



FALMOUTH  
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# COMP280 Week 11: HCI



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COMP280: Specialisms in Creative Computing

# 11: An Introduction to HCI

# Register Attendance



Figure 1: Attendance monitoring is in place. It is your responsibility to ensure that you have signed yourself in.

# Learning Outcomes

After this session you will be able to:

- ▶ **Explain** what is meant by the term human-computer interaction (HCI)
- ▶ **Discuss** how HCI has changed over the years
- ▶ **Outline** some basic HCI principles as described by Don Norman in his book, *The Design of Everyday Things*

# Human-Computer Interaction (HCI)

*"If we didn't have people, everything would work so much better" - **Donald A. Norman***

# HCI is..

the study of the relationship between people and technology



Figure 2: **Cyborg Neil Harbisson** with his antenna implant

# A Little Bit of History

- ▶ Commonly understood that HCI formally acknowledged as a field of study in 1982
- ▶ driven by the shift from secure cool room computers to personal computer - Apple 2 IBM PC Commodore
- ▶ In essence, non-engineers having access to computers
- ▶ Early computers were pretty daunting to non-engineers
- ▶ HCI was born from the shift from specialist users to day-to-day use by non-engineers

# Ivan Sutherland}



Figure 3: [Youtube link for Sketchpad demo filmed in the early 60s](#)

# More recently...

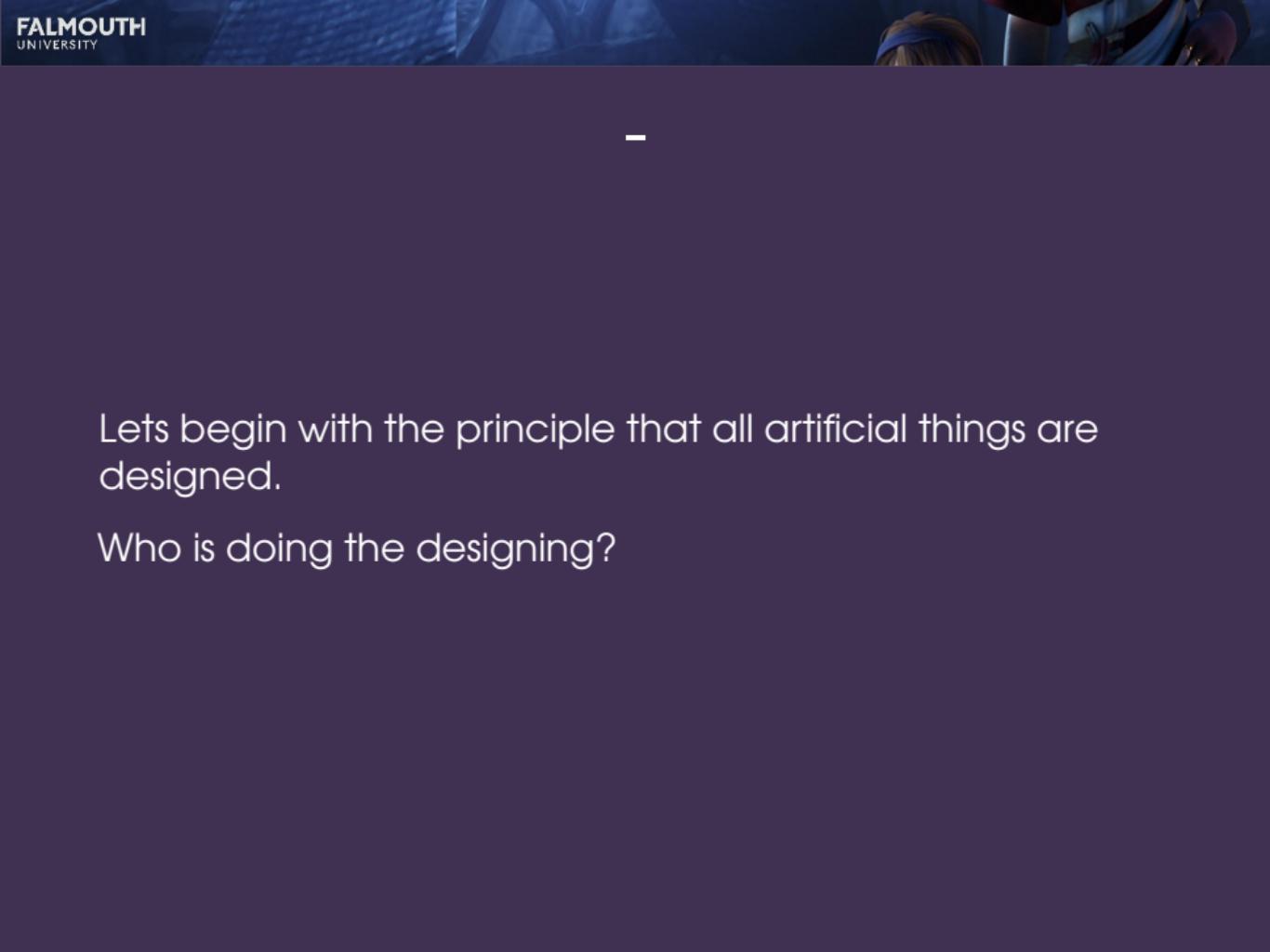
Early 90s HCI blew up as the internet and web went mainstream and there was an explosion of new interface and communication methods

## **Other Notable Shifts:**

- ▶ Fixed computers 2004 - portable devices
- ▶ Authored content 2004 - user generated content
- ▶ personal portable screens - wearables and HMDs

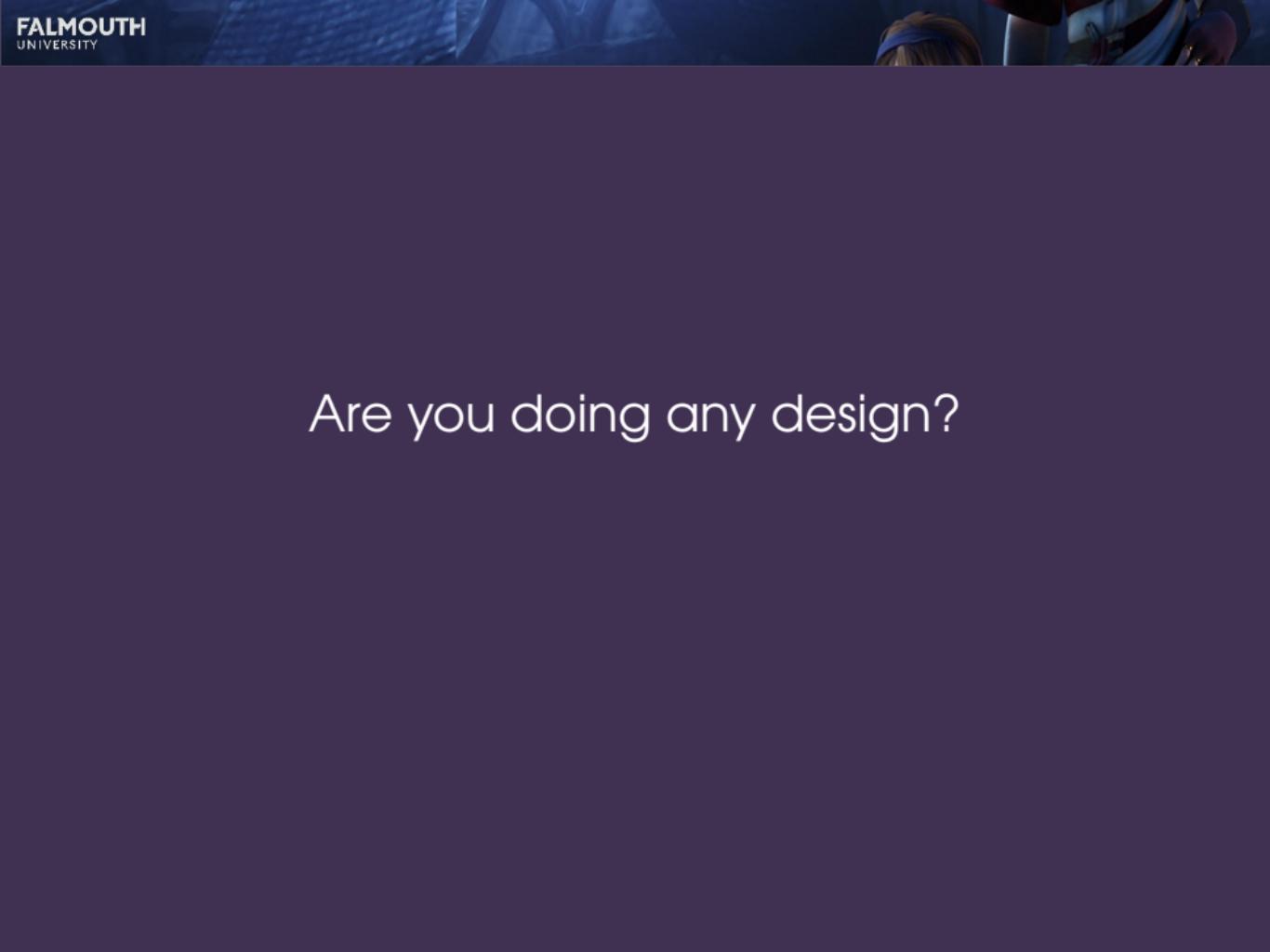
# Tech Buzzword Bingo!

- ▶ Mobile
- ▶ Multitouch
- ▶ Gestures and natural computing
- ▶ Sensors
- ▶ Embedded
- ▶ Wearables
- ▶ Sustainability
- ▶ Big Data
- ▶ Social computing
- ▶ Accessibility
- ▶ Mixed Reality



Lets begin with the principle that all artificial things are designed.

Who is doing the designing?



Are you doing any design?

# HCI - A Crash Course}

Generally, HCI research is empirical.

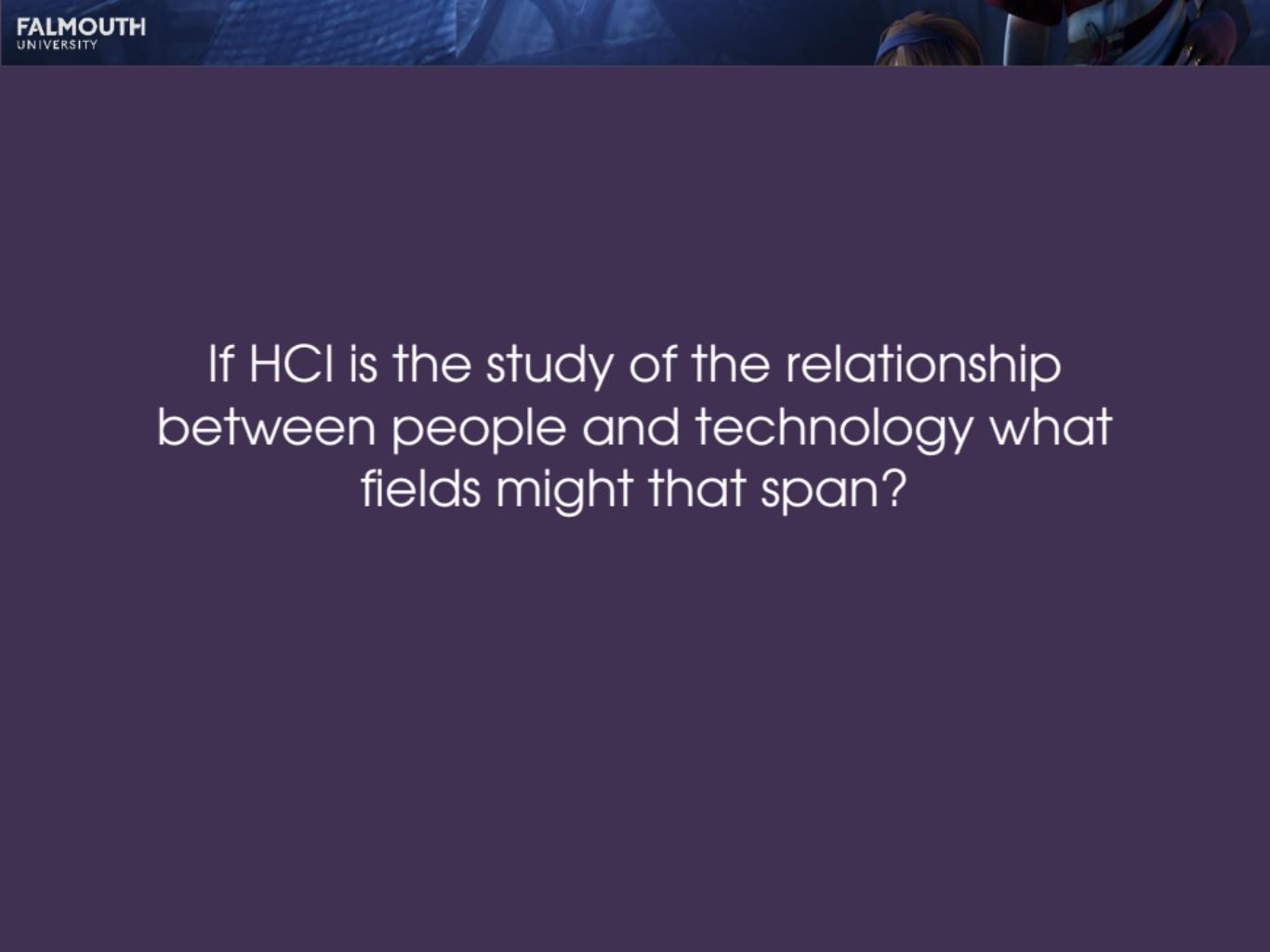
*"Relying on or derived from observation of experiment"* - American Heritage Dictionary

# Do not...

- ▶ Presume prior knowledge of the audience
- ▶ Especially, if they are a similar demographic to you
- ▶ Expect people to read the instructions
- ▶ Blame the user for errors
- ▶ Get frustrated with the user for unpredictable behaviour

# HCI is complex because...

- ▶ Borrow methods from other fields
- ▶ Create standards derived from other fields
- ▶ Involves Humans



If HCI is the study of the relationship between people and technology what fields might that span?

- ▶ Computer Science (duh)
- ▶ Sociology
- ▶ Psychology
- ▶ Communication
- ▶ Human factors engineering
- ▶ Industrial engineering
- ▶ rehabilitation engineering
- ▶ and many more.

# HCI Research

*"HCI research requires both rigorous methods and relevance"* **Donald A. Norman**

We use it to influence interface design, development process, user training, and public policy. Generally, to improve our relationship with computers.

# What can be considered HCI contributions?

- ▶ Empirical
- ▶ Artefact
- ▶ Methodological
- ▶ Dataset
- ▶ Survey
- ▶ Opinion
- ▶ theoretical

Source

# These are Exciting Times

- ▶ Tools are much better now
- ▶ Eye tracking, sensors (EMG EEG)
- ▶ Access to the masses - mechanical Turk, social networks, large amounts of generated content to analyse
- ▶ Automation - AI machine learning, neural networks

# Donald Norman

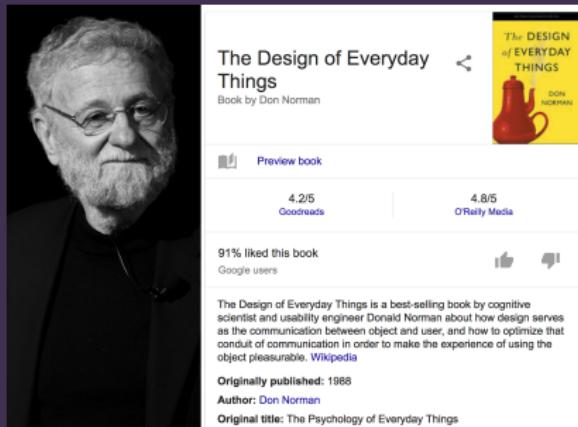


Figure 4: Google Snippet about Donal Norman

# Affordances

# Signifiers

# Mappings

# Mental models

# Nielsen Norman Group

Nielsen Norman < NN/g

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 [nngroup.com](http://nngroup.com)

The Nielsen Norman Group is an American computer user interface and user experience consulting firm, founded in 1998 by Jakob Nielsen, Don Norman and Bruce Tognazzini. Their work includes an analysis of the interface of Microsoft's Windows 8 operating system. [Wikipedia](#)

**Headquarters:** California, United States  
**Founded:** 1998

**Profiles**

  
Twitter

Figure 5: Google Snippet about Nielsen Norman Group