

WHAT IS INTERACTION?

WHAT IS INTERACTION?

Broad View (Design-Theory View):

- Interaction is a way of framing the relationship between people and objects designed for them
- Should be applied to all artifacts, not just computers. (books, tools etc.)

Human-Computer Interaction (HCI) View:

- Concentrates on computers and other dynamic systems
- Feedback-loop model
- Input – Processing – Output

More complex views:

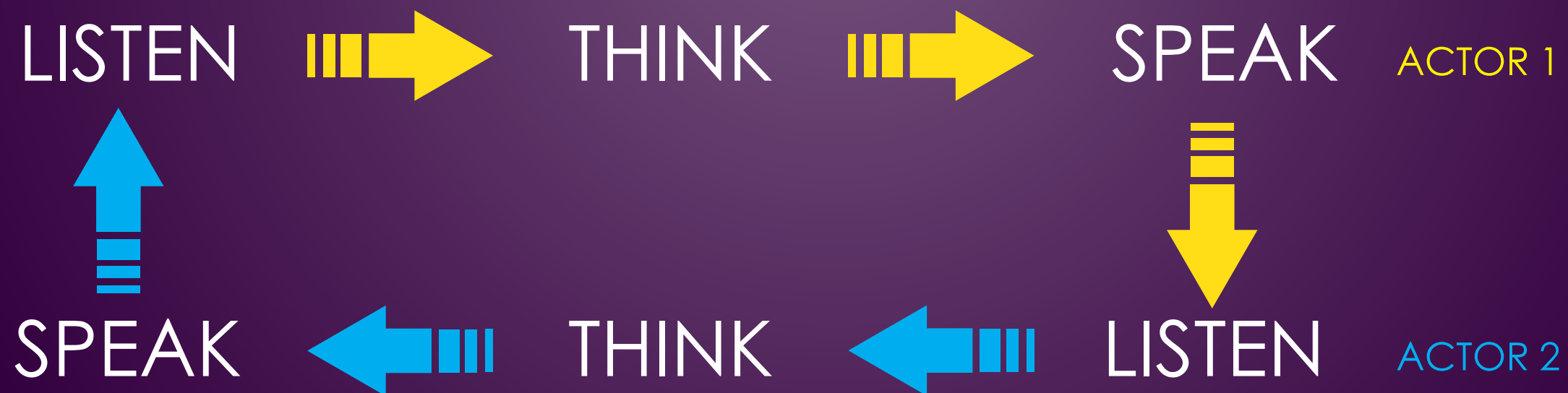
- Systems-Theory view etc.

WHAT IS INTERACTION?

The logo for HCI VIEW, featuring the text "HCI" in white and "VIEW" in yellow, both in a bold, sans-serif font, set against a dark purple background.

Interaction: a cyclic process in which two actors alternately listen, think, and speak.

– Chris Crawford, Understanding Interactivity



WHAT IS INTERACTION?

HCI
VIEW

Interaction with computers



INPUT



PROCESS

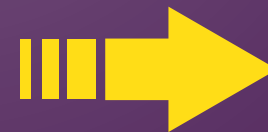
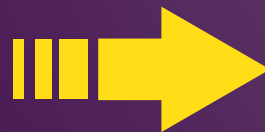


OUTPUT

COMPUTER

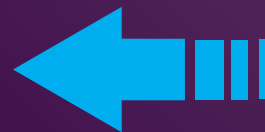


ACT

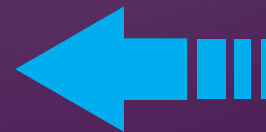


SENSE

HUMAN



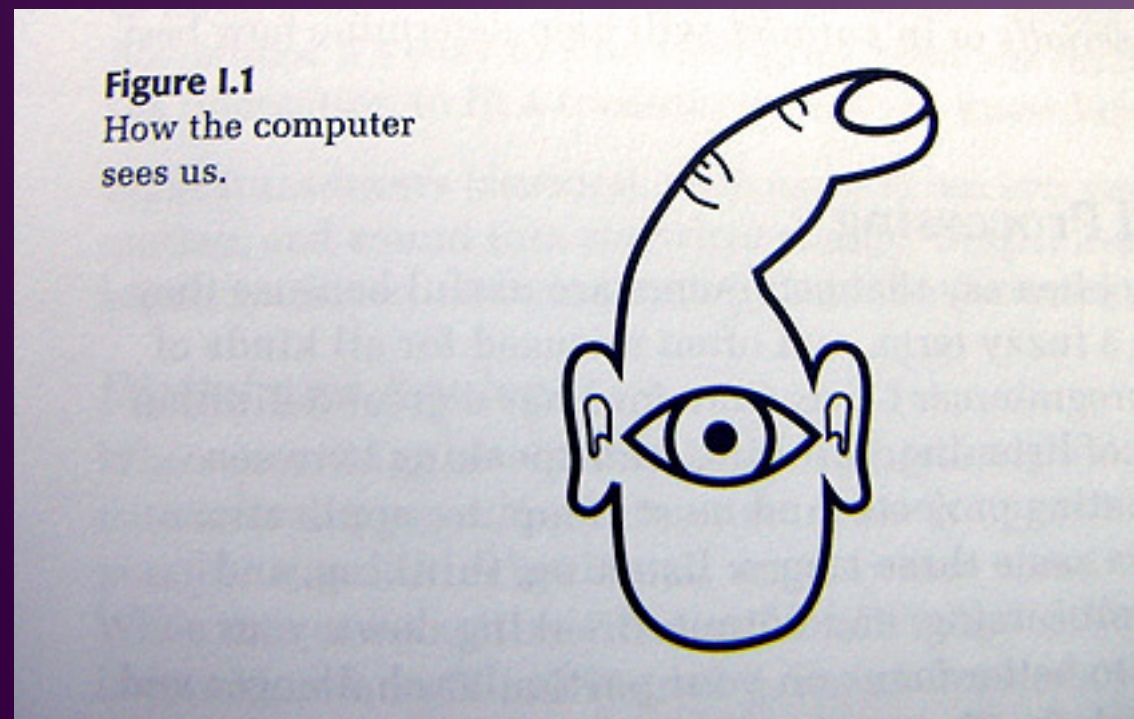
THINK



WHAT IS PHYSICAL COMPUTING?

Physical Computing: methods for creating a greater range of human physical expression using computers.

– Tom Igoe



From Tom Igoe and Dan O'Sullivan's Physical Computing.

WHAT IS PHYSICAL COMPUTING?

- Physical computing is a field of study devoted to developing alternative ways to interact with computers and other dynamic systems
- Physical computing systems take their input from the real world
 - Human interaction
 - Movement & Gestures (camera tracking, proximity sensors)
 - Touch
 - Voice
 - Object recognition (RFID)
 - ...
 - Environment
 - Temperature & Humidity
 - Light level

WHAT IS PHYSICAL COMPUTING?

- The output is also often something related to the physical world (instead of the virtual)
 - Lights (LEDs, EL Wire, DMX-control etc.)
 - Motors (Servo & DC Motors)
 - Solenoids and other linear actuators
 - Sound
 - etc.

WHAT IS PHYSICAL COMPUTING?

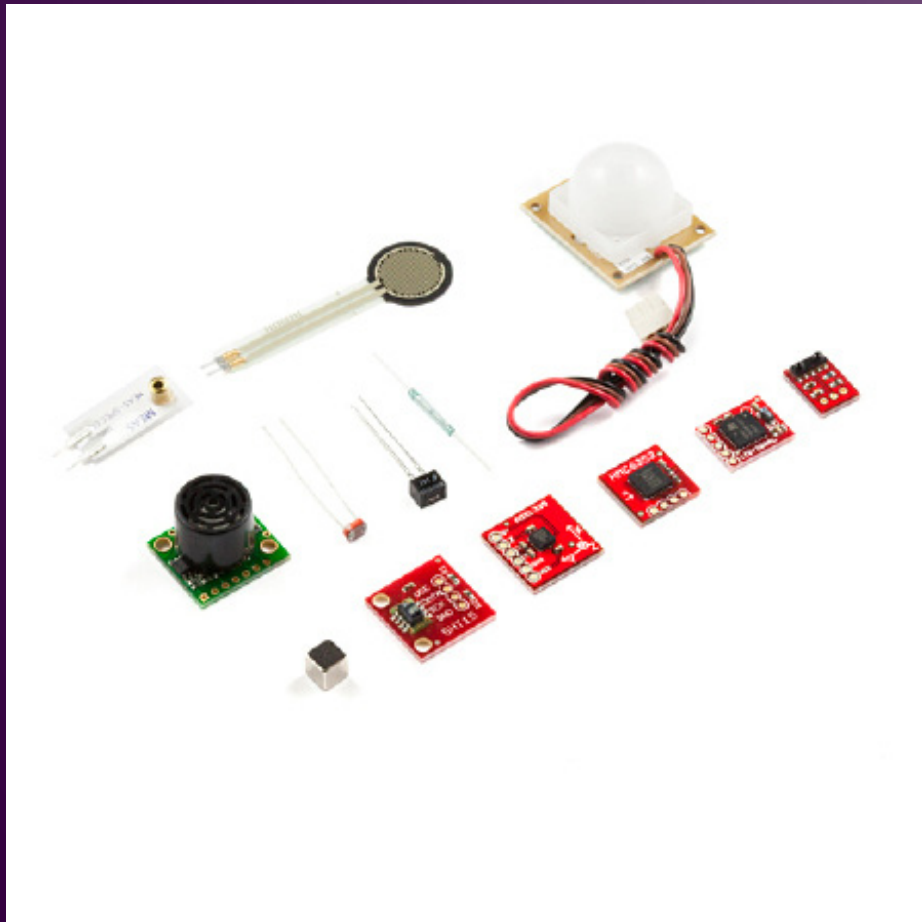
- Embedded or ubiquitous computing
 - Computers, microcontrollers and sensor systems that are embedded into everyday objects
 - Automatic doors and lights, interactive artworks etc.
- Wearable computing
 - Computers, microcontrollers and sensor systems that are embedded into clothing and accessories

HOW TO GET STARTED?

- You will need to learn some basics in electronics.
- You will need to learn some basics in programming.
- Do not be afraid of these two words. There are tools that have made it easy for beginners to get into electronics and programming.
- You will need to study how people interact with your system.

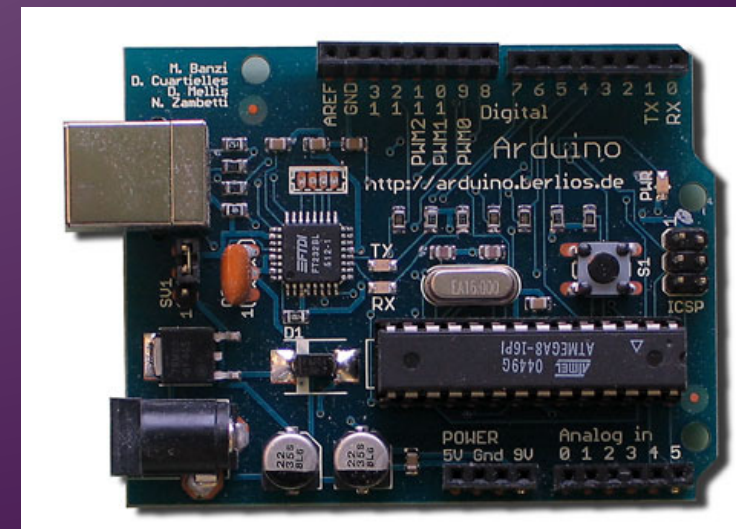
HOW TO GET STARTED?

- You will need to research different sensors that you can use as input



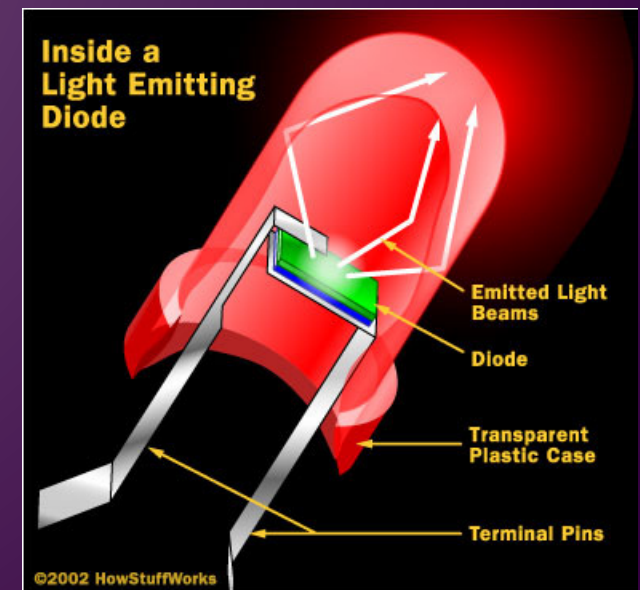
HOW TO GET STARTED?

- You will need to learn how to connect the sensors to a microcontroller
 - The Arduino board is a popular choice and easy to use
- You will need to learn how to process the sensor data
 - Mapping, feature extraction



HOW TO GET STARTED?

- You will need to learn how to control some sort of output
 - Sound (Pure Data, Max/MSP, Supercollider etc.)
 - Video/graphics (Quartz Composer, Processing etc.)
 - Lights (DMX lights, LEDs)
 - Motors & actuators (Servos, DC motors, solenoids)
 - ...



HOW TO GET STARTED?

- Most importantly, you will need to think of a good concept
- What do you want to do? Why do you want to do it?
- Physical Computing's Greatest Hits (and misses) <http://www.tigoe.net/blog/category/physicalcomputing/176/>

THANK YOU FOR YOUR ATTENTION

- Hands on demo -->