



# COMP210: Interfaces & Interaction

## 1: Human-Centred Design(HCI)

# Sign the Register

Module Attendance:

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 Attendance

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Figure: <http://learningspace.falmouth.ac.uk/course/view.php?id=1254&section=1>

# Module Roadmap

## COMP210 Interfaces & Interaction

### STUDY BLOCK 1

Study Block 1 Roadmap											
Sprint 1			Sprint 2			Sprint 3			Sprint 4		
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Research			Evaluation			Dev			Dev		
Research HCI Methods	Interface Evaluation					User Testing	MVP		User Testing	shippable product	AR/VR Task
		Research Journal		Interface Task							
Experimentation and Early Prototyping						Final Demo Prototype development					

# Assignment Briefs

- ▶ **Produce** a journal detailing your research into HCI research
- ▶ **Evaluate** an existing screen-based game interface
- ▶ **Design** and **develop** an interface that incorporates either AR or VR

# Learning Outcomes

- ▶ **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

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

## what is HCI?

HCI is the study of the relationship between people and technology



Figure: [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



# 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:

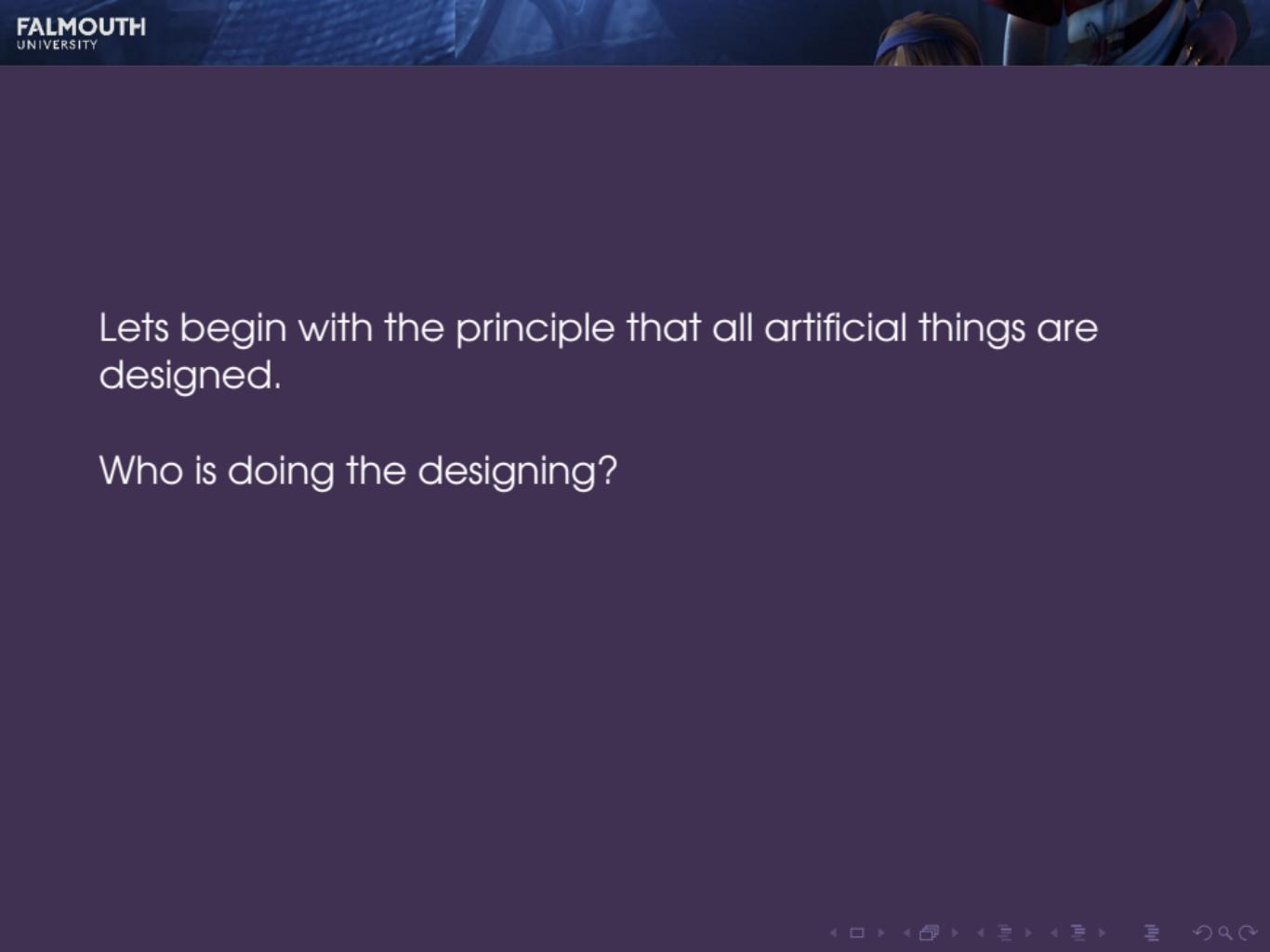
Fixed computers <2004> portable devices

Authored content <2004> user generated content

# NOW

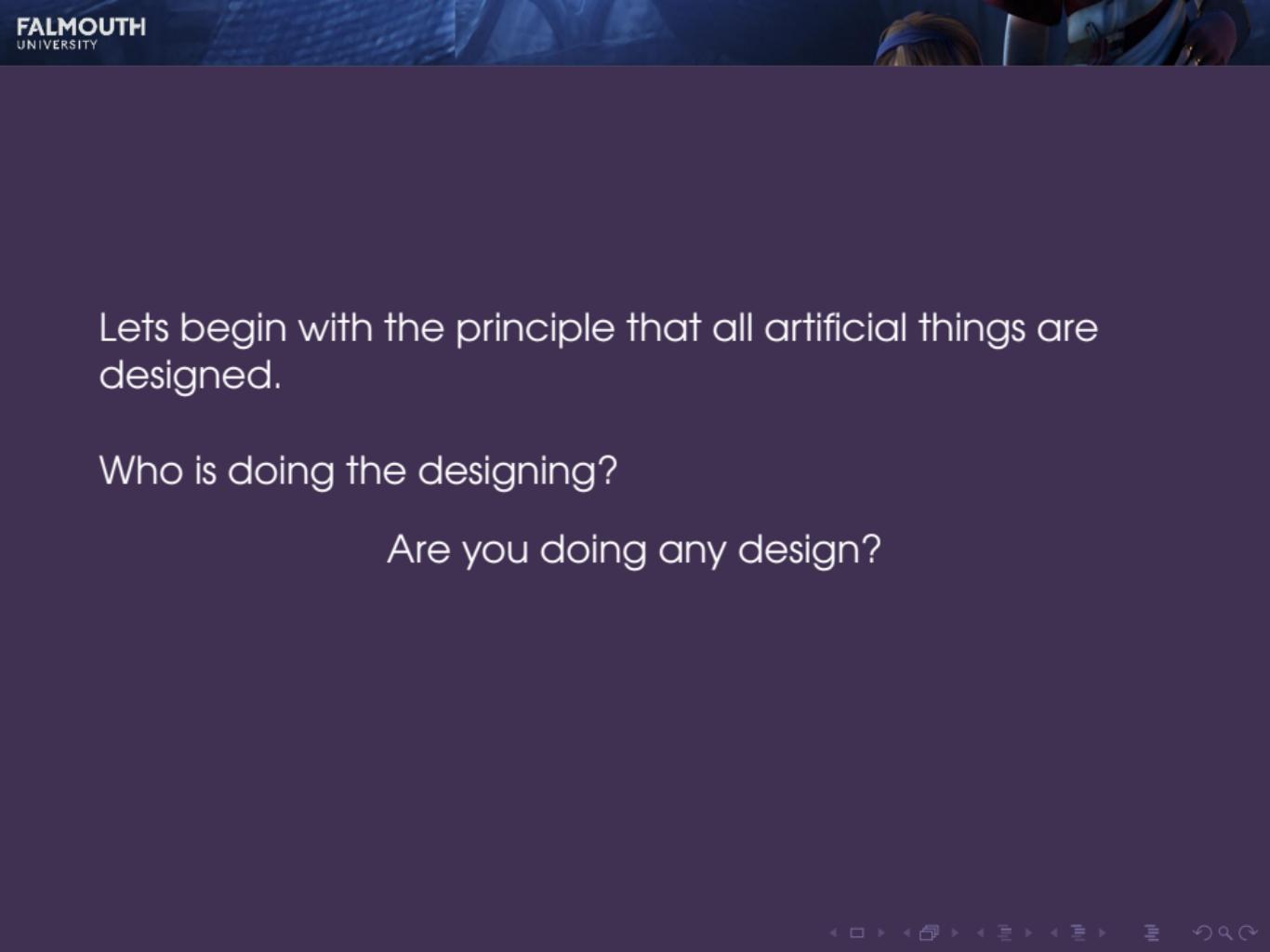
## Tech Buzzword Bingo!

- ▶ 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?



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

Who is doing the designing?

Are you doing any design?

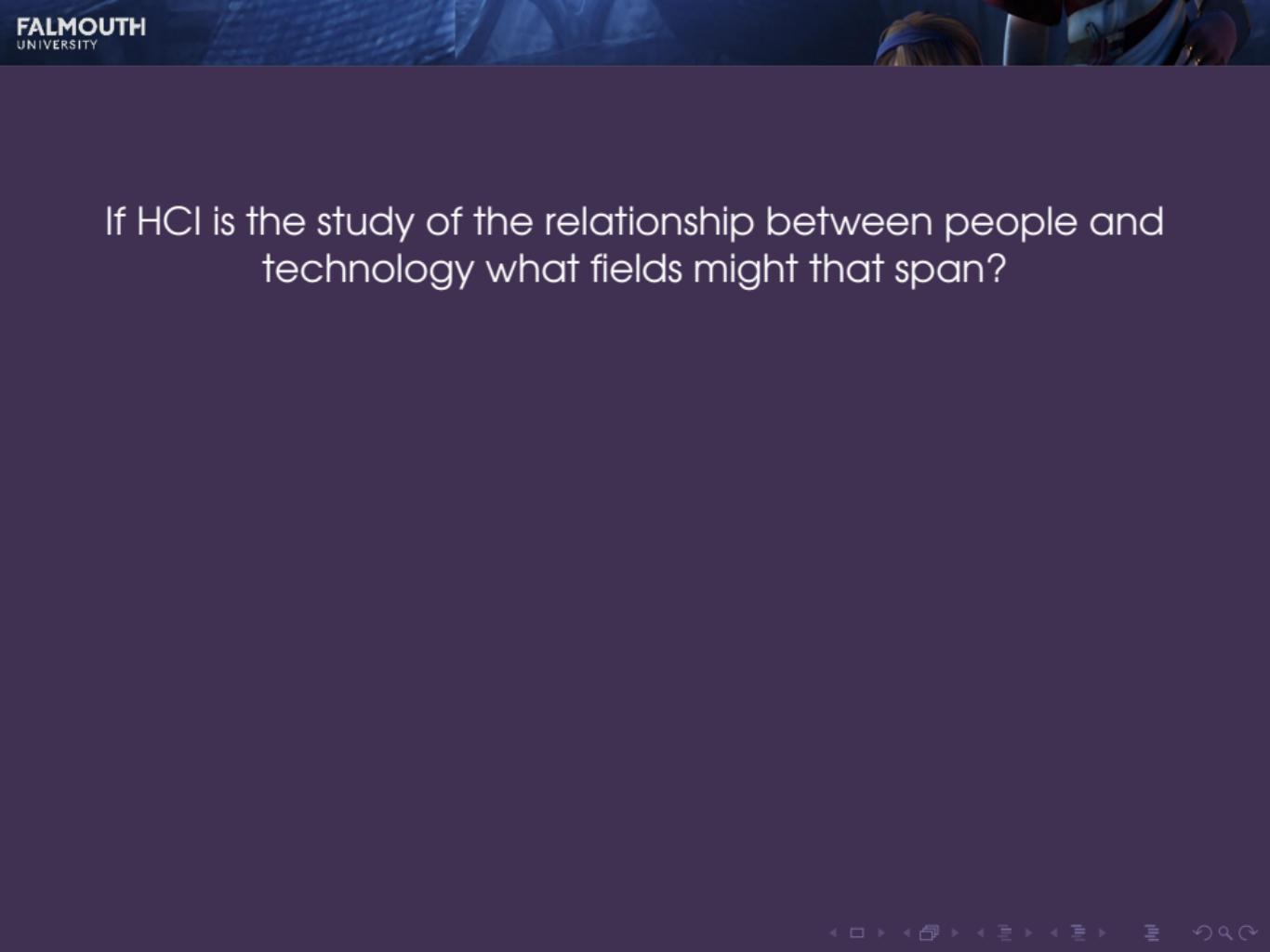
# HCI - A Crash Course

## Do not...

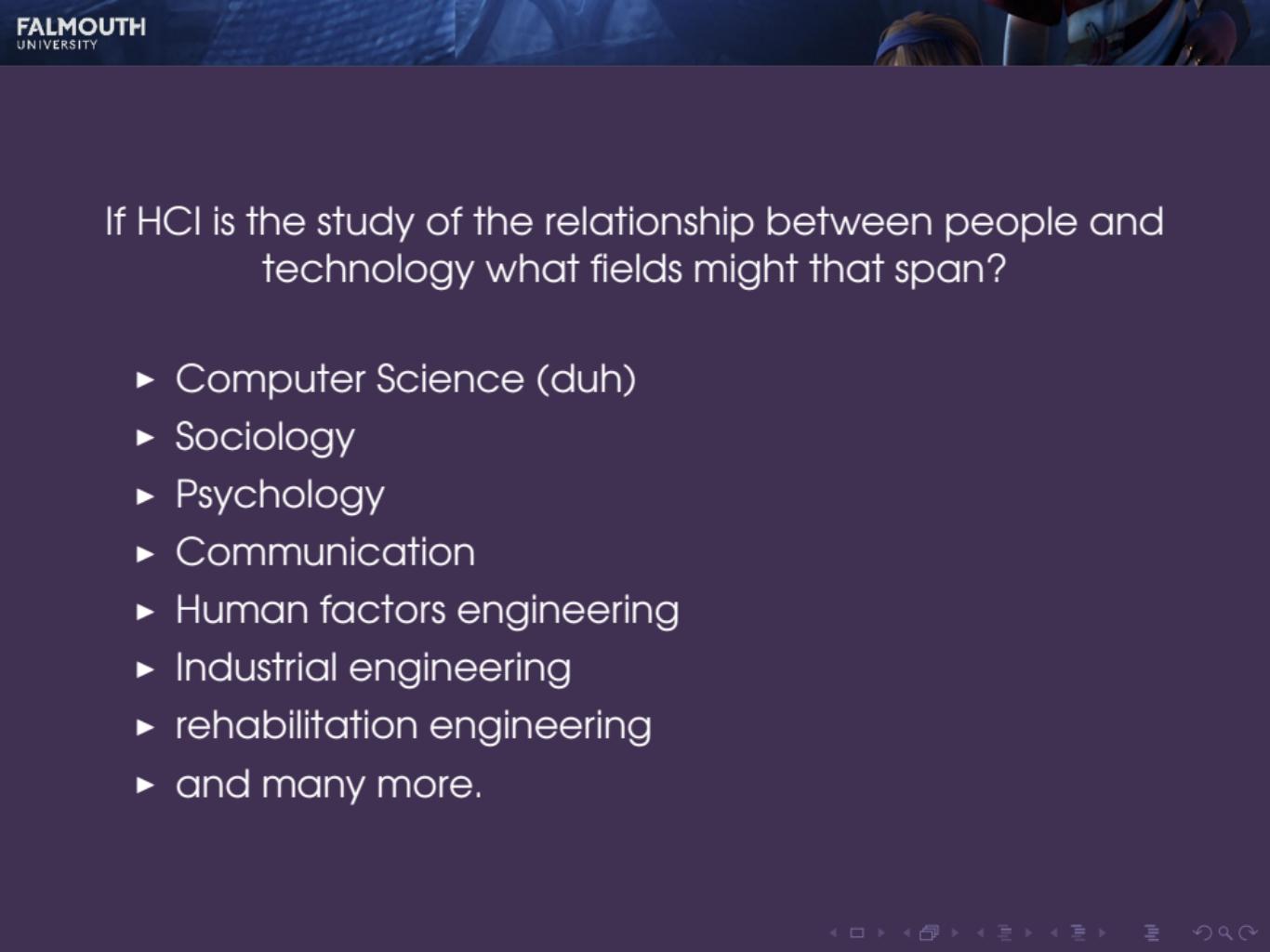
- ▶ Presume prior knowledge of the audience
- ▶ Especially, if they are a similar demographic to you
- ▶ Expect people to read the instructions
- ▶ Blame the user for errors
- ▶ Get frustrated with the user for unpredictable behaviour

# 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?



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

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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?

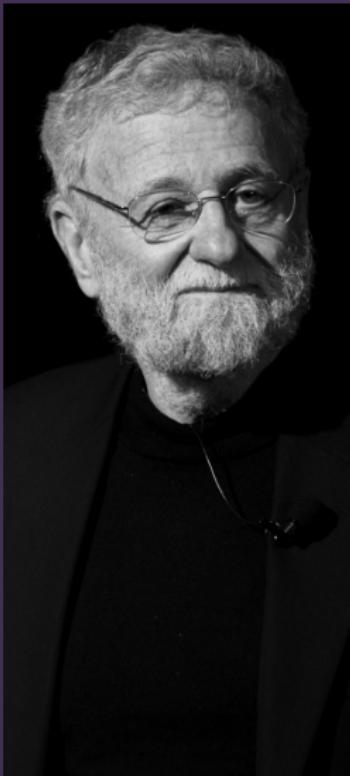
- ▶ Empirical
- ▶ Artefact
- ▶ Methodological
- ▶ Dataset
- ▶ Survey
- ▶ Opinion
- ▶ theoretical

(Source)

# These are Exciting Times

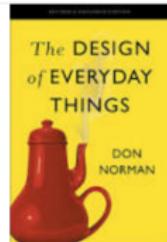
- ▶ Tools are much better now
- ▶ Eye tracking, sensors (EMG EEG)
- ▶ Access to the masses - mechanical Turk, social networks, large amounts of generated content to analyse
- ▶ Automation - AI machine learning, neural networks

# Donald Norman



## The Design of Everyday Things

Book by Don Norman



Preview book

4.2/5  
Goodreads

4.8/5  
O'Reilly Media

91% liked this book

Google users



The Design of Everyday Things is a best-selling book by cognitive scientist and usability engineer Donald Norman about how design serves as the communication between object and user, and how to optimize that conduit of communication in order to make the experience of using the object pleasurable. [Wikipedia](#)

**Originally published:** 1988

**Author:** [Don Norman](#)

**Original title:** The Psychology of Everyday Things

# Affordances

- ▶ Standard Affordances
- ▶ Perceivable Affordances
- ▶ Anti-Affordances

# Signifiers

# Mappings

# Mental models

# Nielsen Norman Group

Nielsen Norman Group ← NN/g

 [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**

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