

INTERACTION DESIGN + BIOFEEDBACK



Interaction Design

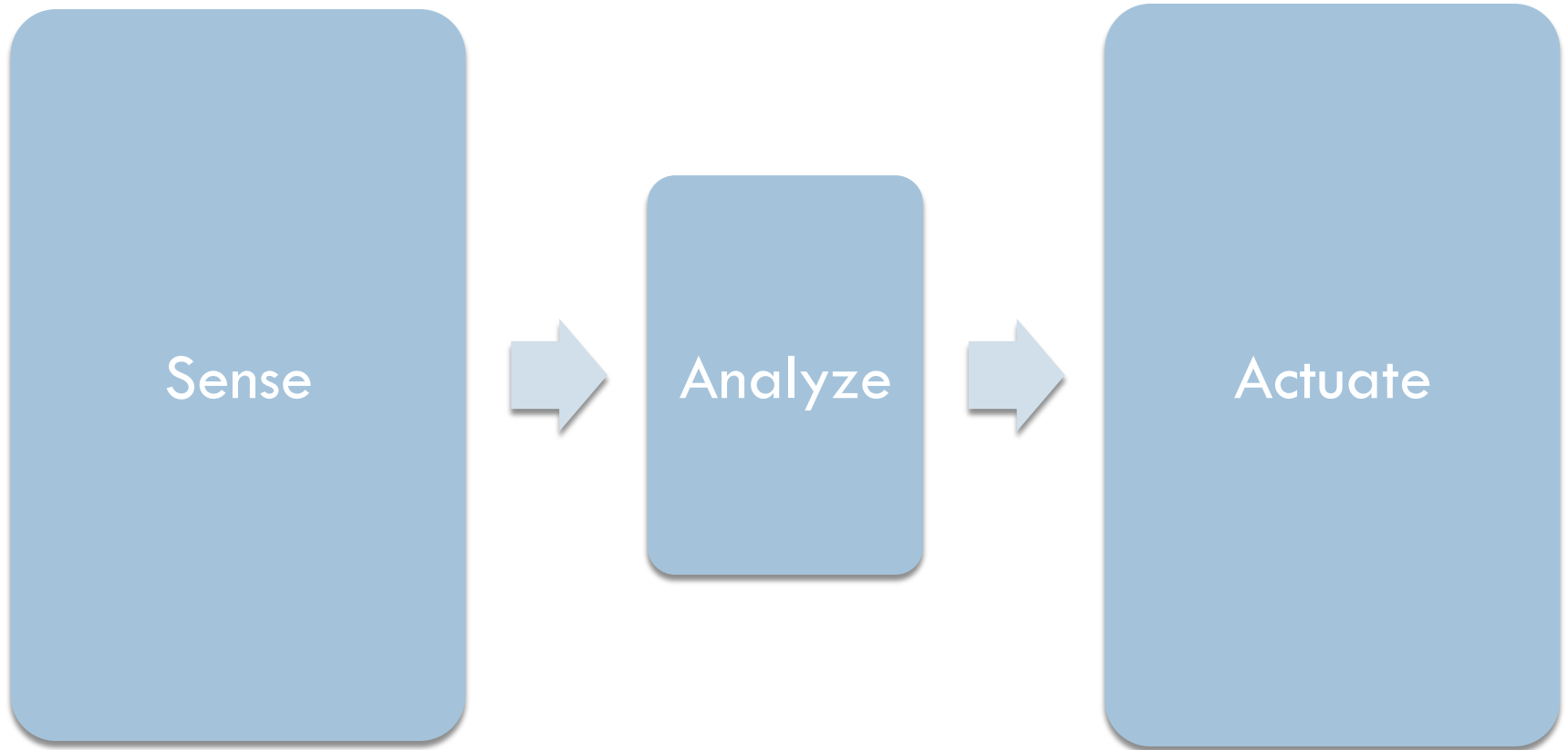


- is about shaping digital things for people's use
- Is focused on behavior
- Is synthesis and imagining things as they might be

The Five Dimensions of Interaction Design

- 1D Words
- 2D Visual Representations
- 3D Physical objects or space
- 4D Time
- 5F Behavior

Interaction Design



Sense

Environmental Input
(sound, light,
temperature, etc.)

Audience Input
(movement, sound,
touch, biofeedback)



Analyze



Actuate



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graph LR; Sense[Sense] --> Analyze[Analyze]; Analyze --> Actuate[Actuate<br/>Sound, visual, space,<br/>kinetic etc.];
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Sense

Analyze

Actuate
Sound, visual, space,
kinetic etc.

- Research Problem (Question)
 - ▣ Background Research – traditional intervention
 - ▣ Behavior Research
- Project Design
 - ▣ Space/Object/Aesthetics
 - ▣ Interaction
 - ▣ Prototype
- User study
- Documentation

Biofeedback

Biofeedback is a technique that uses monitoring instruments to measure and feed back information about muscle tension, heart rate, sweat responses, skin temperature, or brain activity.

Types of Biofeedback

EEG (Electroencephalogram)

EMG (Electromyogram)

GSR (Galvanic Skin Response)

Breath

Pulse/Heart rate

EEG



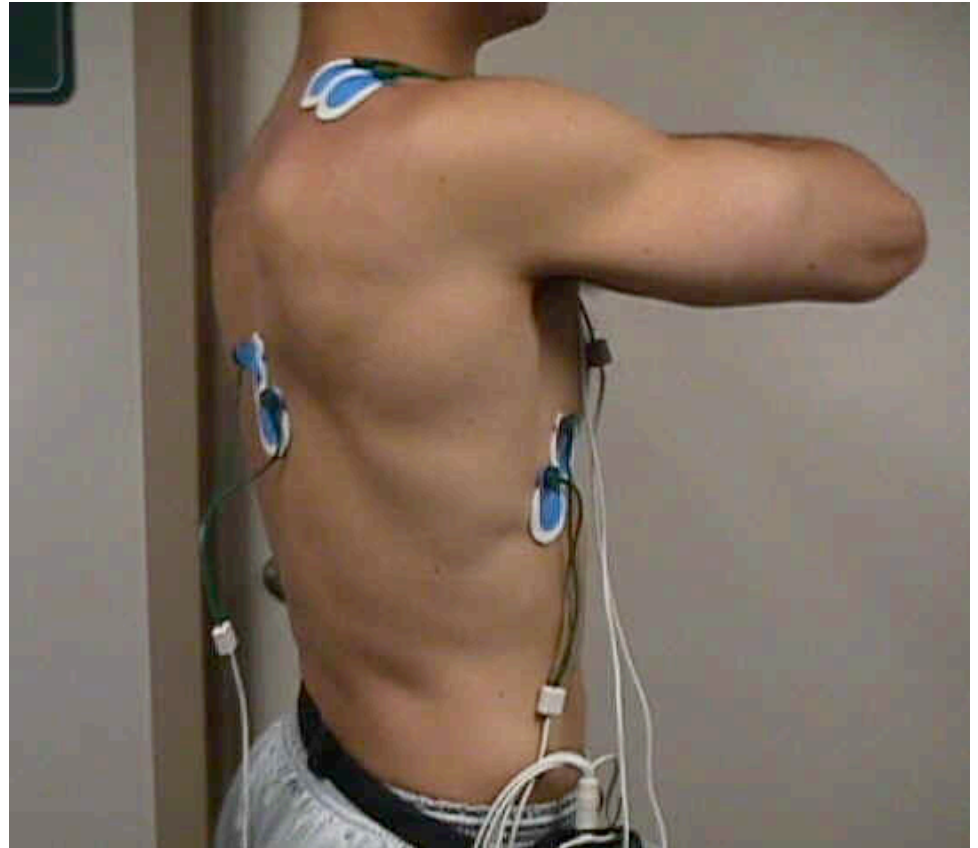
Brain Waves (EEG)

- Medical/Therapeutic Purposes
- Art
 - ▣ INsideOUT(2009) By Claudia Robles
 - ▣ Brainball (1999-2000) By Smart studio
 - ▣ Brain Orchestra (2004) By EyeTap
 - ▣ White Lives on Speaker (2007) By Yoshimasa Kato
 - ▣ Biomorphic Typography (2002) By Diane Gromala
- Game
 - ▣ Mind Flex
 - ▣ Emotivo

EMG (Electromyogram)

- Game
- <http://www.livescience.com/technology/091029-ttr-muscle-sensing.html>

□



GSR



GSR (Galvanic Skin Response)

- Art
 - Perversely Interactive System By Lynn Hughes and Simon Laroché
 - Narciscope (2006) By Dana Gordon
- Game
 - Wile Divine

Respiration / Breath



- Art
- Osmose (1995) By Char Davies
- Exhale (2003-2005) By Thecla Schiphorst



- Pulse/Heart rate

- Art

- Heart Chamber Orchestra

- <http://www.heartchamberorchestra.org>

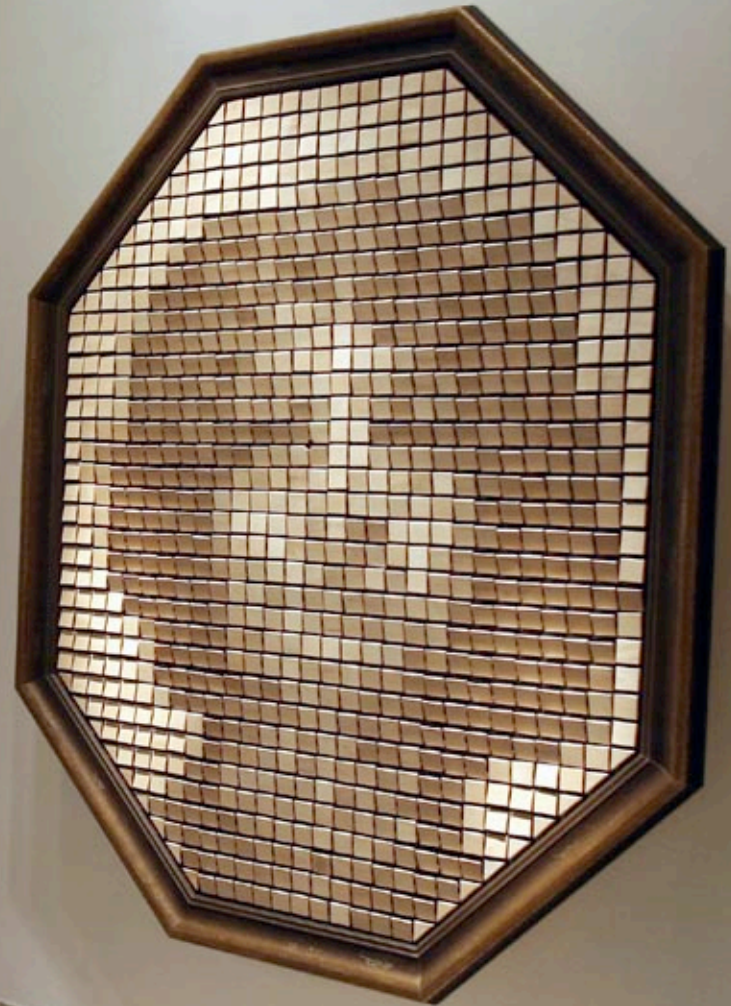
Biofeedback Sensors

- ❑ Wild Divine Sensor – Heart rate, Skin Conductance
- ❑ DIY GSR sensor
- ❑ DIY Breath sensor
- ❑ DIY wearable sensor

Daniel Rozin

□ Wooden Mirror (1999)

- Mechanical Mirror
- 835 wooden pieces
- 835 servo motors





□ Forest 2 By Chris Ziegler

