

User-Defined Gestures For Augmented Reality

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Human-Computer Interaction

What is AR?

AR = Augmented Reality = Reality++

- Pokemon Go and Ingress
- Hololens
- Google
 - Glass
 - Lens
 - Translate

Industry

Education



[2]

AR problems

Battery

Lots of tech; Little Space

Social Normalisation (you look weird)

Content Creation

Usability, and standardisation

- History
- Experience

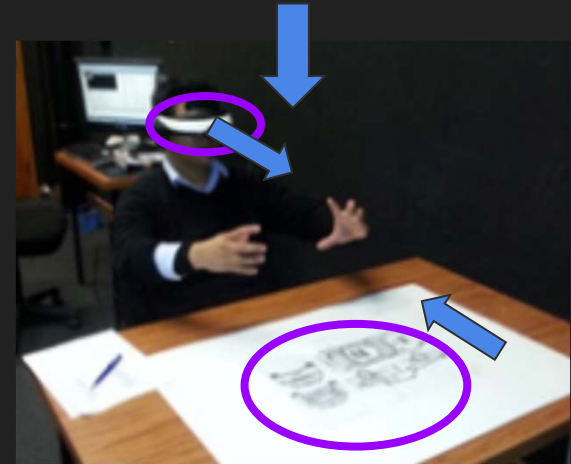
Overview

Create a consensus set of tasks

40 user defined tasks

20 participants

- 12 male, 8 female, aged 18 to 38
- Minimal AR knowledge and experience.



[1]

The Tasks

Transform

Move -

Short, Long

Rotate -

Roll(x),

Pitch(y),

Yaw(z),

Scale -

x, y, z,

Uniform

Simulation/media controls

Play/Resume

Pause

Stop/Reset

Speed - Increase,

Decrease

Browsing

Previous

Next

The Tasks

Editing

Insert	Delete
Undo	Redo
Group	Ungroup
Accept	Reject
Cut, Copy, Paste	

Selection

Single, Multiple, Box,

All

Menu

Horizontal

Vertical

Object centric

Open, Close, Select

Kinds of Gestures [3]

Form

Nature

Binding

Flow

Symmetry

Locale

Kinds of Gestures

Form

- Static pose

- Dynamic pose

- Static pose and path

- Dynamic pose and
path

 - (one-point touch)

 - (one-point path)

Kinds of Gestures

Nature

Symbolic

Physical

Metaphorical

Abstract

Kinds of Gestures

Binding

Object-Centric

World-dependant

World-independant

Mixed dependencies

Kinds of Gestures

Flow

Discrete

Continuous

Kinds of Gestures

Symmetry

Dominant unimanual

Non-dominant
unimanual

Symmetric bimanual

Asymmetric bimanual

Kinds of Gestures

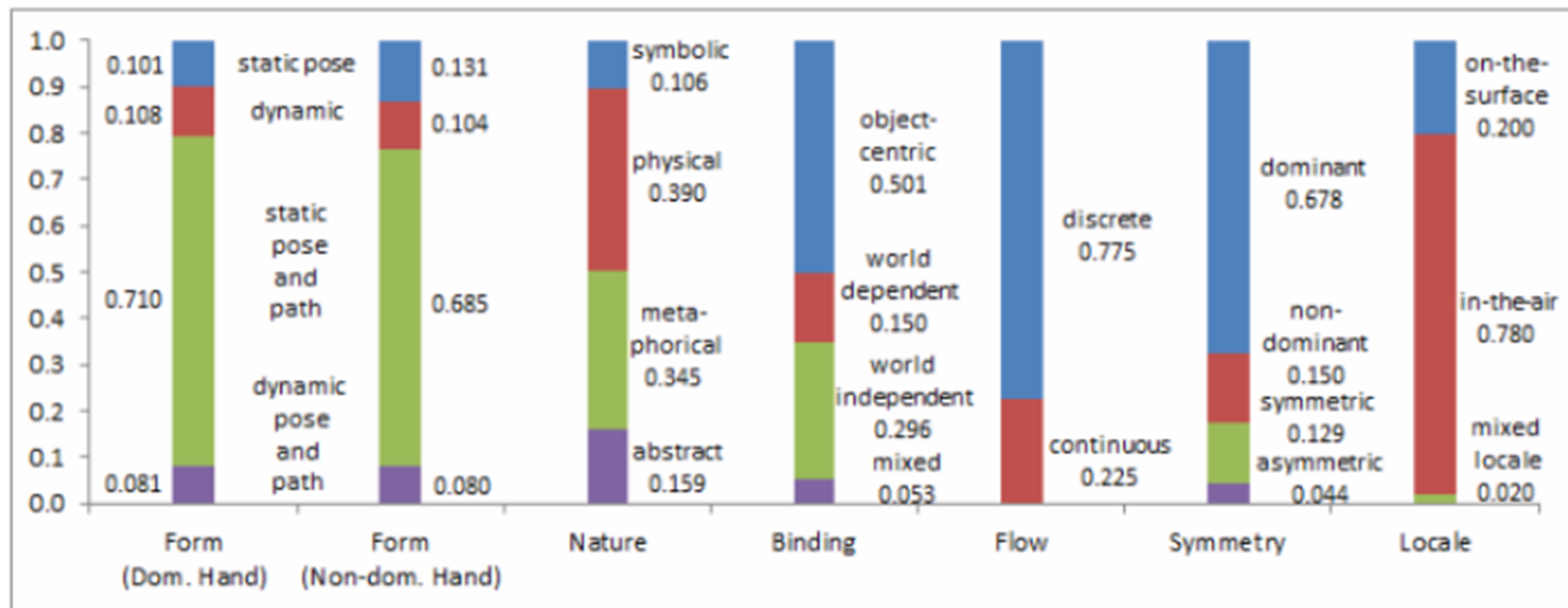
Locale

on-the-surface

in-the-air

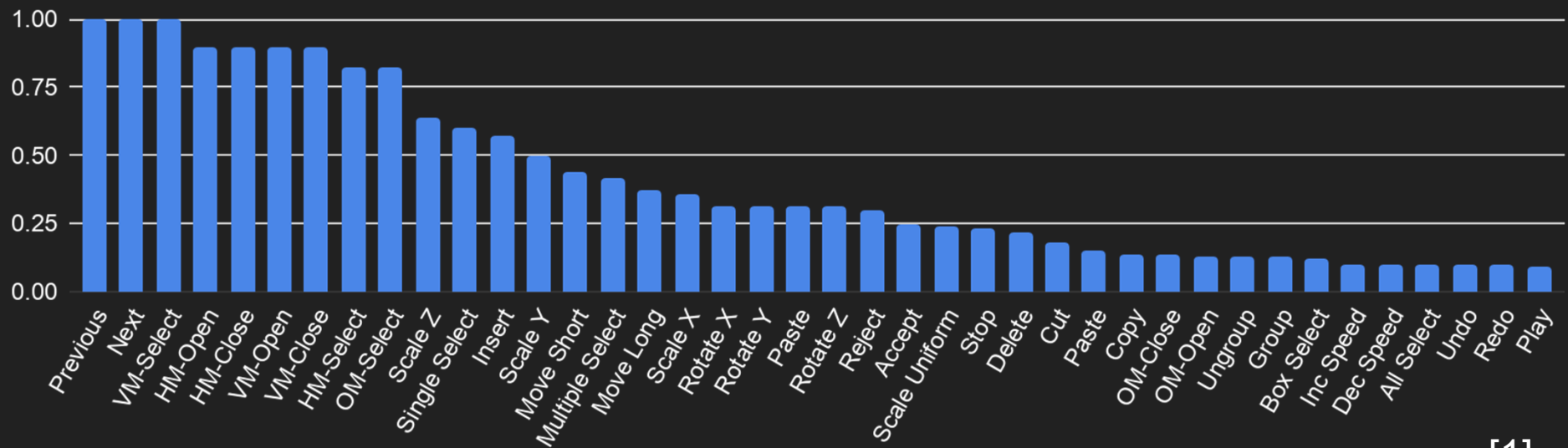
Mixed locales

Kinds of Gestures

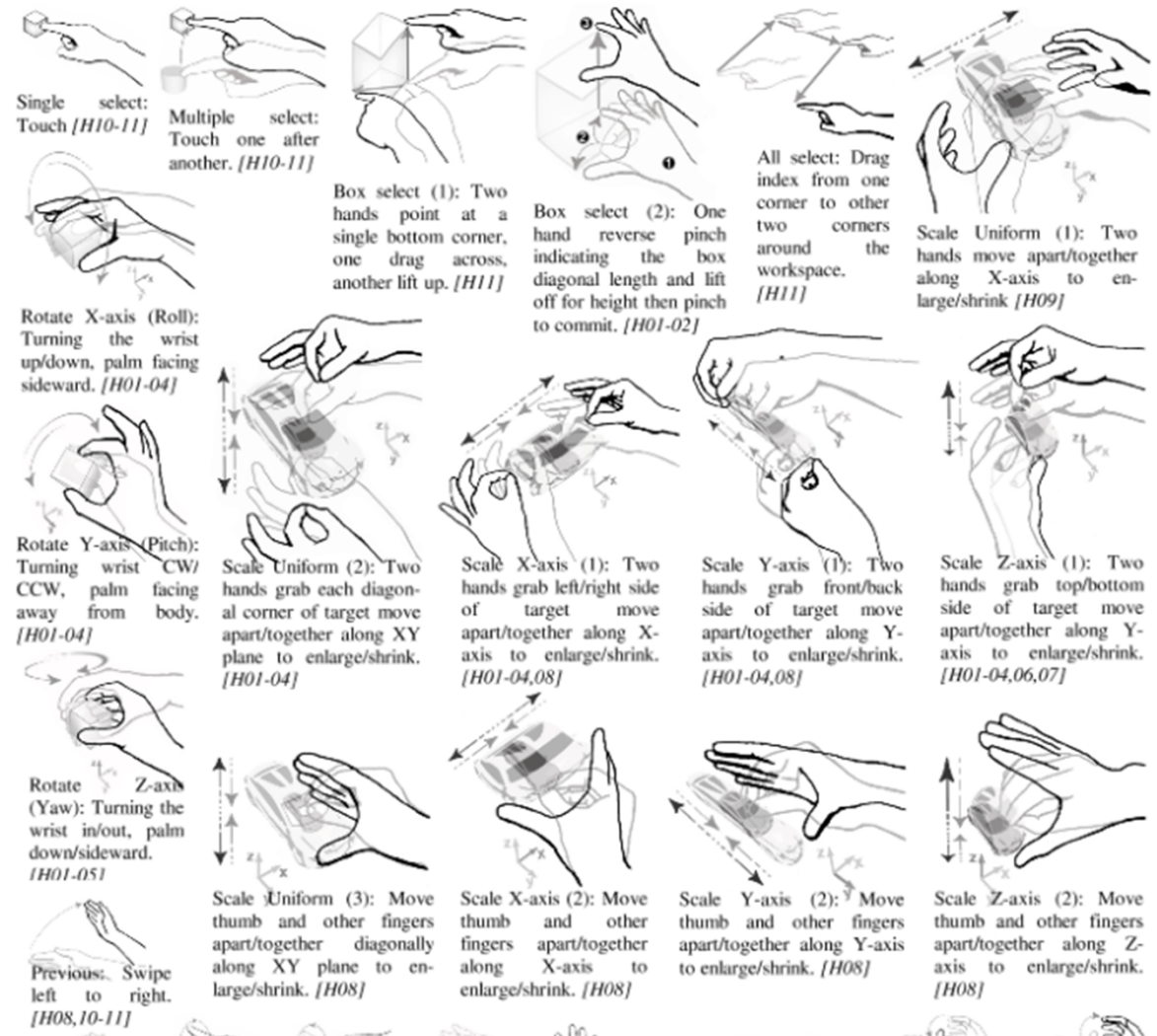


Agreement

$$\sum_{n=0}^t \left(\frac{p_n}{20}\right)^2$$



Consensus set



Analysis

Previous experience

Camera placement influence

Goodness

Menus

Bias

References

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[3]

S. Suhono, “SURFACE STRATEGY TAXONOMY ON THE EFL STUDENTS’ COMPOSITION A STUDY OF ERROR ANALYSIS,” vol. 1, no. 2, p. 1, Aug. 2017, doi: 10.25217/ji.v1i2.128.