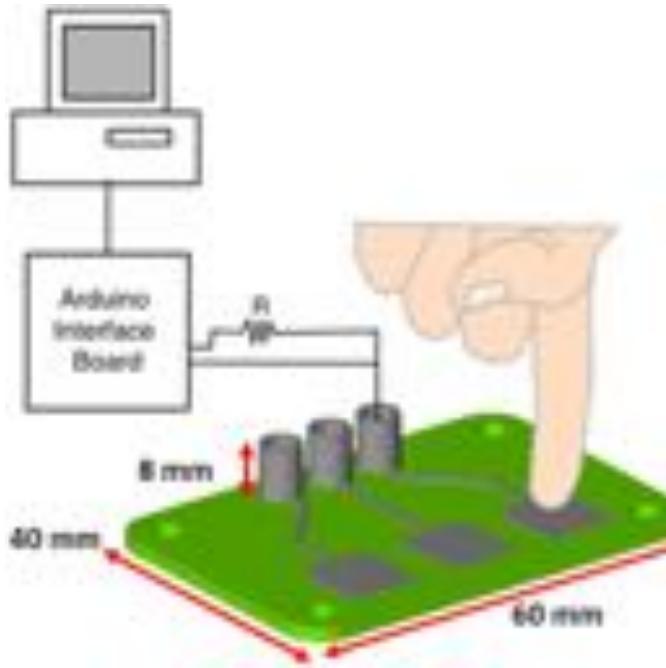
Skype returns to available automatically
(context-aware application)



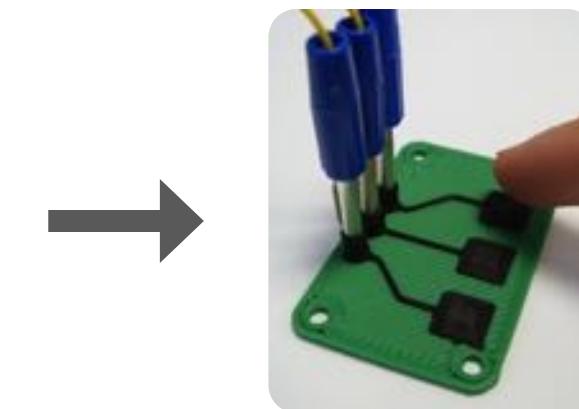
PROTOTYPING OF CONTEXT-AWARE APPLICATIONS



3D-PRINTED COMPONENTS EMBEDDING SENSORS



CAD Design



3D-Printed component with sensors

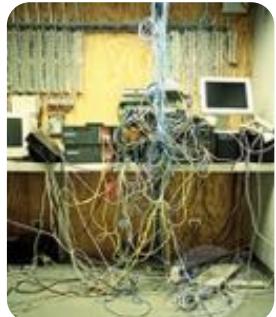
EARLY STAGES OF DESIGN/PROTOTYPING



EARLY STAGES OF DESIGN/PROTOTYPING REQUIRES FLEXIBILITY

Arduino and Sensors are cumbersome:

- Require wires around
- Require installation (of sensors)
- Hardware modifications are usually irreversible



3D Printers are cumbersome:

- Expensive
- Slow
- Require CAD competences



\$\$\$\$\$

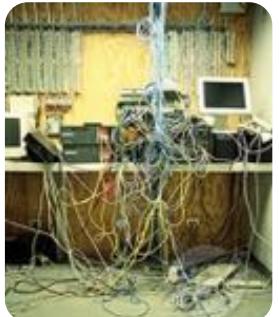
EARLY STAGES OF DESIGN/PROTOTYPING REQUIRES FLEXIBILITY

Arduino and Sensors are cumbersome:

- Require wires around

3D Printers are cumbersome:

REMARKABLE FOR MAKING, BUT *LESS EFFECTIVE*
FOR EARLY-STAGE DESIGN/PROTOTYPING



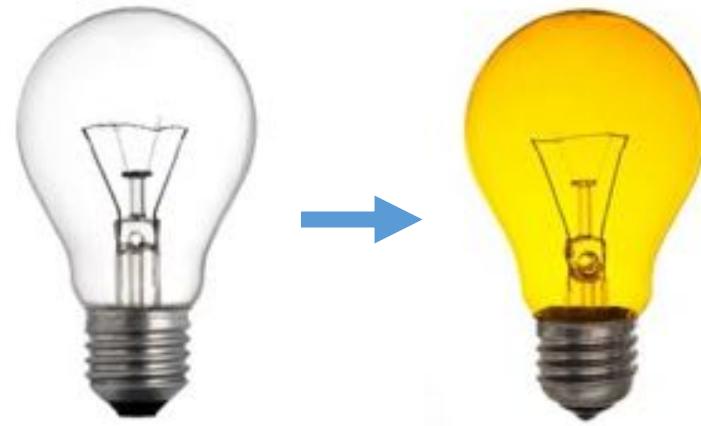
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PROTOBJECT: A RAPID PROTOTYPING TOOL FOR INTERNET OF THINGS AND SMART HOME



FROM STATE TO EVENT

Object state changes over time.

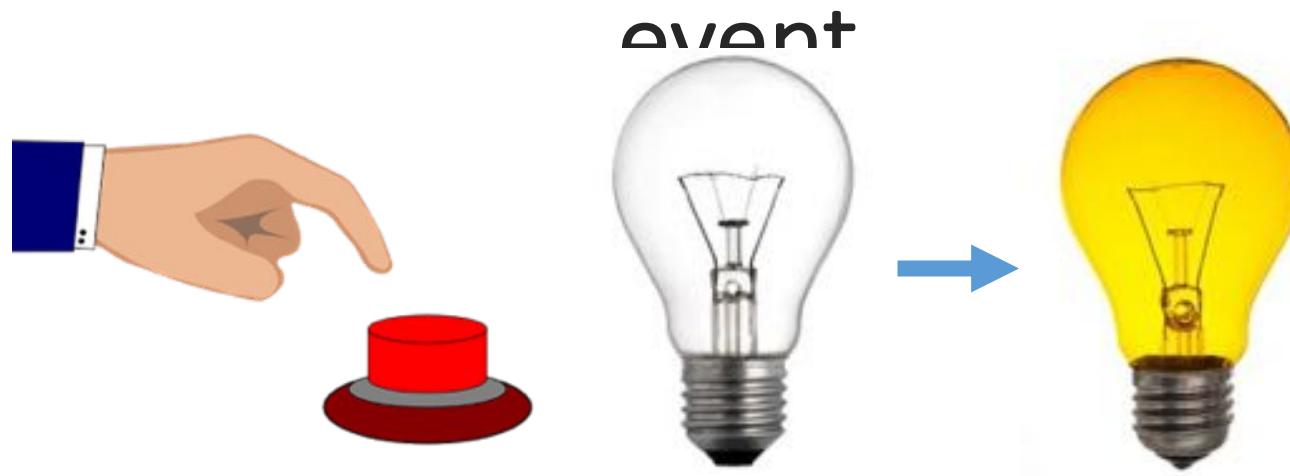


E.g., light changes from turned off to turned on.

Event: light was turned on.

FROM EVENT TO INTERACTION

Frequently, there is an interaction behind an



E.g., the light was turned on by Marco.

Interaction: Marco turned on the light.

SUMMING UP

Observing states, designers can capture:

- Events
- Interactions

... which can be leveraged for the prototyping of interactive systems (e.g., smart home, internet of things).

PROTOBJECT OPERATING WAY

IDE to facilitate context-aware app. Development, also integrating Arduino



The screenshot shows the Protobject IDE interface with a code editor window titled "untitled.js*". The code is written in a JavaScript-like syntax for Protobject:

```
1* function appConfig() {
2    app.setWindowTitle("My first Protobject app"); //change if you want
3    app.setWindowSize(640,480); //change if you want
4}
5
6* function appBody() {
7    //when the state of the lamp changes
8    protobject.onEvent("Lamp", function(e) {
9        console.log("The state of the lamp is: "+e.detail.state);
10    });
11
12    //when the plug is plugged
13    protobject.onEvent("Plug.Plugged", function(e) {
14        console.log("The plug of the lamp was plugged.");
15    });
16}
```

A red "Play" button is visible in the top right corner of the code editor.

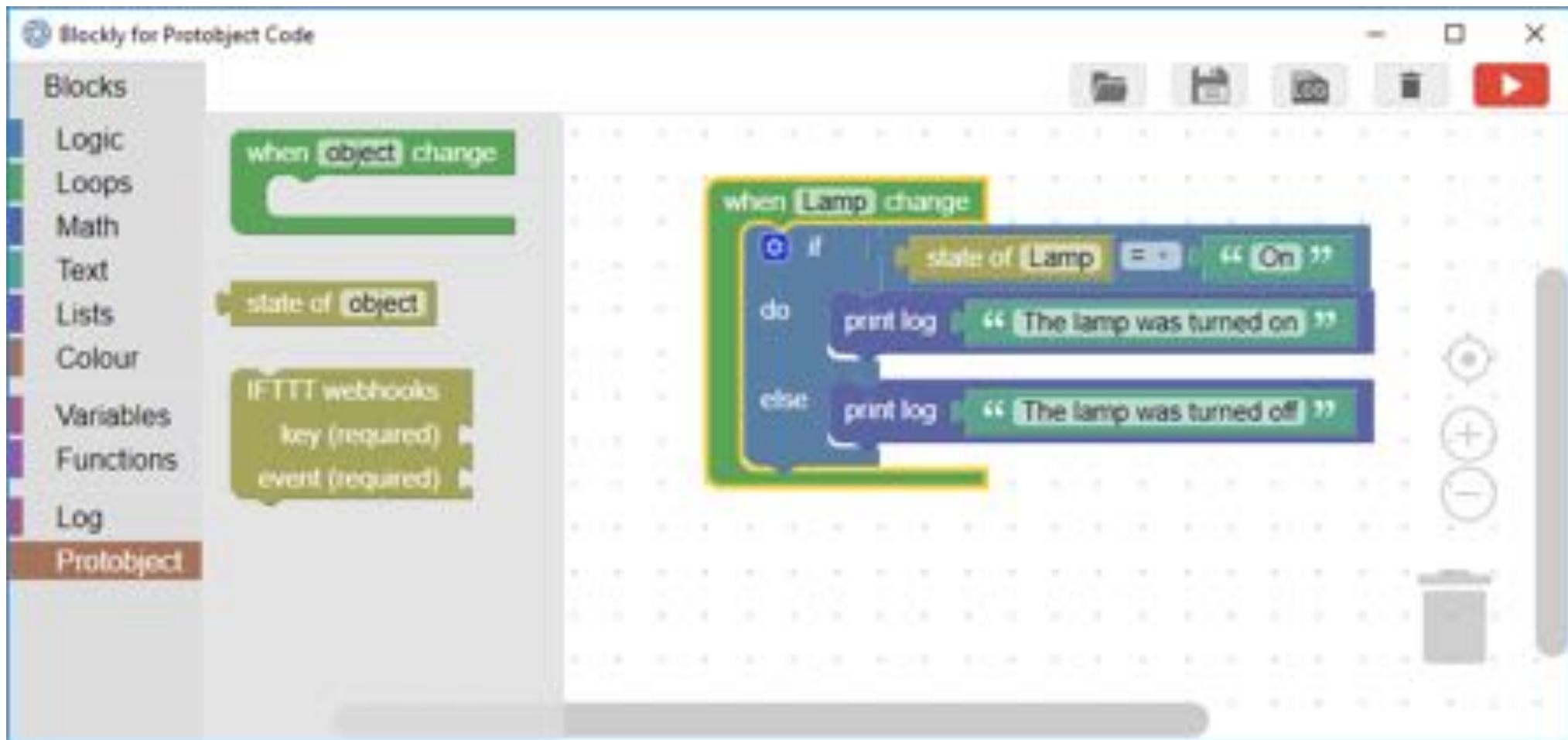


Plug

Lamp

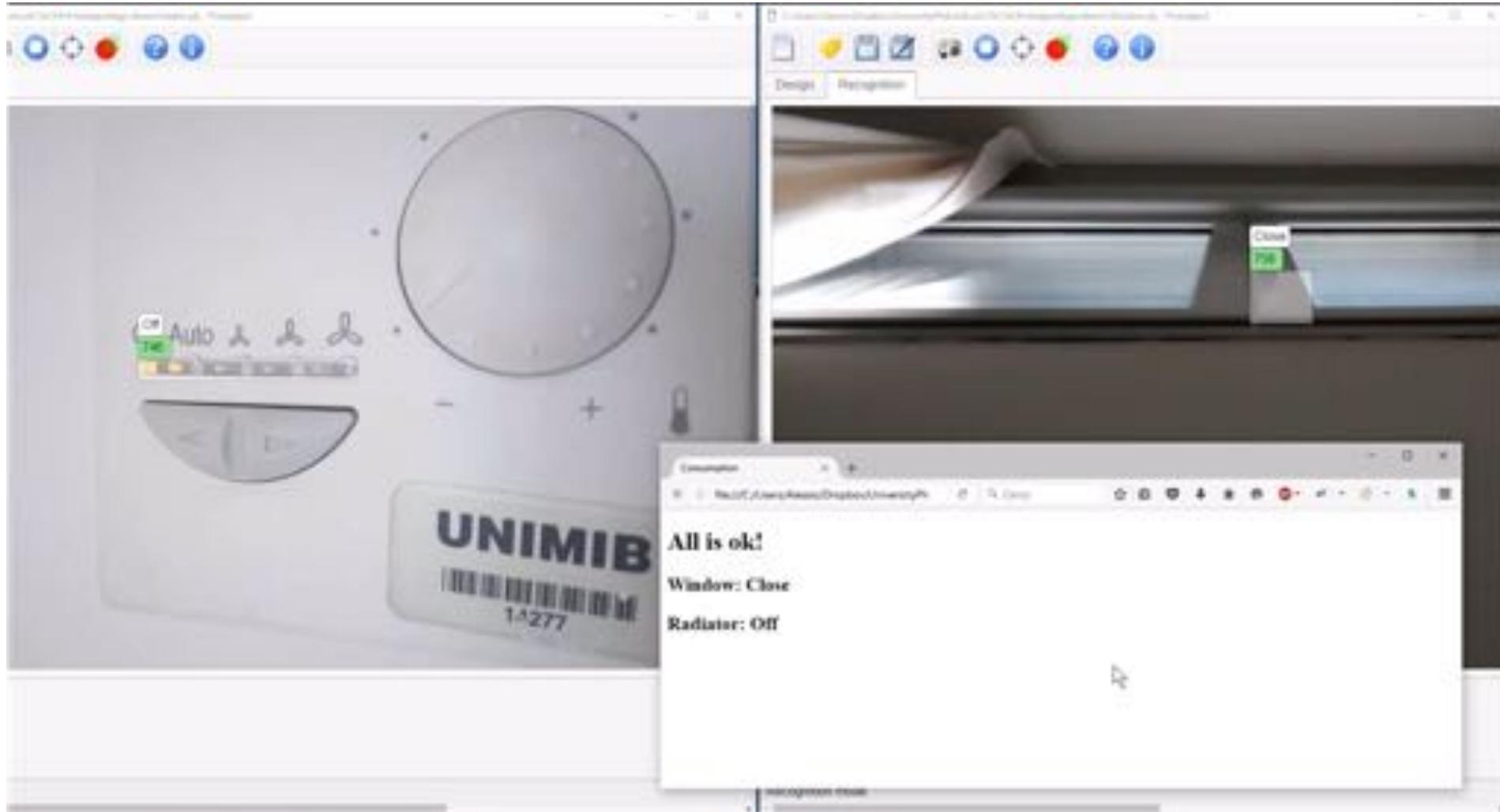
PROTOBJECT OPERATING WAY

Components for Blockly, a visual programming language



PROTOBJECT USAGE SCENARIOS

An energy saving tool

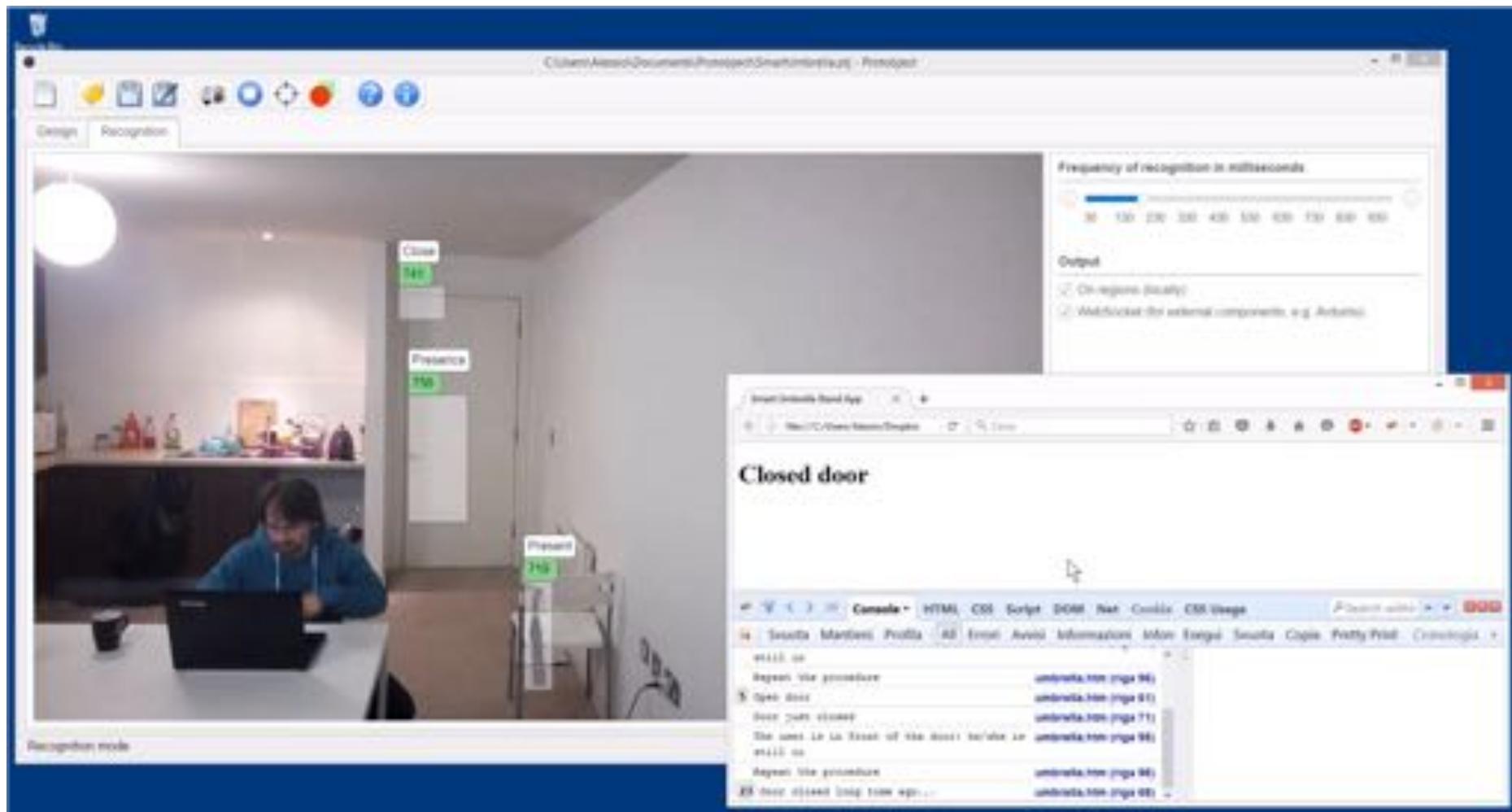


Background

When the heater is turned on and the window is open, a notification is displayed saying that you are wasting energy.

PROTOBJECT USAGE SCENARIOS

A smart umbrella stand



Background
If it is raining (information provided by weather.com API) and you forgot the umbrella in the umbrella stand, a notification is sent you just after leaning home.

PROTOBJECT EVALUATION

Prototyping approach and UI

Brera DesignDays
TALKS & WORKSHOPS

Protobject prototyping approach and UI was evaluated by 22 participants (designers and engineers) in two workshops held on October 1st and 2nd.

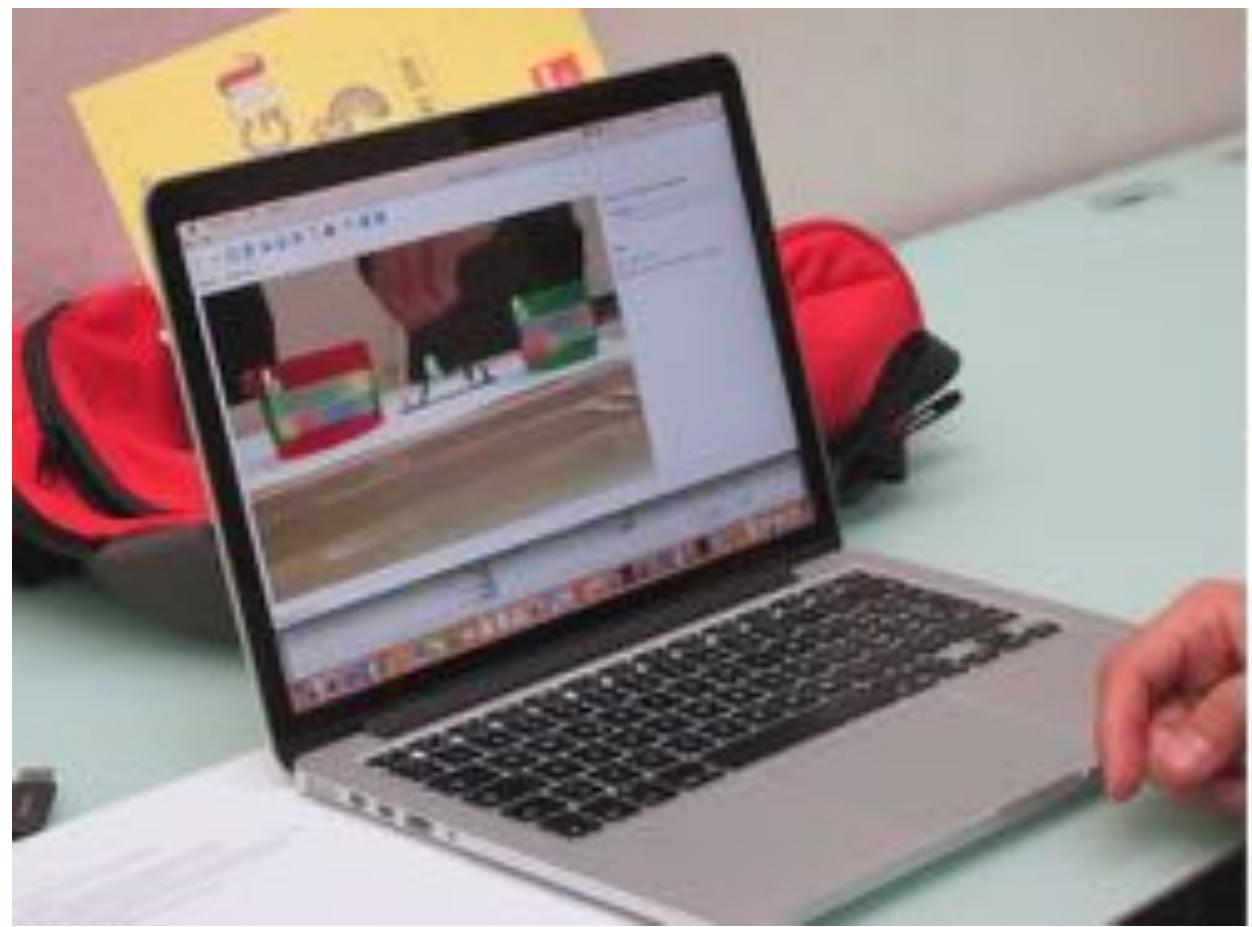












SUMMING UP



Protobject makes early-stage prototyping more rapid and flexible.



Protobject facilitate communication between designers and engineers when making interactive prototypes.

PROTOBJECT VS GAME FOR INTRODUCING PROGRAMMING

Alessio Bellino, Valeria Herskovic,
Jorge Muñoz-Gama, Michael Hund

MOTIVATIONS

Novice students frequently think that programming is useful for creating games and are not aware of the importance of programming in the real world.

Juegos de Blockly : Laberinto

2

10

Español



▶ Ejecutar el
programa

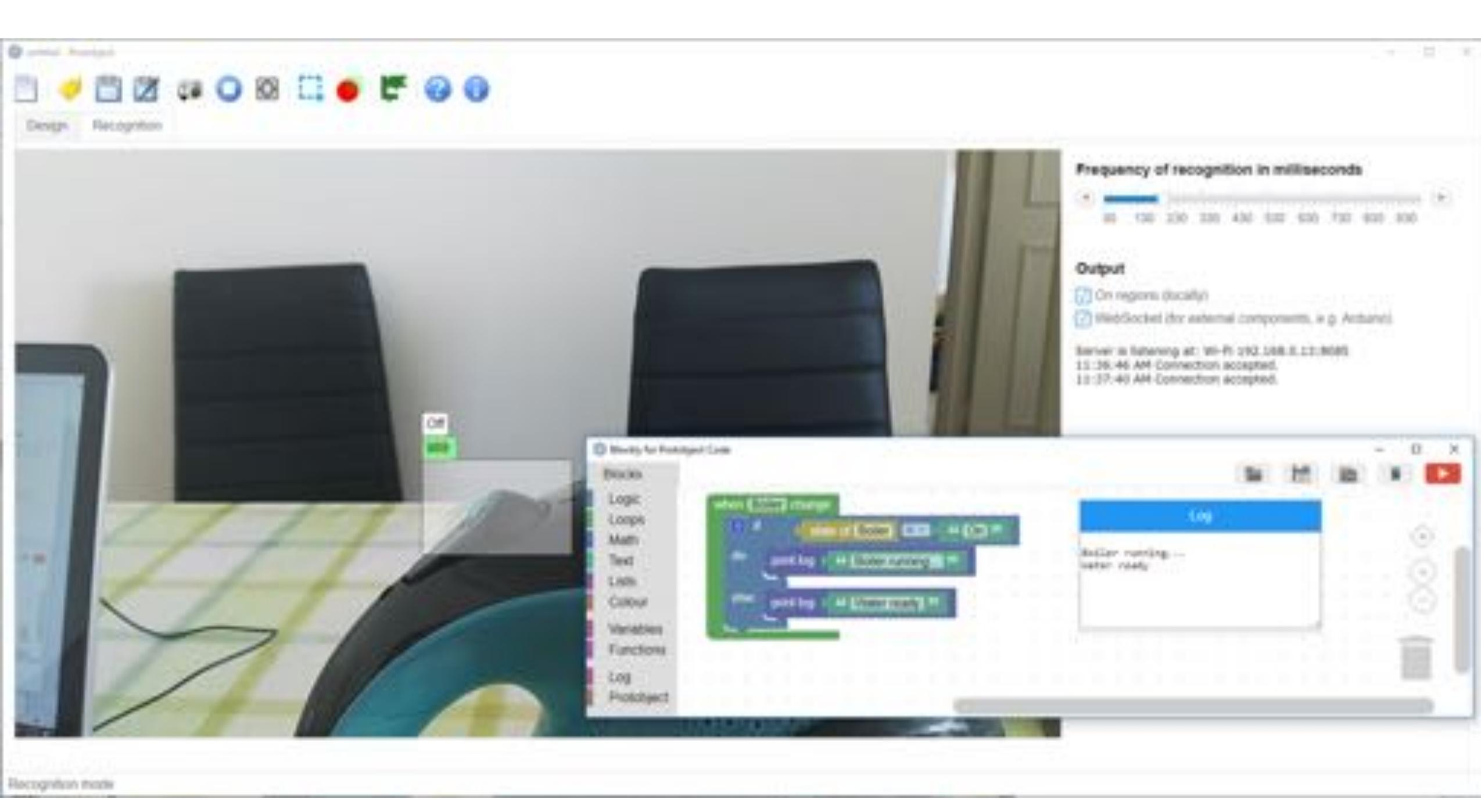
avanzar

girar a la izquierda ⌂

girar a la derecha ⌂

avanzar



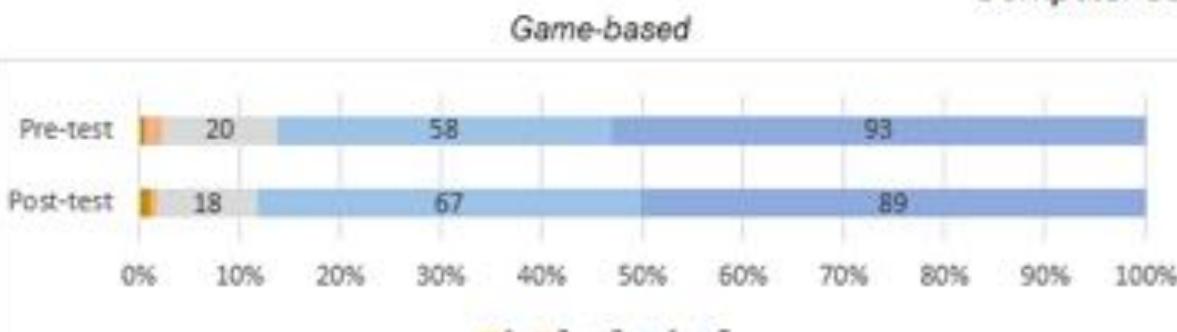




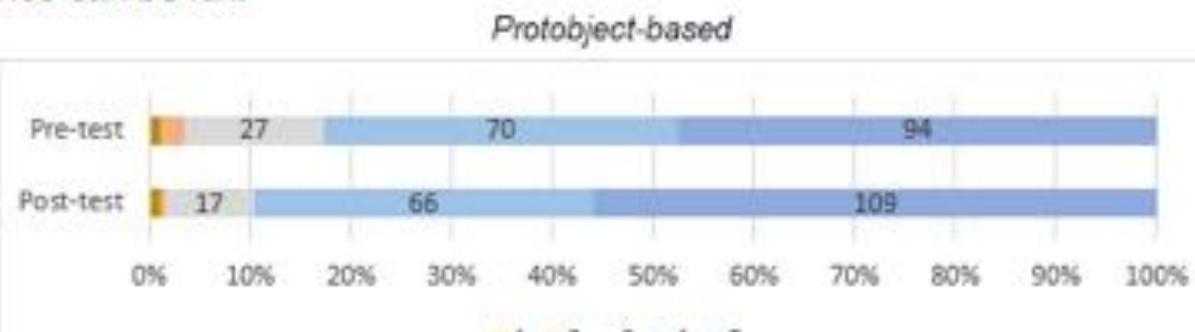
TWO GROUP PRE/POST TEST (367 PARTICIPANTS)

Computer science can be fun.

Game-based

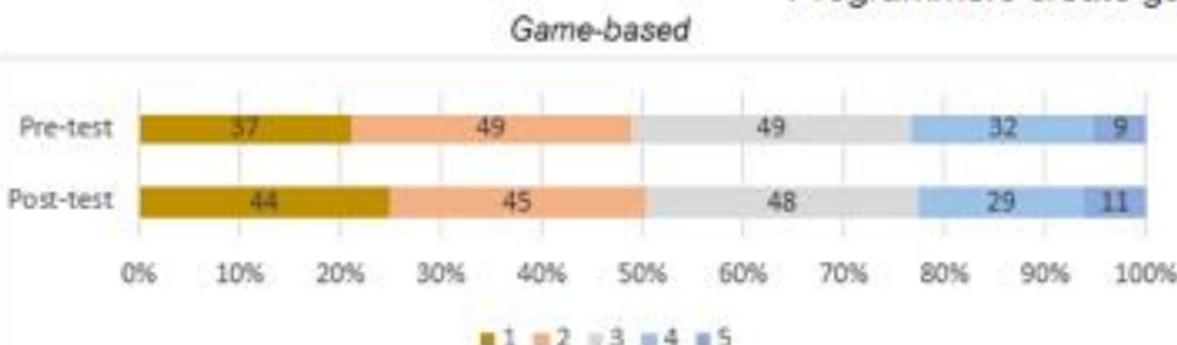


Protobject-based

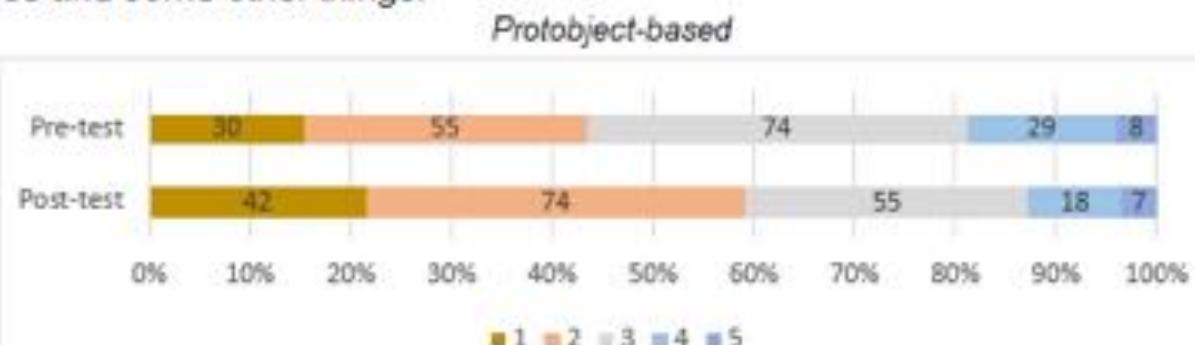


Programmers create games and some other things.

Game-based



Protobject-based



SUMMING UP

The Protobject-based approach resulted to be better at changing students' attitudes regarding the relationship between programming and the real world.

My research in HCI

Touch&Screen: widget collection for large screens controlled through smartphones

TraceMatch: a computer vision technique for user input by tracing of animated controls

Two new gestures to zoom: Two-Finger-Tap for tablets and Tap&Tap for smartphones

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An evaluation of WriteBetter: a concordancer integrated into a word processor

SEQUENCE: a remote control technique to select objects by matching their rhythm

My research in HCI

**Touch&Screen: widget collection for
large screens controlled through
smartphones**

Alessio Bellino, Federico Cabitza, Flavio De Paoli, Giorgio De Michelis

Proceedings of the 15th International Conference on Mobile and Ubiquitous Multimedia (ACM)

Smartphone interaction



User interfaces are often composed of widgets, e.g., elements of interaction such as lists, videos, maps.

Why and how to control using touch devices?



Why to control using touch devices



Mouses and keyboards can be used only if they lie on a horizontal surface.

So, how to do in other cases? Use smartphones!

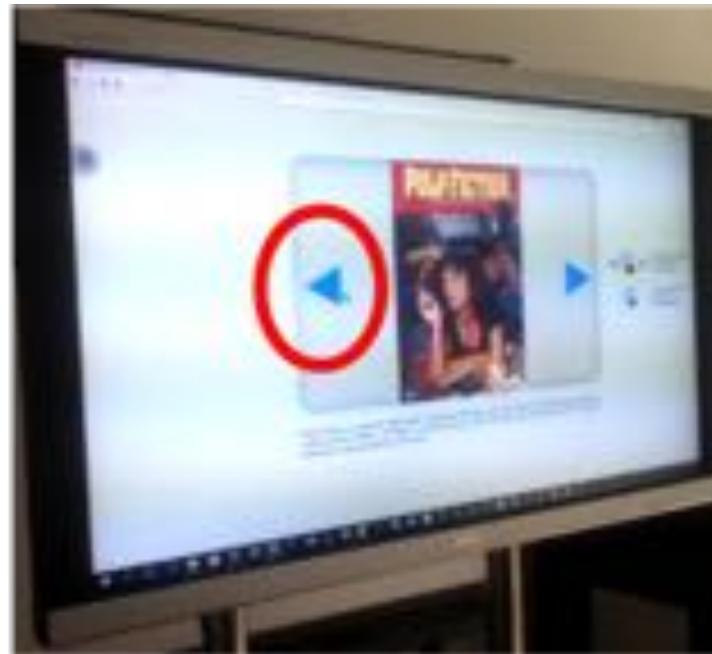
Interaction Techniques for Merging Large Screens and Smartphones

User evaluation

The study: comparison among three techniques



Direct touch



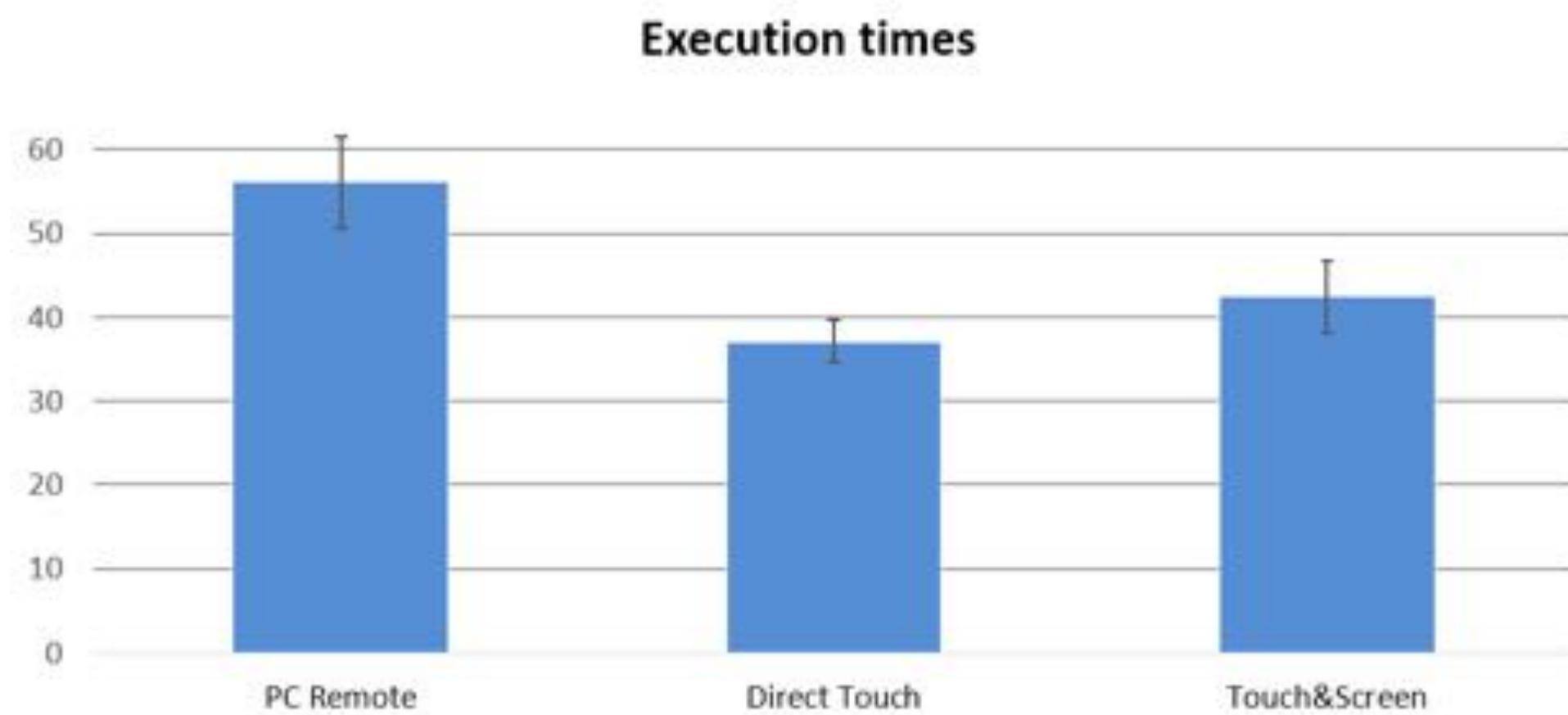
Mouse controlled by smartphone
through PC Remote (Android app)



Touch&Screen

User evaluation

Comparison results



All the differences are significant ($p < 0.05$).

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TraceMatch: a computer vision technique for user input by tracing of animated controls

Clarke, C., Bellino, A., Esteves, A., Velloso, E. and Gellersen, H., 2016, September. TraceMatch: a computer vision technique for user input by tracing of animated controls. In Proceedings of the 2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing (pp. 298-303). ACM.

Clarke, C., Bellino, A., Esteves, A. and Gellersen, H., 2017. Remote Control by Body Movement in Synchrony with Orbiting Widgets: an Evaluation of TraceMatch. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, 1(3), p.45.

TraceMatch

How Does it Work?

How many orbits can be displayed at the same time?

And how to distinguish between different orbits?



TraceMatch supports any
rotating movement as input:
head, hand, holding an object,
foot and so on.



Some prototypes
for Smart TV

User evaluation

Prototypes were evaluated with 20 participants aged between 21 and 54 years.
(10 males, 10 females)

Interactive story evaluation



Formula 1 multi-screen evaluation



Real prototypes: results

		Interactive Story	Formula 1 Multi-Screen
Number of activations	Head	5 (7%)	18 (6%)
	Dom. hand	49 (70%)	223 (76%)
	Non. hand	6 (9%)	22 (8%)
	Phone	10 (14%)	28 (10%)
	Cup	0 (0%)	0 (0%)
	Foot	0 (0%)	2 (1%)
Total activations		70	293
Incorrect activations		0	8
False activations		0	0
Task success rate		100%	97%

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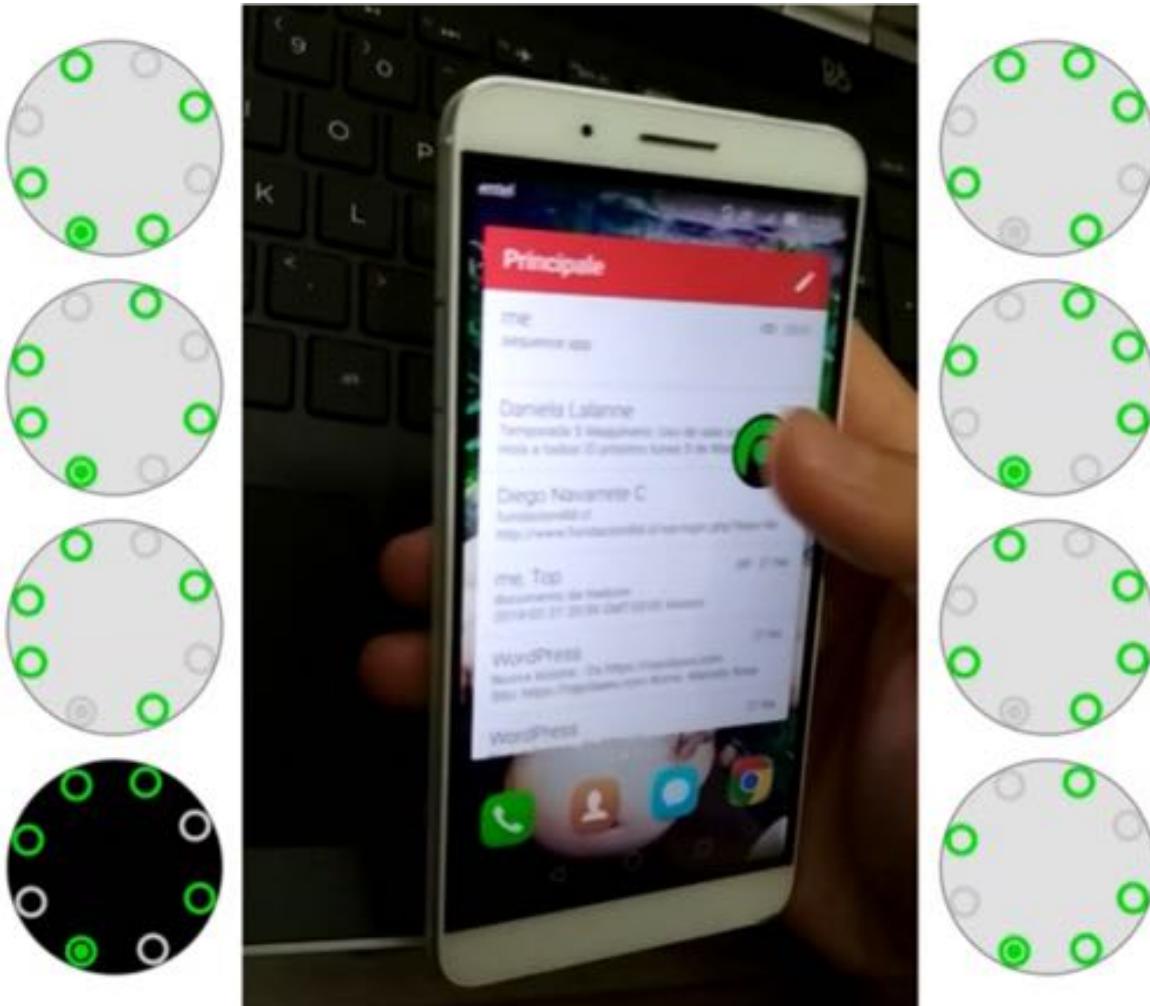
My research in HCI

SEQUENCE: a remote control technique to select objects by matching their rhythm

Alessio Bellino

Personal and Ubiquitous Computing, 2018, Springer London

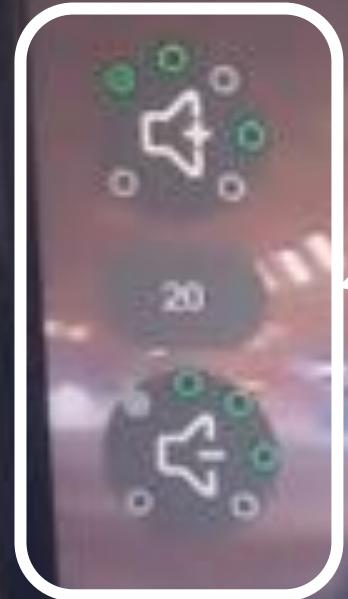
How it works



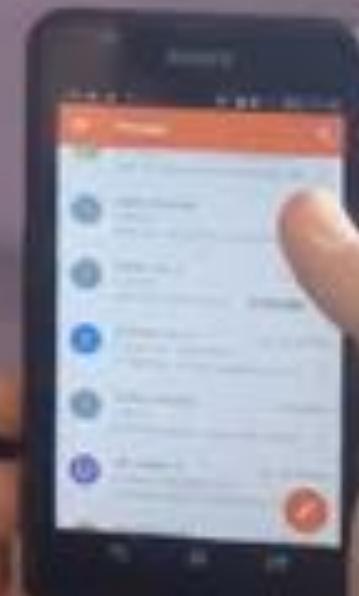
Elements display different rhythmic patterns by means of animated dots, and users can select one of them by matching the pattern through a sequence of taps on a smartphone.

SUBSCRIBE

Usage scenario: smart tv control



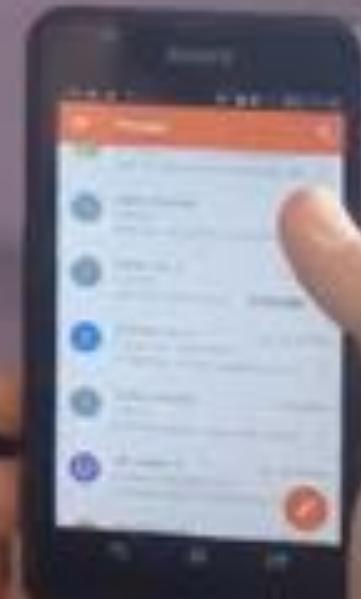
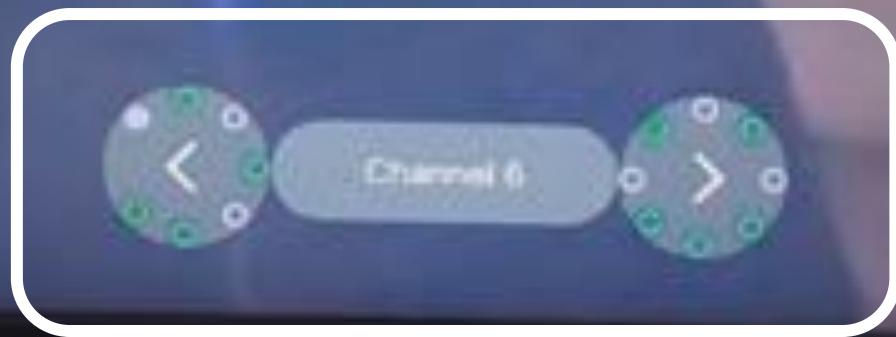
Controls to change volume



SUBSCRIBE

Usage scenario: smart tv control

Controls to change channels

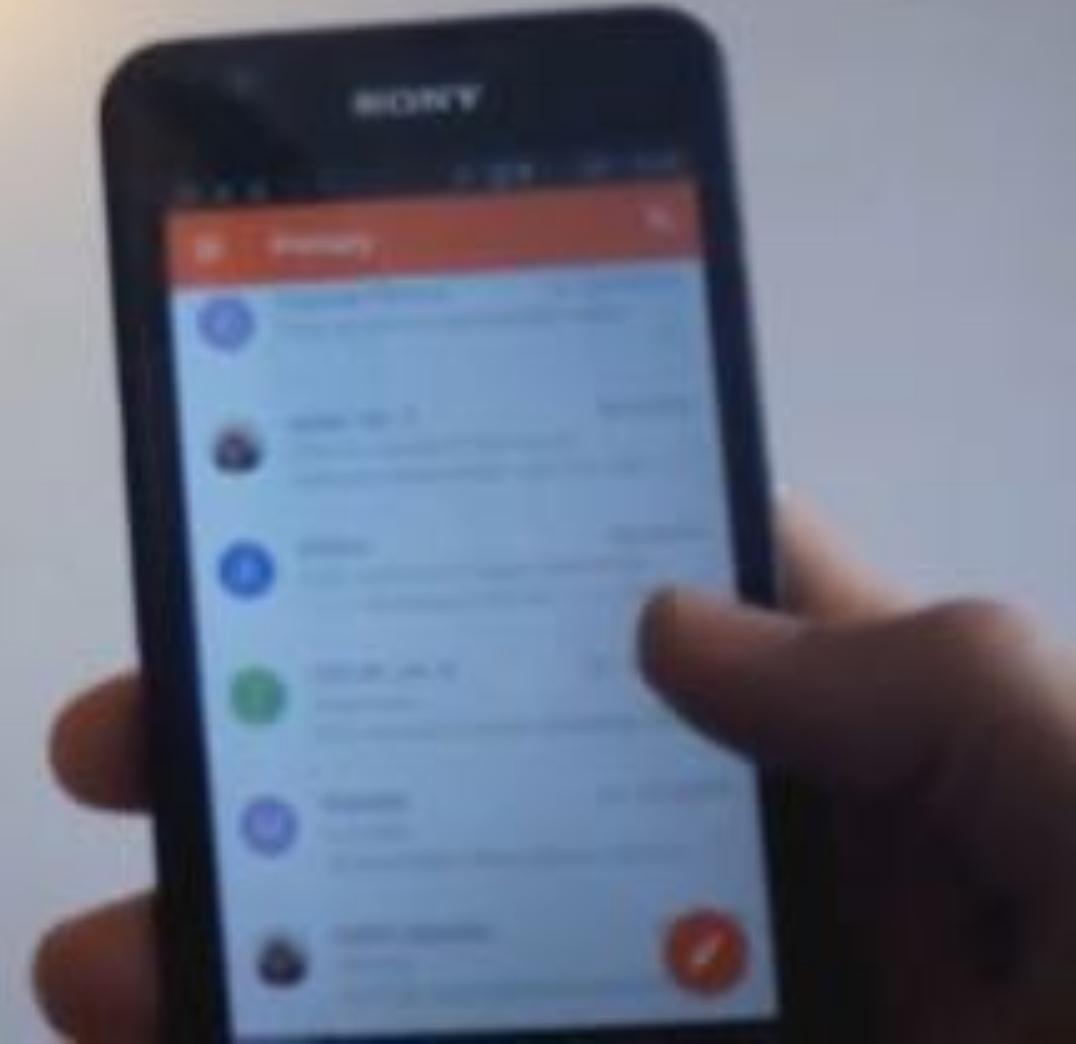




Area to tap for
matching the rhythm

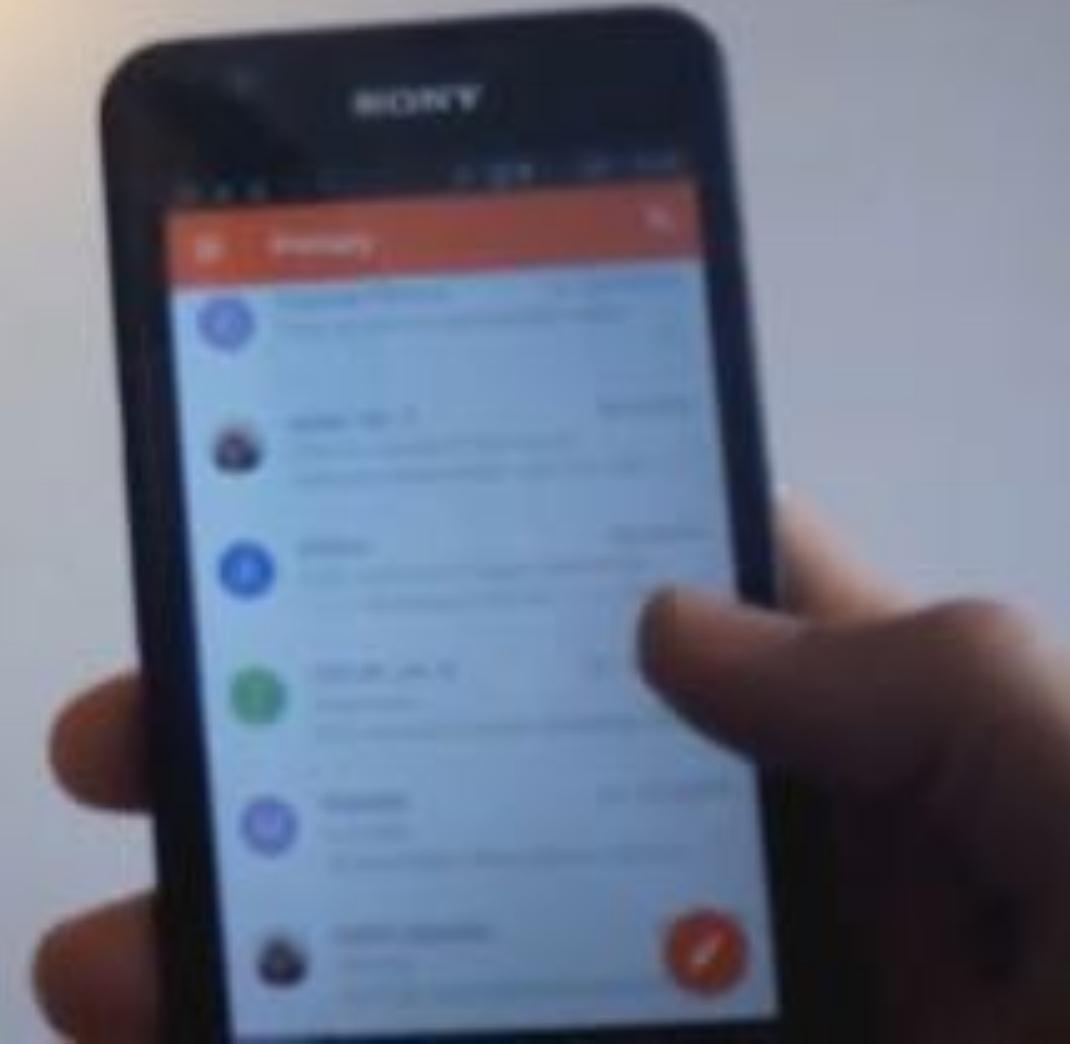
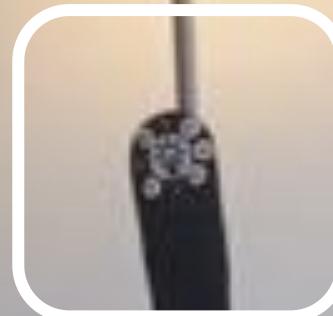
Usage scenario: smart environment

Physical widget to
turn on/off the TV



Usage scenario: smart environment

Physical widget to
turn on/off the lamp





Turn on TV

Rhythm is very flexible.
Any binary sensor can be used to mark a rhythm.



Eye blink (open/close)



Mouth open/close

Sequence with Eye blinks

So, using rhythm as input technique is very flexible, and any binary sensor can be used for marking a rhythm.

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An evaluation of WriteBetter: a concordancer integrated into a word processor

Daniela Bascuñán and Alessio Bellino

Context

Learning English using data-driven learning

In Data-driven Learning, (English) learner understand patterns or rules of language use by exploring sentences written by native speakers.

Context

Learning English using data-driven learning

In Data-driven Learning, (English) learner understand patterns or rules of language use by exploring sentences written by native speakers.



A large amount of sentences, called corpus, is needed

Context

Learning English using data-driven learning

In Data-driven Learning, (English) learner understand patterns or rules of language use by exploring sentences written by native speakers.

A software is needed to explore the corpus.



A large amount of sentences, called corpus, is needed

WriteBetter integrates corpus exploration in the word processor

The screenshot shows a Microsoft Word document with the title "Hamlet is the first tragedy in Shakespeare's series of great tragedies which is believed to be published in between 1601 and 1603. This play is one of his successful, perfect and best plays ever known. Hamlet centers on the problems arising from love, death, and betrayal, without offering the audience a decisive and meaningful resolution to these complications. Few know about the play's authorship, but it is generally accepted that William Shakespeare wrote it." A large blue circle highlights the letter "B" in the first sentence. The ribbon menu at the top includes tabs like Home, Insert, Design, Layout, References, Mailings, Review, View, Add-in, Help, and WriteBetter. The WriteBetter tab is selected, showing a sidebar with the title "WriteBetter" and "Content search". Below it, a section titled "2000 suggested edits for 'Hamlet'" is displayed, with a preview of the first few suggestions.

Hamlet is the first tragedy in Shakespeare's series of great tragedies which is believed to be published in between 1601 and 1603. This play is one of his successful, perfect and best plays ever known. Hamlet centers on the problems arising from love, death, and betrayal, without offering the audience a decisive and meaningful resolution to these complications. Few know about the play's authorship, but it is generally accepted that William Shakespeare wrote it.

WriteBetter

Content search

2000 suggested edits for "Hamlet"

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WriteBetter sidebar content:

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Smart search

13112 suggestions for 'example'

use of alcohol or cocaine. Controversies surround other proposed environmental causes; for example the vaccine hypotheses, which have been disproven. Autism affects information processing if it respond less to their own name. Autistic toddlers differ more strikingly from social norms; for example, they have less eye contact and turn-taking, and do not have the ability to use simple movement for functional speech, and deficits in joint attention seem to distinguish infants with ASD; for example, they may look at a pointing hand instead of the pointed-at object, and they consistently fail to point autism from other developmental disorders. Differences are greater for under-responsivity (for example, walking into things) than for over-responsivity (for example, distress from loud noises) or for i frogs have somewhat similar osteoderms forming bony deposits in the dermis, but this is an example of convergent evolution with similar structures having arisen independently in diverse vertebrates; for example, yellow combined with black, with the fire salamander (*Salamandra salamandra*) being an example. Once a predator has sampled one of these, it is likely to remember the colouration next time it identifies the use of coordinated whole-body movement and balance similar to yoga or pilates. For example, many dojos begin each class with , which may include stretching and ukemi (break falls) as a defensive martial art. It makes use of body movement (ta sabaki) to blend with uke. For example, an "entering" (nui) technique consists of movements inward towards uke, while a technique takes their concentration. The target may become unbalanced in attempting to avoid the blow, for example by jerking the head back, which may allow for an easier throw.

(kg or 550lb). Prices were fixed across the country and recorded in lists to facilitate trading; for example a shirt cost five copper deben, while a cow cost 140 deben. Grain could be traded for other goods. Suffixes are added to form words. The verb conjugation corresponds to the person. For example, the triconsonantal skeleton is the semantic core of the word 'hear'. Its basic conjugation is . 'he apyutu', a poem of lamentations describing natural disasters and social upheaval, is a famous example.

tenebres on tomb and temple walls, coffins, stelae, and even statues. The Narmer Palette, for example, displays figures that can also be read as hieroglyphs. Because of the rigid rules that governed the Second Intermediate Period, Minoan-style frescoes were found in Avans. The most striking example of a politically driven change in artistic forms comes from the Amarna period, where figures at the foot of the Great Pyramid of Giza in the Fourth Dynasty around 2500BC, is a full-size surviving example that may have filled the symbolic function of a solar barque. Early Egyptians also knew how to handle a numerator greater than one, they had to write fractions as the sum of several fractions. For example, they resolved the fraction two-thirds into the sum of one-third + one-sixth. Standard tables of measurements of ancient Egypt have left a lasting legacy on the world. The cult of the goddess Isis, for example, became popular in the Roman Empire, as obelisks and other relics were transported back to Rome. Despite the country's historical legacy, some foreigners left more positive marks. Napoleon, for example, arranged the first studies in Egyptology when he brought some 150 scientists and artists to study the country (by interpolation or extrapolation), using theoretically or empirically derived methods. For example, halogens get darker with increasing atomic weight- fluorine is nearly colorless, chlorine is yellow-green. Despite this controversy, many properties of diatomic astatine have been predicted; for example, its bond length would be 300 ± 10 pm, dissociation energy 83.7 ± 12.5 kJ·mol⁻¹, Cl₂, Br₂, I₂ persulfate in a solution of perchloric acid. The well characterized anion can be obtained by, for example, the oxidation of astatine with potassium hypochlorite in a solution of potassium hydroxide. Pm)

The bismuth (or sometimes bismuth trioxide) target is dissolved in, for example, concentrated nitric or perchloric acid. Astatine is extracted using an organic solvent such as I₂ and attempting to predict their behavior using classical physics – as if they were billiard balls, for example – gives noticeably incorrect predictions due to quantum effects. Through the development of nuclear theory could explain why water absorbs different gases in different proportions. For example, he found that water absorbs carbon dioxide far better than it absorbs nitrogen. Dalton hypothesis states join to form a heavier nucleus, such as through the energetic collision of two nuclei. For example, at the core of the Sun protons require energies of 3–10 keV to overcome their mutual repulsion—the electron binding energy—is far less than the binding energy of nucleons. For example, it requires only 13.6eV to strip a ground-state electron from a hydrogen atom, compared to 2.

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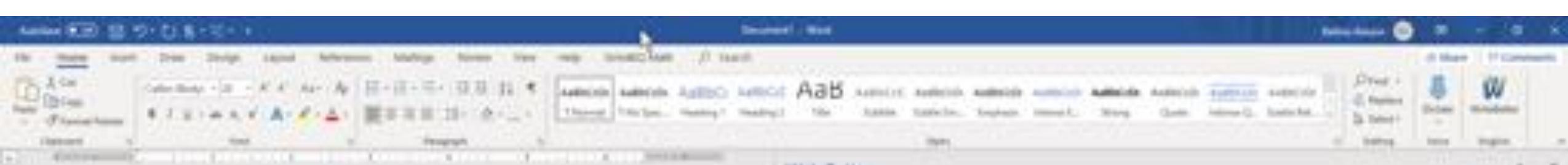
Just select a word and see examples.



... and more.



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April 2011

Winter Edition

Q 10000

49

File: Insert menu.html - 1995 related menu.html

Hundsdorff was proven right. **After all**, Fermi had dismissed the possibility of Reson on the basis of his calculations.

The closing ceremony of the Olympic Games takes place **after all** sporting events have concluded. Flag-bearers from each nation provided the basis for an unequalled political strength. **After all**, Clinton finally accepted the new democracy and did not cultivate people about their rights. In this way, he wrote, was public assistance forced in the role of a shadow administration.

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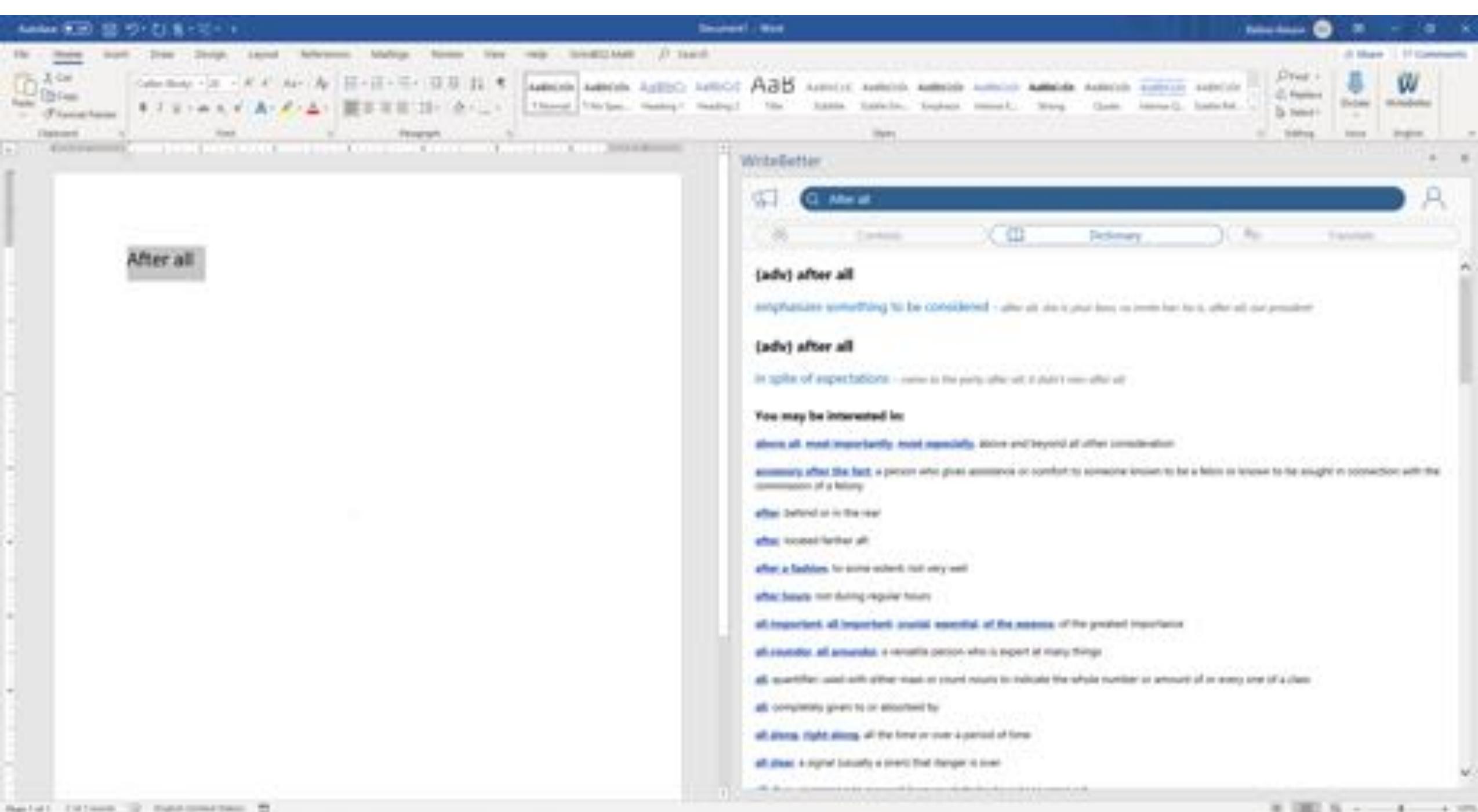
After all, Clinton finally accepted the new democracy and did not cultivate people about their rights. In this way, he wrote, was public assistance forced in the role of a shadow administration.

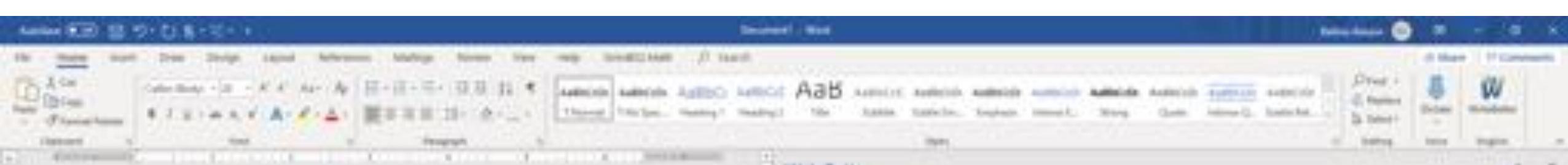
Asian Journal of Mathematics

independent now. So, you see, a girl may be *INDEPENDENT*. **After all**: Off course I shall see Mr. Gingewalt in San Francisco, but he's old. He has taken a leaf out of my book! He is not so stupid. **After all**: (Aloud) I have no secret. Col. Starbottle came here to me before a word from you within the next few days destroys it. **All After**: That, I care not what you say.

hand, appeared larger, as if they had absorbed the granules. **After** 23 hrs. **all** the glands were broken; their prismatic outline pronounced in two or [page 212] three additional minutes. **After** 16 hr. **all** five leaves were soft, and some of them closely gynoic; and the fourth, twelfth, chiefly submerged, infected. **After** 21 hrs. **all** these marginal tentacles re-expanded, but a few quickly ran amiss; but in about a quarter of an hour, shortly **after all** the little yellow ants had crawled away, they took heart at

"Tinner time-sails which we were missing, and that, after all, was the main thing. We drifted slowly, very slowly, as the sun went down over the sea. Well, it was a common cabbage field and potato patch after all, in his disgust he felt conscious of even the loss of that sort of justification that suspicion. The view taken by Bright was, after all, that which most business men would take—which you'd partly confide in him and ask his advice. Was she doing right, after all? Ought she not to have stayed long enough to speak her heart, but there no malice for the trick she had played on him. After all, he had kissed her—he had no right to complain, if she at all could, without betraying Enriqueta. Indeed, it was possible, after all, that it might not have been her.





After all

Write better



After all

Content

Dictionary

Translators

Change

After all

Después de todo

After all

Después de todo

After all

Después de todo

After all

Después

After all

Después de todo

After all

Después de todo

After all

Al final y al inicio

After all

Al final tengo todo (verb)

After all

Después de todo

Write Better

My research in HCI

Touch&Screen: widget collection for large screens controlled through smartphones

TraceMatch: a computer vision technique for user input by tracing of animated controls

Two new gestures to zoom: Two-Finger-Tap for tablets and Tap&Tap for smartphones

Camera Keyboard: text entry for touch devices using cameras

Probject: a rapid prototyping platform for IoT and smart home

An evaluation of WriteBetter: a concordancer integrated into a word processor

SEQUENCE: a remote control technique to select objects by matching their rhythm

My research in HCI

Enhancing Pinch-Drag-Flick Paradigm with Two New Gestures: Two-Finger-Tap for Tablets and Tap&Tap for Smartphones

Alessio Bellino

Human-Computer Interaction–INTERACT 2015: 15th IFIP TC 13 International Conference,
Bamberg, Germany, September 14–18, 2015 (Springer)

What Pinch-Drag-Flick Paradigm is



**Navigate
2D spaces**

*Pinch to zoom
Drag&Flick to pan*

The Pinch on Smartphones has a Drawback



*The pinch cannot
be used easily
with just one
hand.*

Two new Gestures to Zoom

Tap&Tap for Smartphones



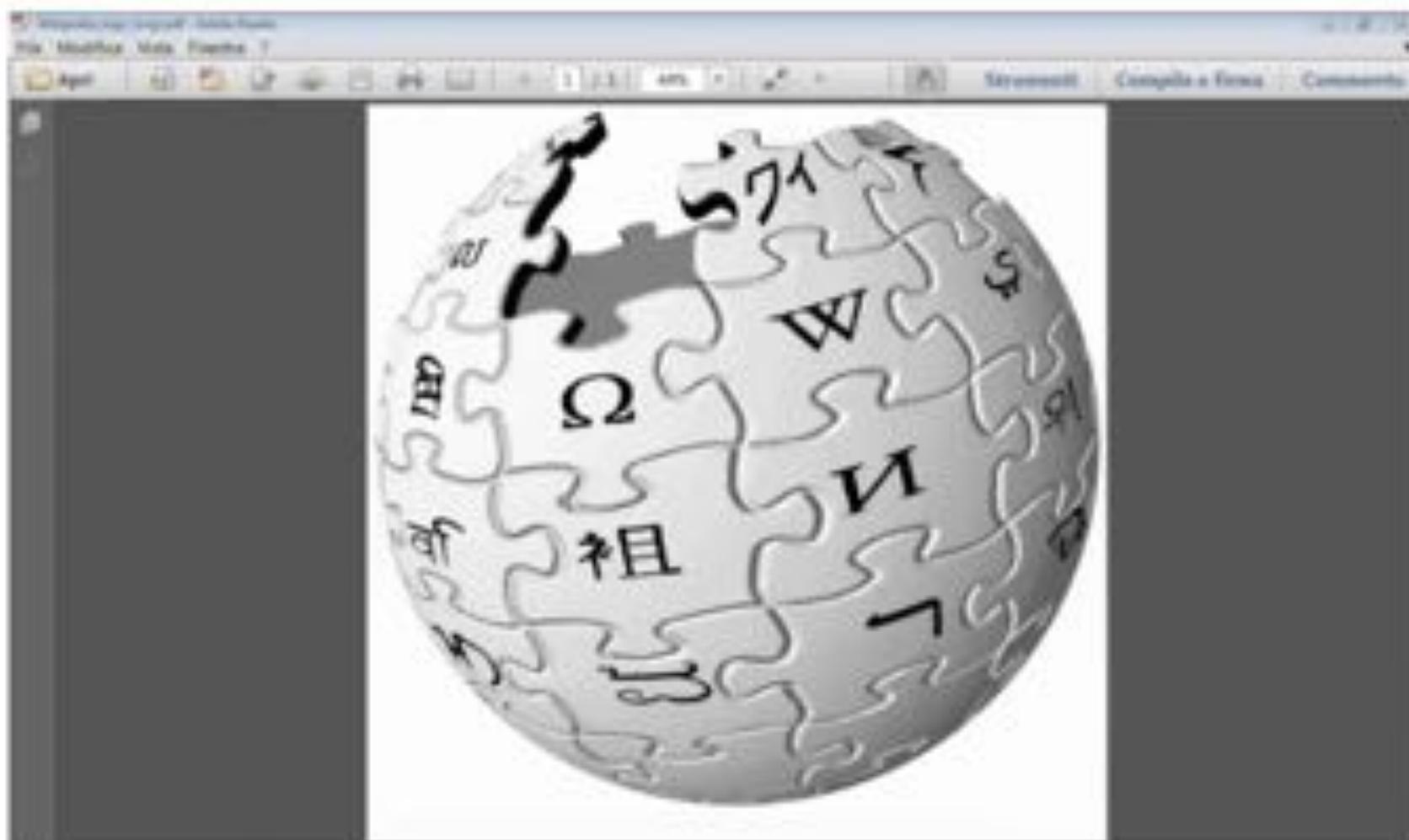
(Designed for one-hand usage)

Two-Finger-Tap for Tablets



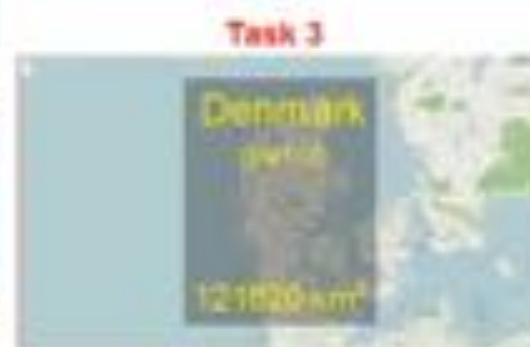
(Designed for two-hands usage,
just like the pinch)

The Inspiration: Covering the Container (e.g. Adobe PDF Reader Marquee Zoom)



Speed Test: Pinch vs. new Gestures

Question: how does it take to zoom from the **entire world** into the **four areas** on the right?
Execution times were automatically calculated both with the pinch and the new gestures.



Speed Test: Results of Comparison

(times in milliseconds)

	Tablet times		Smartphone times			
	Pinch	Two-Finger-Tap	Pinch	Tap&Tap		
Sicily	r = -2.896; p<0.004*	3909 (SD=1000)	2375 (SD =1051)	r = -1.851; p<0.064	3924 (SD=893)	3285 (SD=947)
Bicocca	r = -2.722; p<0.006*	8802 (SD=1822)	6644 (SD=2871)	r = -2.809; p<0.005*	8683 (SD=1466)	7531 (SD=1673)
Denmark (part of)	r = -3.027; p<0.002*	3760 (SD=1170)	2173 (SD=1167)	r = -1.807; p<0.071	2921 (SD=800)	2405 (SD=695)
Berlin	r = -2.853; p<0.004*	5814 (STD=2506)	4141 (SD=2331)	r = -2.853; p<0.020*	4953 (SD=1247)	4192 (SD=1005)
Total time	r = -3.680; p<0.001*	22186 (SD=4994)	15334 (SD=4995)	r = -3.462; p=0.001*	20482 (SD=2721)	17414 (SD=2595)

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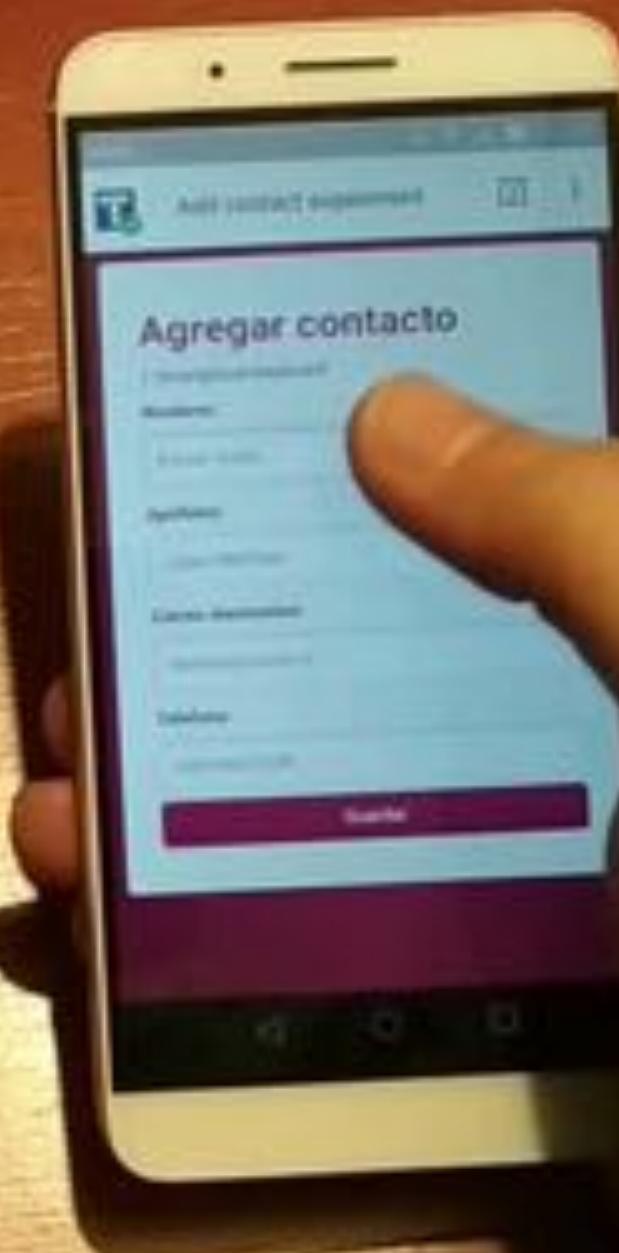
SEQUENCE: a remote control technique to select objects by matching their rhythm

My research in HCI

Camera Keyboard: text entry for touch devices using cameras

Alessio Bellino and Valeria Herskovic

Work in progress





Agregar contacto

1 Smartphone-keyboard

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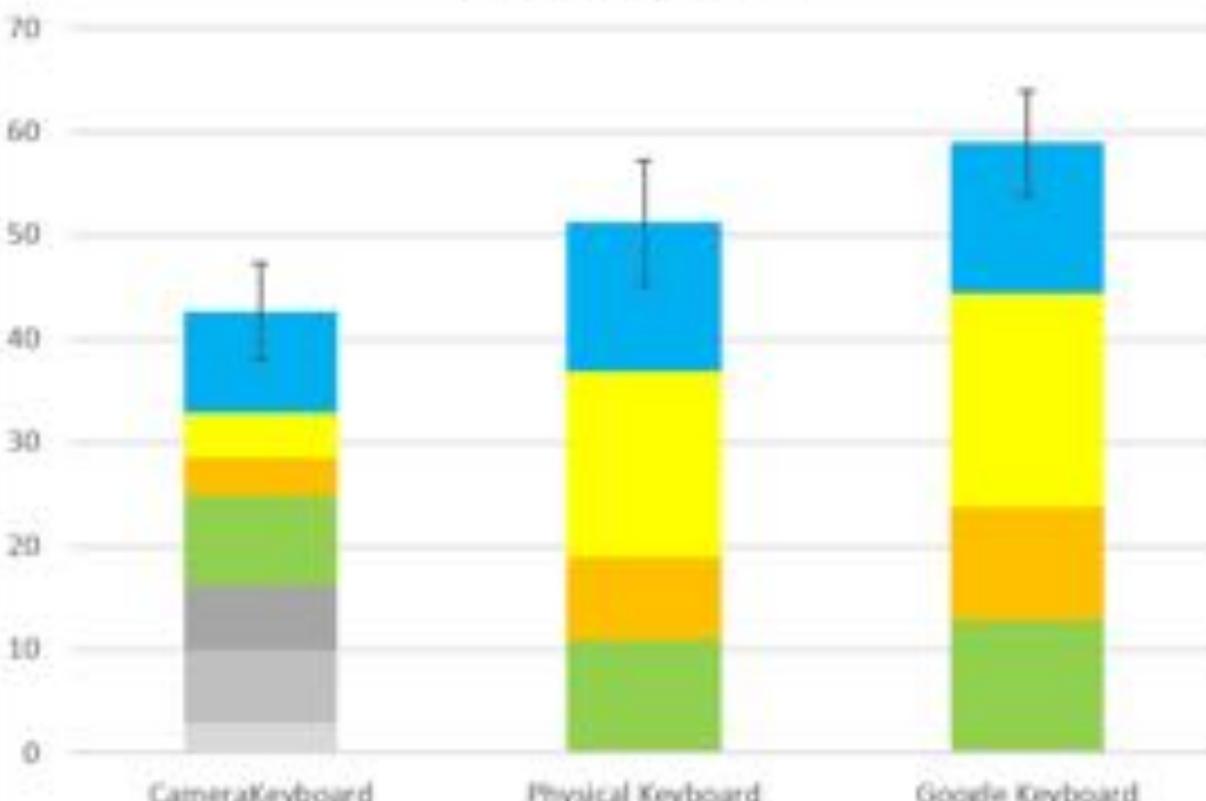
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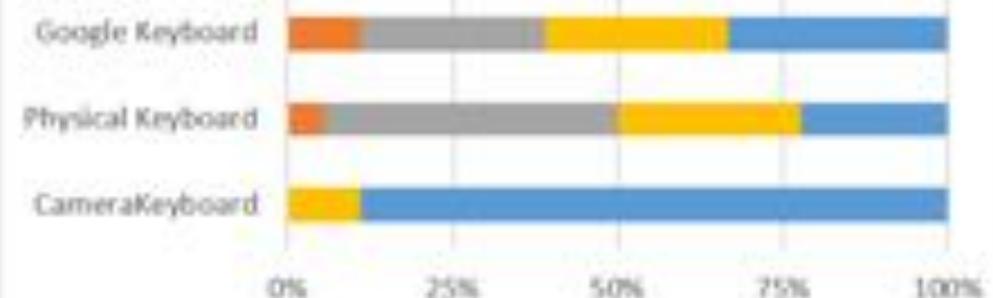
+56995413254

Guardar

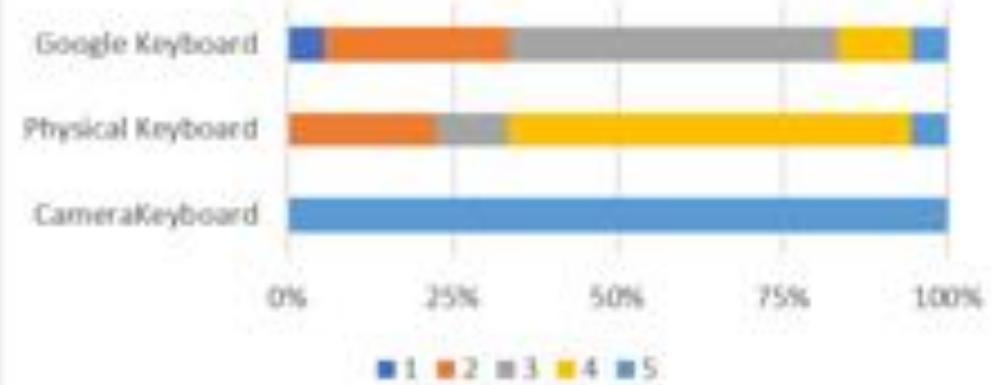
Execution times



Easiness



Perceived Speed



● OCR Press ● Shoot Time ● Text Extraction ● Name ● Surname ● E-mail ● Phone

■ 1 ■ 2 ■ 3 ■ 4 ■ 5



Cédula de identidad

1 Smartphone-keyboard

Apellidos:

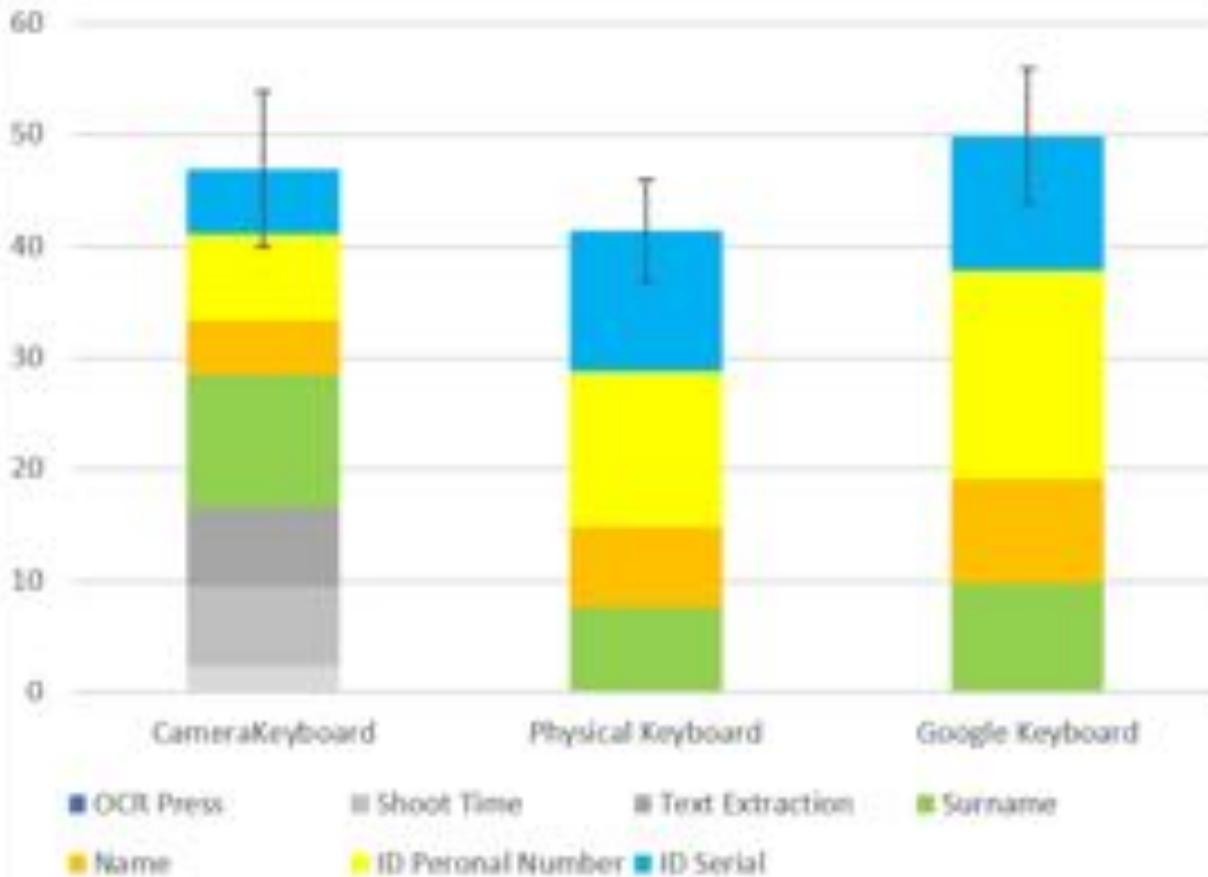
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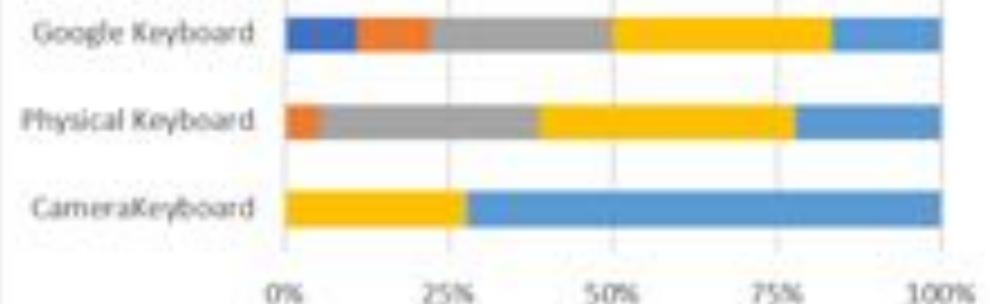
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Enviar

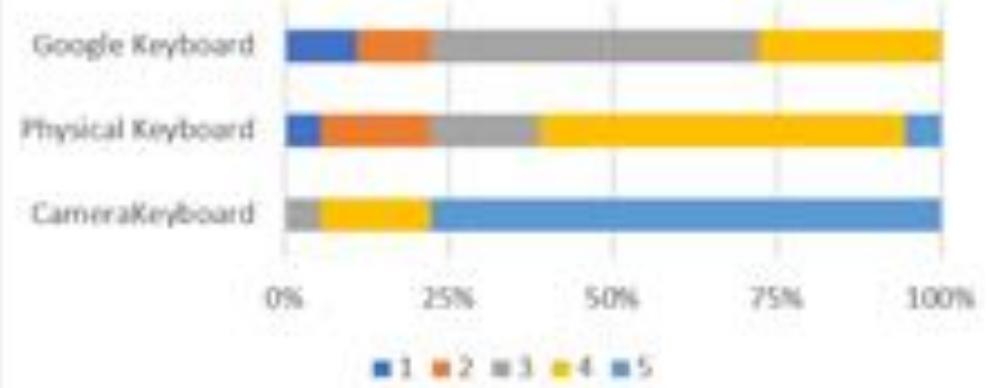
Execution times



Easiness



Perceived Speed



Contact Card Representation

Simpler



Document ID Representation

More complex





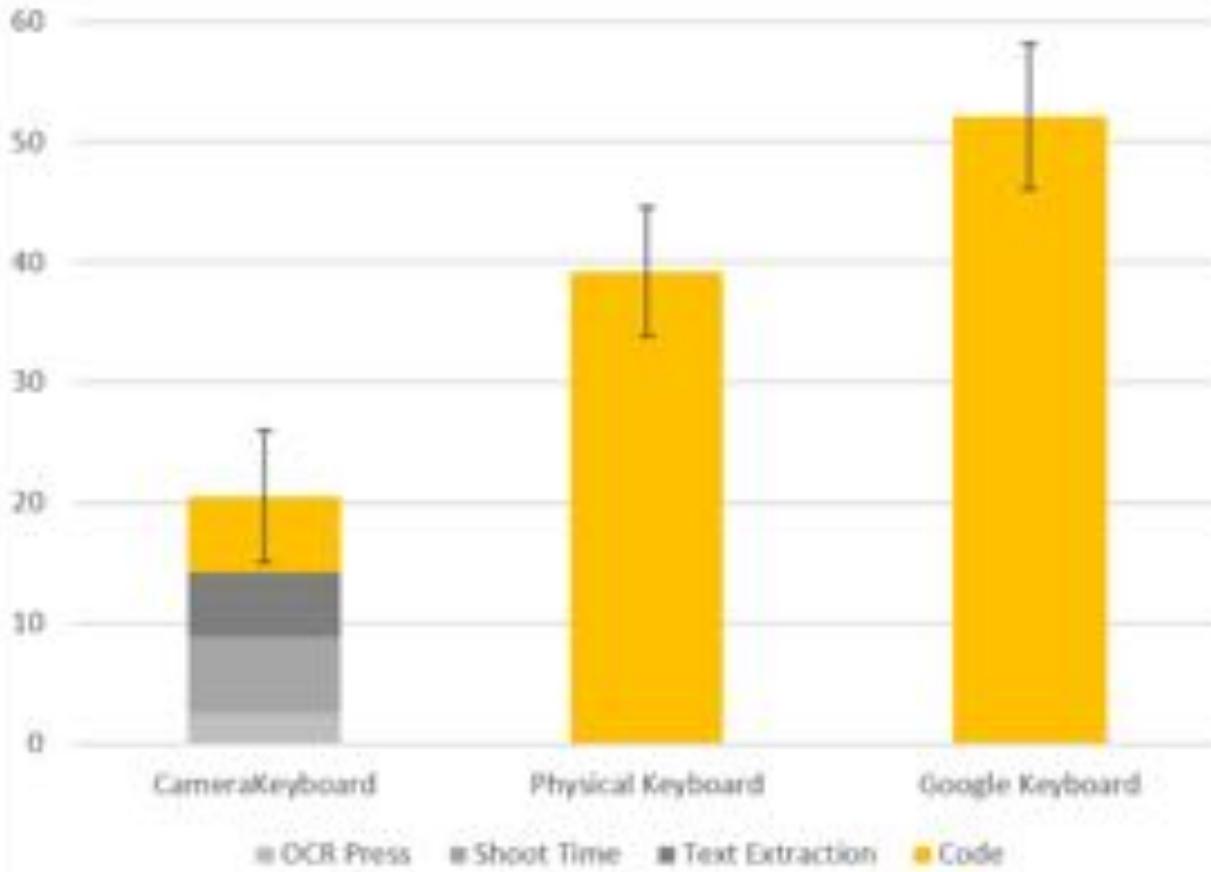
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1 Smartphone-keyboard

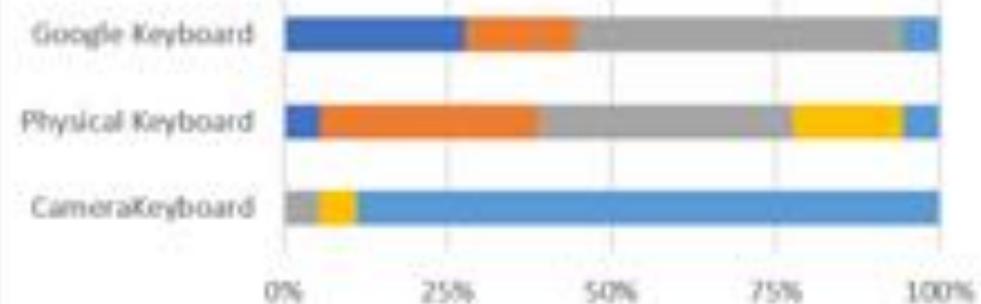
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Consultar

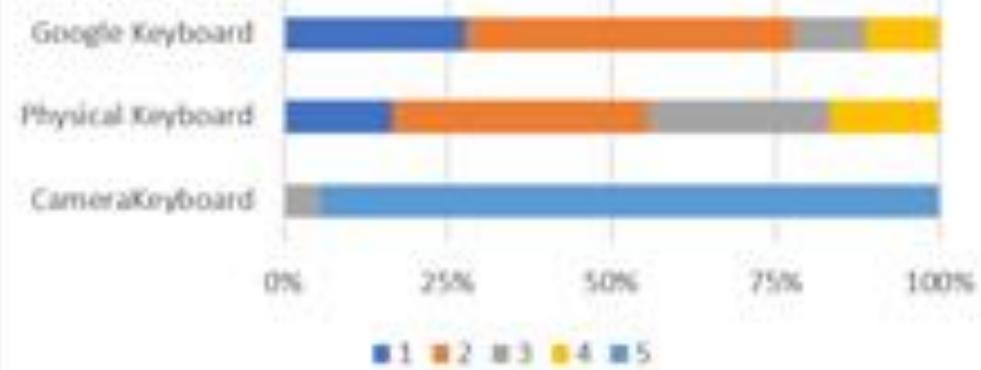
Execution times



Easiness



Perceived Speed



Arquitectura y clima: manuales actualizados de diseño bioclimático para arquitectos y urbanistas

América Méndez

Stadium, pabellón de Chile en la Bienal de Venecia 2018, se presenta a través de la construcción de un modelo a gran escala del Estadio Nacional de Santiago, con el objetivo de ilustrar las políticas locales de vivienda. La exposición, comisariada por la arquitecta Alejandra Celedón, busca que estos elementos –frágiles y pesados a la vez– cuenten la historia del momento en que los ciudadanos 'sin casa' pasan a ser propietarios por primera vez, a modo de "fragmentos simbólicos de esta transmutación". Descripción por el equipo. Al centro de Sala dell'Isoloto se ubica un modelo a gran escala de un edificio hecho de tierra apisonada. Tras un examen más minucioso, las sesenta piezas que componen la forma ovalada del edificio ya no parecen hechas de tierra, sino más bien talladas en ella. Las distintas capas con ligeras variaciones de color y textura nos recuerdan que es el suelo lo que está en juego en el Pabellón de Chile.

Enviar artículo

1 Smartphone-keyboard

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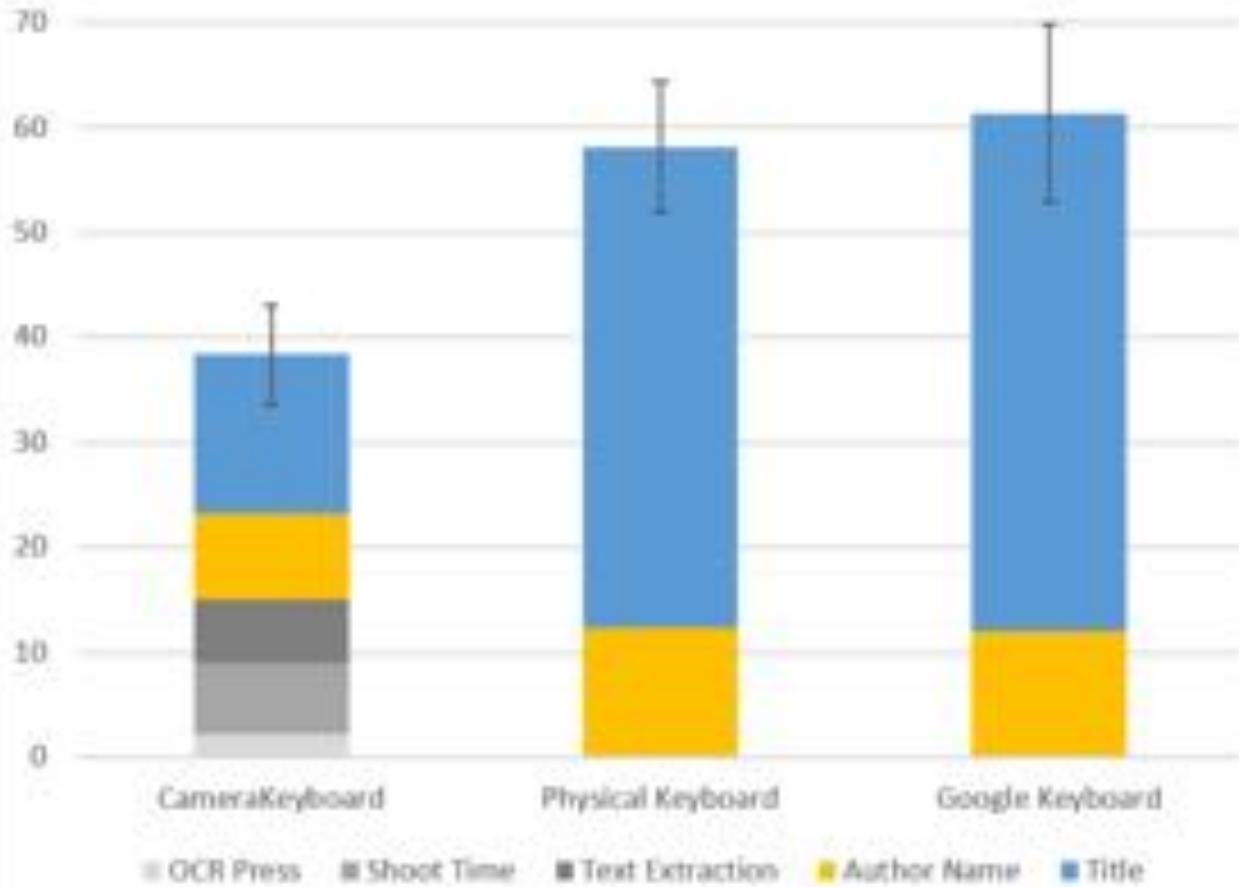
Rolando Moya

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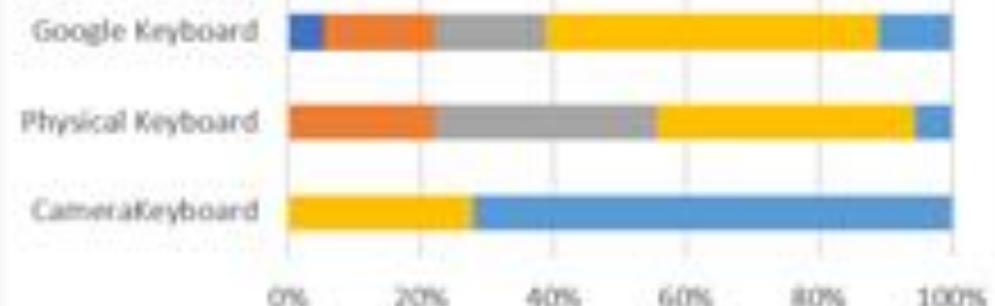
ej., Las funciones compostas en el infinito cósmico

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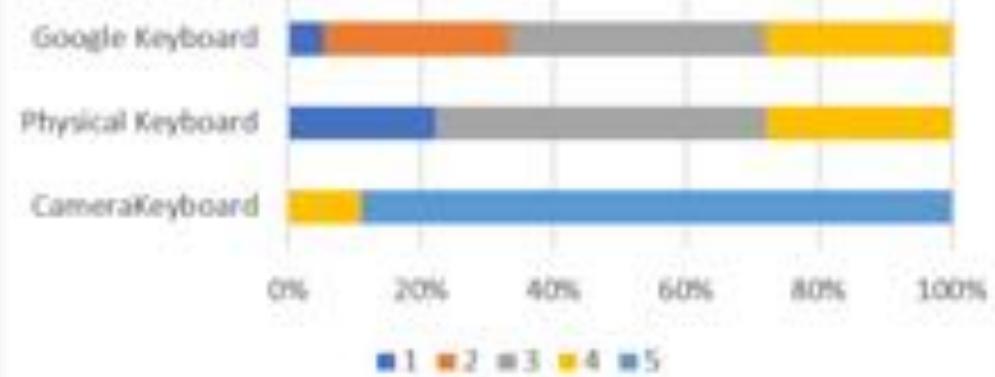
Execution times



Easiness



Perceived Speed



Summing Up

Protobject (prototyping, design, sensing, computer vision, machine learning, collaboration)

Touch&screen (interaction technique, novel UI, touch devices)

TraceMatch (interaction technique, computer vision, sensing, novel UI, gestural interaction)

Sequence (interaction technique, music, computer vision, sensing, novel UI)

WriteBetter (situated computing, data-driven learning, linguistics, data visualization)

Gestures to zoom (interaction technique, novel UI, gestural interaction)

CameraKeyboard (interaction technique, computer vision, touch devices)

Transversal skills: psychology, sociology, design, qualitative and quantitative analysis

References

<https://scholar.google.com/citations?hl=it&user=ttvfk0IAAAJ>

<https://alessiobellino.com>