
# InSTInCT

**In**terfaces dédiées aux **S**urfaces **T**actiles pour de l'**In**teraction avec des **C**ontenus **T**ridimensionnels

*Touch-based 3DUI*

# Partners

- Iparla (INRIA Bordeaux)
- MINT (INRIA Lille)
- Immersion
- Cap Sciences






Projet ANR CONTINT: 2009 - 2012

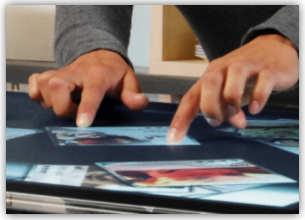
# Main objective

**Favor easy and efficient interaction with 3D content displayed on touchscreens**

*For*
*museums,*
*schools,*
*artists,*
*archaeologists …*

# Research axes

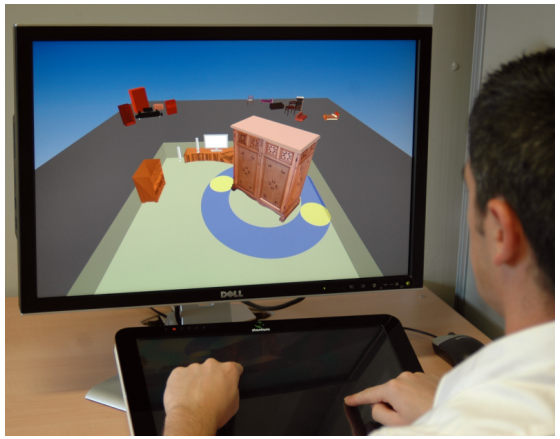
Standard interaction with 3D content → **Touchscreens** → New interfaces



- **Human factors**
- **Interaction techniques**
- **Conception of new systems**
- **Usages**

# Human factors

Understand motor / cognitive skills



*Multi-touch RST in 2D and 3D Spaces:*

*Studying the Impact of Directness on User Performance*

Sebastian Knoedel and Martin Hachet

IEEE 3DUI 2011 - Symposium on 3D User Interfaces

- Direct interaction is faster and more “appealing”
- Indirect interaction may be valuable, particularly when interacting with 3D content

# Interaction techniques

Design of new UI

*The Design and Evaluation of 3D Positioning Techniques for Multi-touch Displays.*

A. Martinet, G. Casiez, & L. Grisoni.

IEEE 3DUI 2011 - Symposium on 3D User Interfaces

*The Effect of DOF Separation in 3D Manipulation Tasks with Multi-touch Displays*

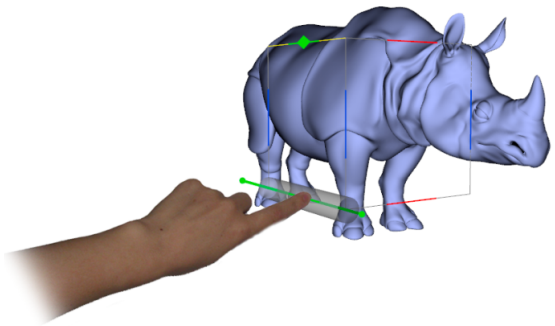
A. Martinet, G. Casiez, & L. Grisoni.

ACM VRST 2010 - Symposium on Virtual Reality Software and Technology

- The mapping between the DOF of the input device and the DOF of the task requires careful design
- Separating the control of translation and rotation significantly affects performance for 3D manipulation

# Interaction techniques

Design of new UI



*tBox: A 3D Transformation Widget designed for Touch-screens*

Aurélie Cohé, Fabrice Dècle, and Martin Hachet

CHI 2011 - Conference on Human Factors in Computing Systems

Tangibles
Thursday 11am

- Adapt 3D transformation widgets to touch-screens
- Benefit from the touch paradigm

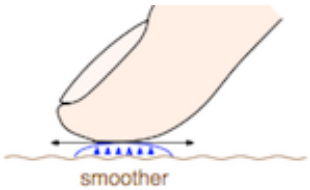
# Systems

Extend the input/output space

*Surfpad: Riding Towards Targets on a Squeeze Film Effect.*

G. Casiez, N. Roussel, R. Vanbelleghem, & F. Giraud.

CHI 2011 - Conference on Human Factors in Computing Systems




Touch 2: Tactile & targets
Wednesday 2pm

- Seamless integration of tactile input and output in a single device
- Tactile output used as a pointing facilitation technique

# Ongoing work

## Large scale experiments

Hundreds of participants

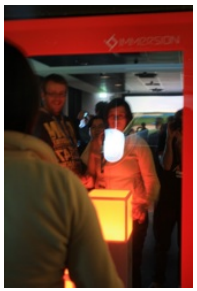
Cubtile

Touchscreens vs. Joysticks vs. Mice

## New systems

Touchscreen + stereoscopic visualization

Touchscreen + 3D spatial interaction



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# Conclusion

Touchscreens are very popular

May contribute to open interactive 3D graphics to every one (general public)…

…if 3D UI are well designed


http://anr-instinct.cap-sciences.net