



DH2323 DGI15

INTRODUCTION TO COMPUTER GRAPHICS AND INTERACTION

HCI: A brief intro

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SUDOJA

Stockholm University

First meeting on Monday 18th, 1p.m.

Visualisation Studio

(see KTH Social post)

Important to attend Monday 18th and
Wednesday 20th lectures

Human Computer Interaction

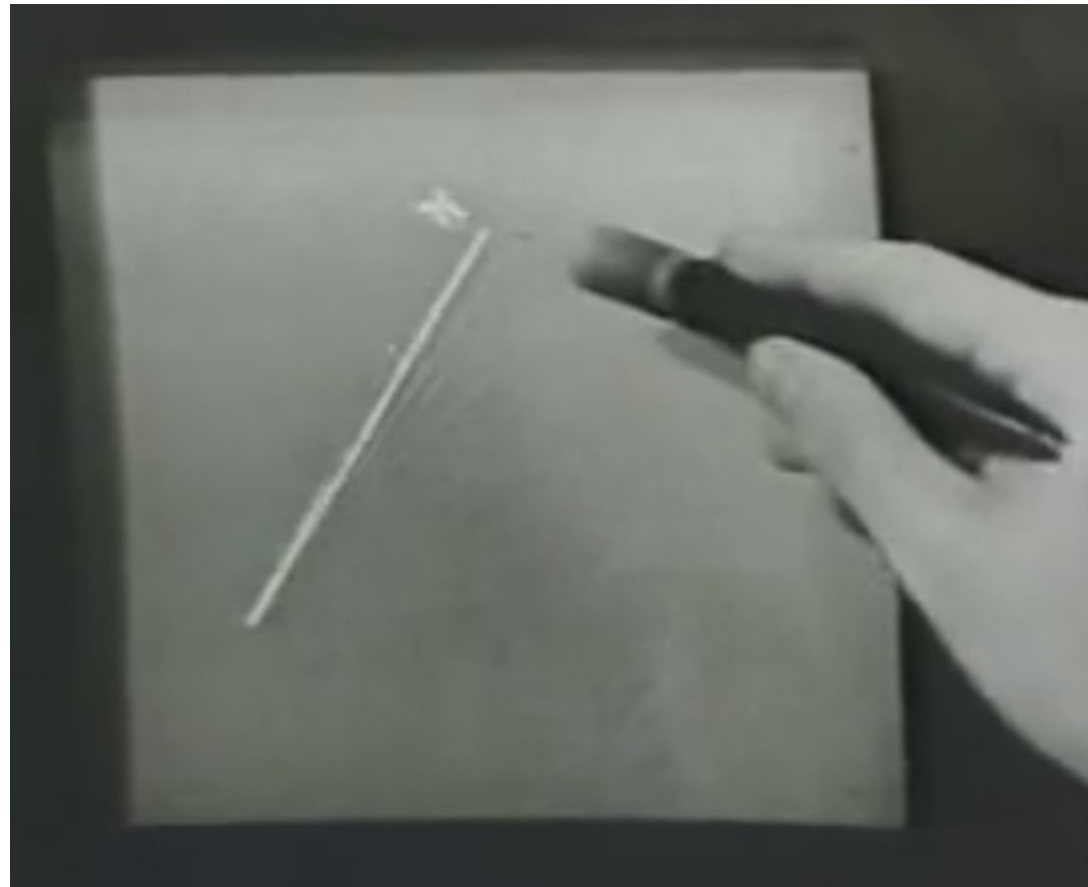
- Have been considering *interactive* applications
 - Real-time updates of the graphical environment
 - Prerequisite for interaction
- Human Computer Interaction (HCI)
 - Goes well beyond this
 - User interfaces

User Interfaces

- Mouse
- Keyboard
- Pens and tablets
- Graphical user interfaces
- Voice user interfaces

Sketchpad

- Ivan Sutherland, 1963
- Pioneered the way for HCI



Ivan Sutherland, Sketchpad

Human Computer Interaction

- Have been considering *interactive* applications
 - Real-time updates of the graphical environment
 - Prerequisite for interaction
- Human Computer Interaction (HCI)
 - Goes well beyond this
 - Design and use of computer technology
 - Computer science, behavioural sciences, design, media, etc

User Studies

- Relevant to systems that have components that interact with users
- Bring in human participants
- Get them to use the interface
- Use their feedback to elicit requirements and guide design
- Evaluate whether solution is fit for its purpose
- Put the user, rather than the system, at the center of the process

When a UI Goes Wrong

- Example: *Three Mile Island* accident
- Poorly designed UI partially to blame



User Interfaces

- Computer
- Mouse
- Keyboard
- Pens and tablets
- Graphical user interfaces
- Voice user interfaces
- **Others:**
 - The human body?

Human Body



Minority Report, Twentieth Century Fox Film Corporation

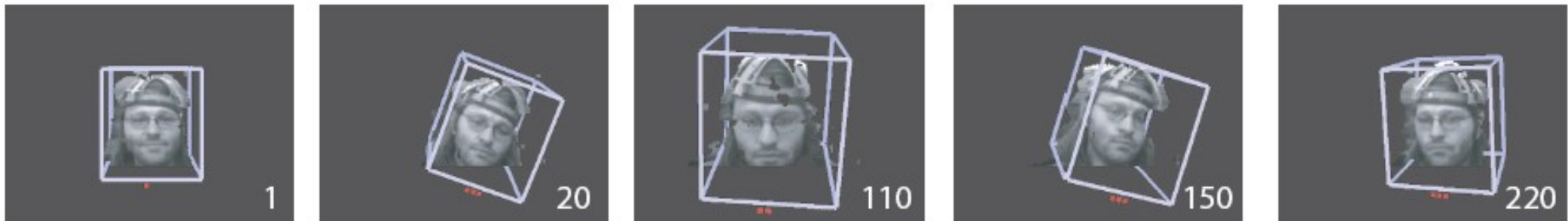
Affective computing

- Which affective states are of relevance for a specific application?
 - Design problem
- From a machine's perspective, use this information to decide whether and how to:
 - Start interaction
 - Continue interaction
 - Improve interaction

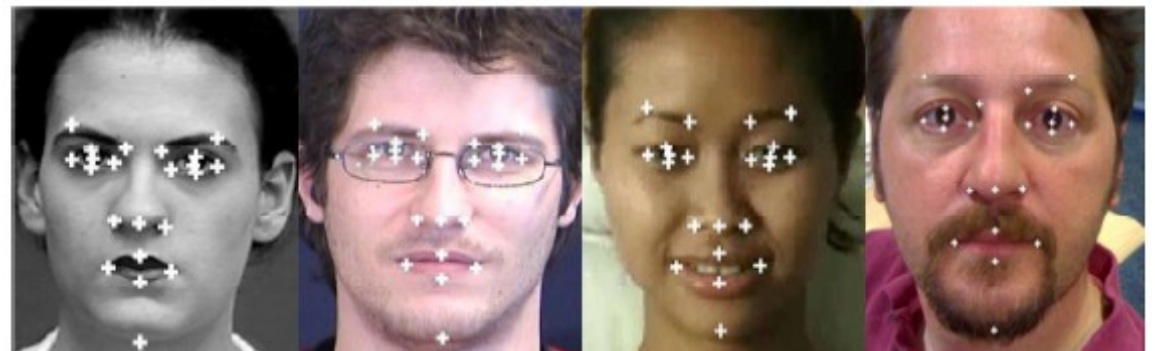
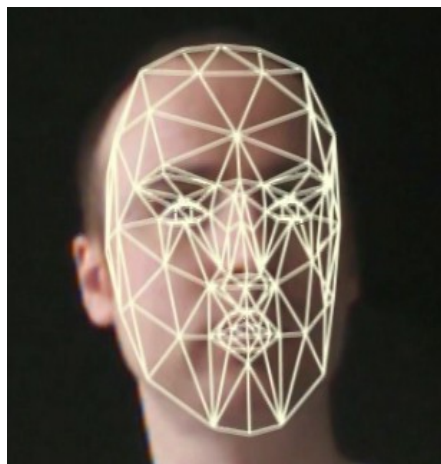
The Human Face



From Castellano et al

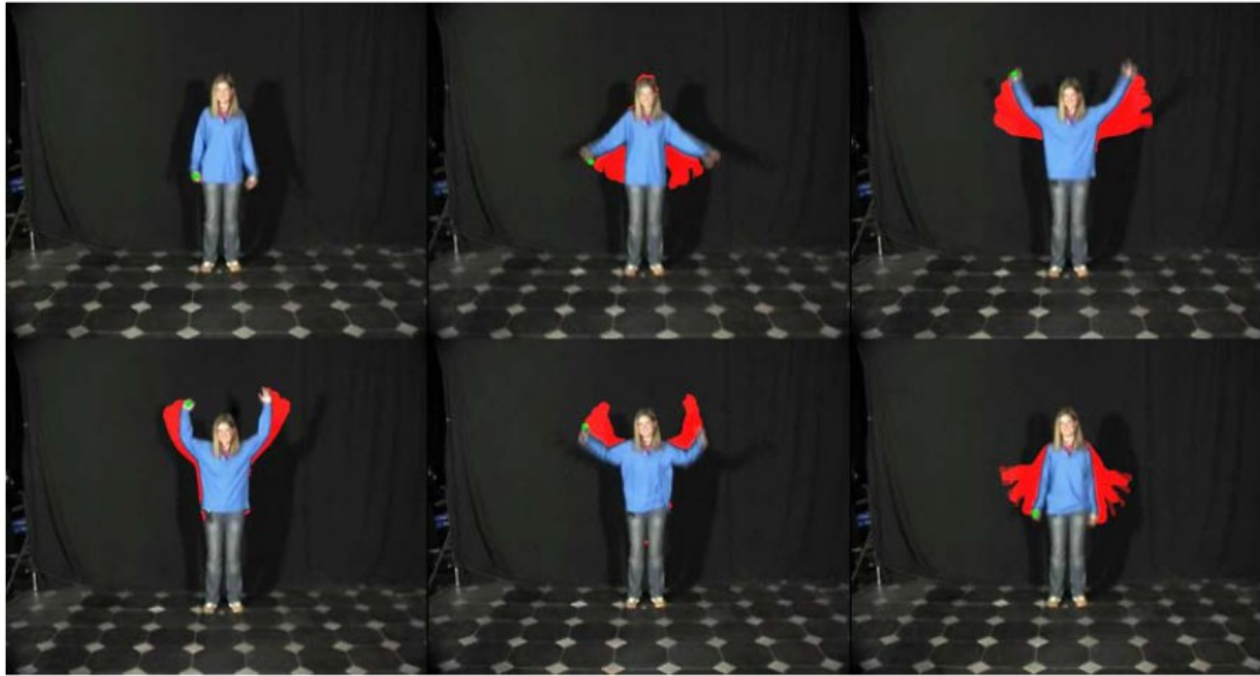


From Morency et al, 2003



From Pantic & Bartlett, 2007

The Human Body



From Volpe et al, 2003



From Sanghvi et al., 2010

Databases of affective expressions

- Many corpora and databases contain posed expressions
 - Currently shift to collection of naturalistic data
- Examples of publicly available databases with visual modality include:
 - Cohn-Kanade
 - (Kanade et al., 2000)
 - MMI database
 - (Pantic et al., 2005)
 - FABO database
 - (Gunes & Piccardi, 2006)
 - Mind Reading DVD
 - (Baron-Cohen et al., 2004)



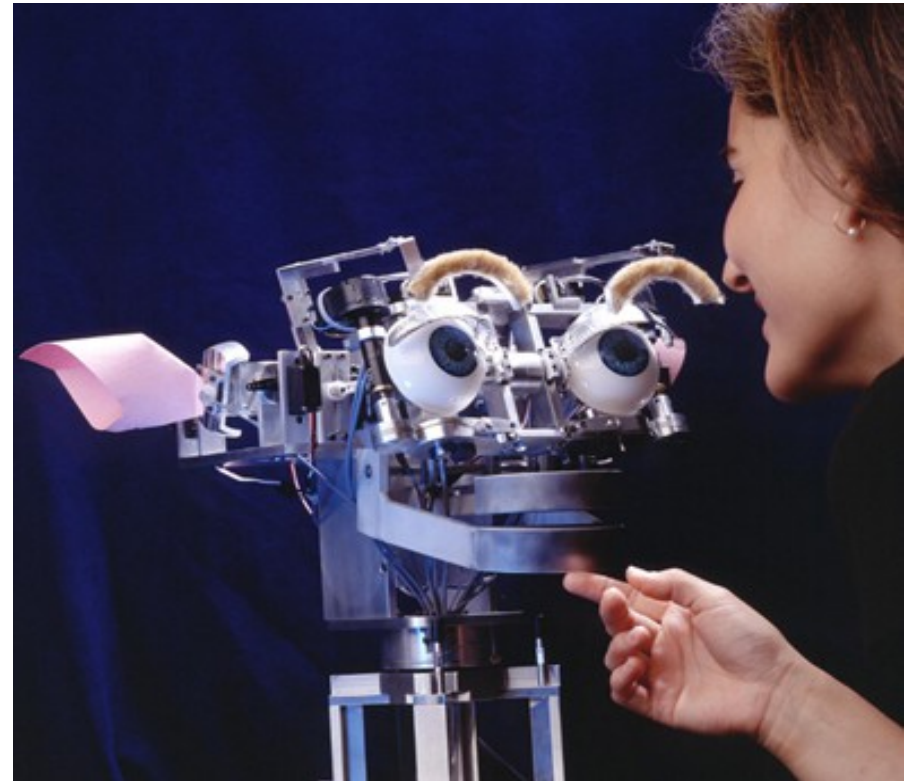
From Gunes & Piccardi, 2009

User Interfaces

- Computer
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- Graphical user interfaces
- Voice user interfaces
- Others:
 - The human body?
 - **Artificial bodies?**

Social machines

- Affective and social intelligence in human-computer and human-robot interaction
- Social perception
 - Analysis of social, affective behaviour
 - Focus on
 - Computer vision-based techniques
 - Non-verbal behaviour



From <http://web.media.mit.edu/~cynthiab/>

Assessment

Write a three page report in Latex

A topic of your choice related to HCI

Examples:

Lectures: 'Interactive virtual agents'

Choose a paper from a conference such as
CHI (Computer Human Interaction)

Include references

Deadline: Friday 5th June
