

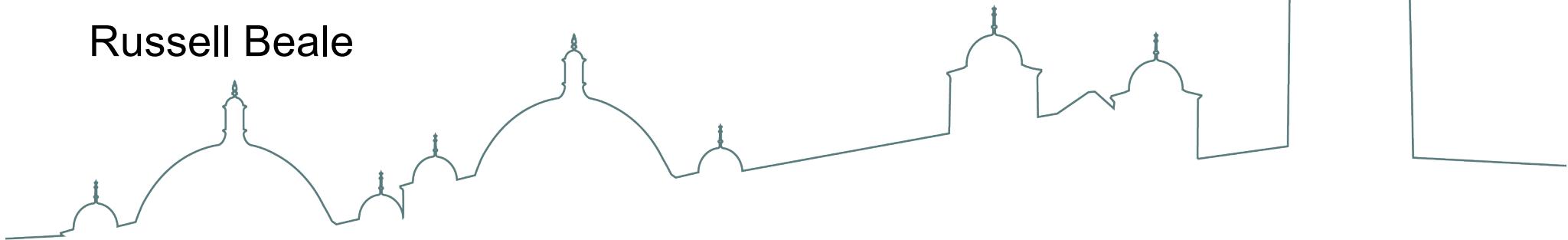


UNIVERSITY OF  
BIRMINGHAM

COLLEGE OF  
ENGINEERING AND  
PHYSICAL SCIENCES

# Human-Computer Interaction

Russell Beale



# What *is* HCI?

Human  
Computer  
Interaction





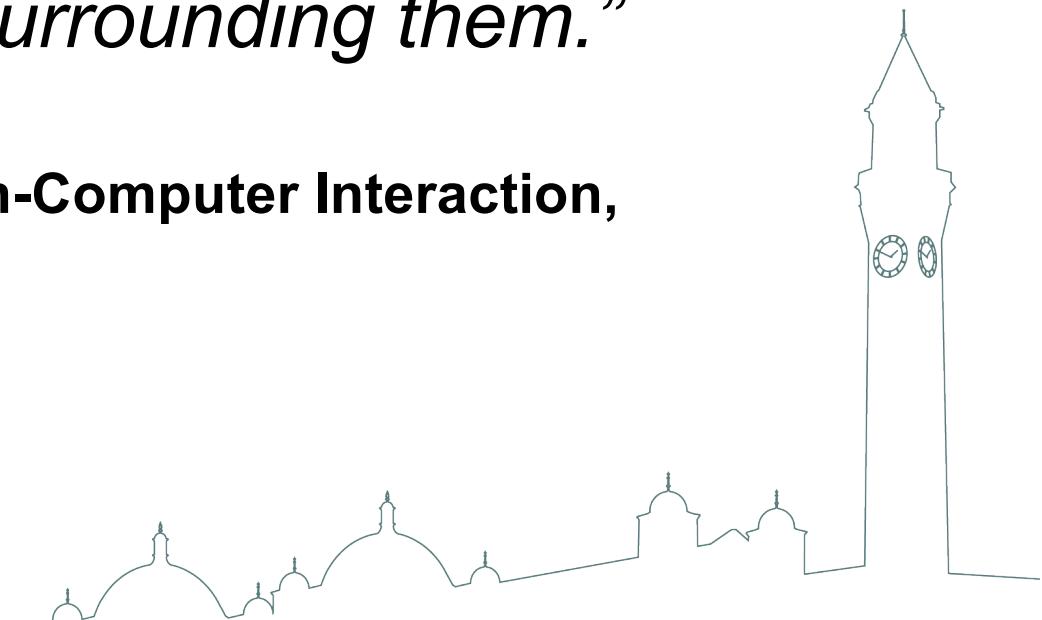
YOULOLED.COM

Author//Copyright holder: Glasbergen. Copyright terms and licence: All rights reserved.

# What is Human Computer Interaction?

*“Human-computer interaction is a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them.”*

**ACM SIGCHI Curricula for Human-Computer Interaction,  
accessed 27<sup>th</sup> Nov. 2015**



One of a range of academic disciplines that studies the interaction of people with and through technology



# Why is HCI important?



Sometimes lives depend on it  
HCI studies the effects the likelihood of pilot error and  
can model people's interaction with these complex  
systems. It can also answer the question of whether  
it is better to replace this or not.

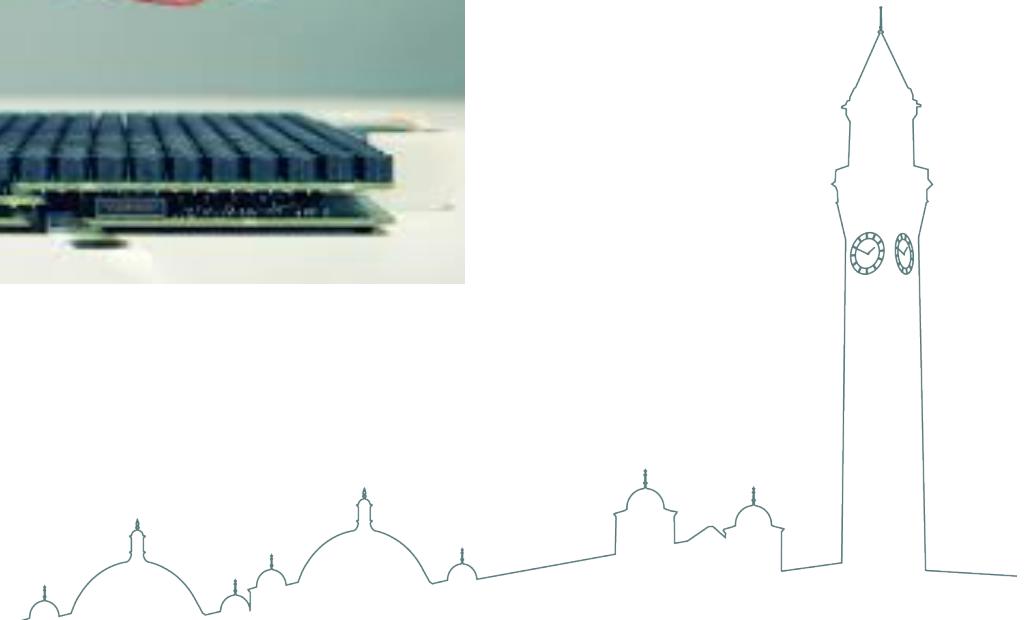
# To design systems well, we need to

- Understand what people want or need
- Understand people's capabilities/limitations
- Understand technology capabilities/possibilities
- Know how to design with these constraints - to develop *usable* systems
  - Effectiveness
  - Efficiency
  - Safety
  - Utility
  - Learnability
  - Memorability

# And more...

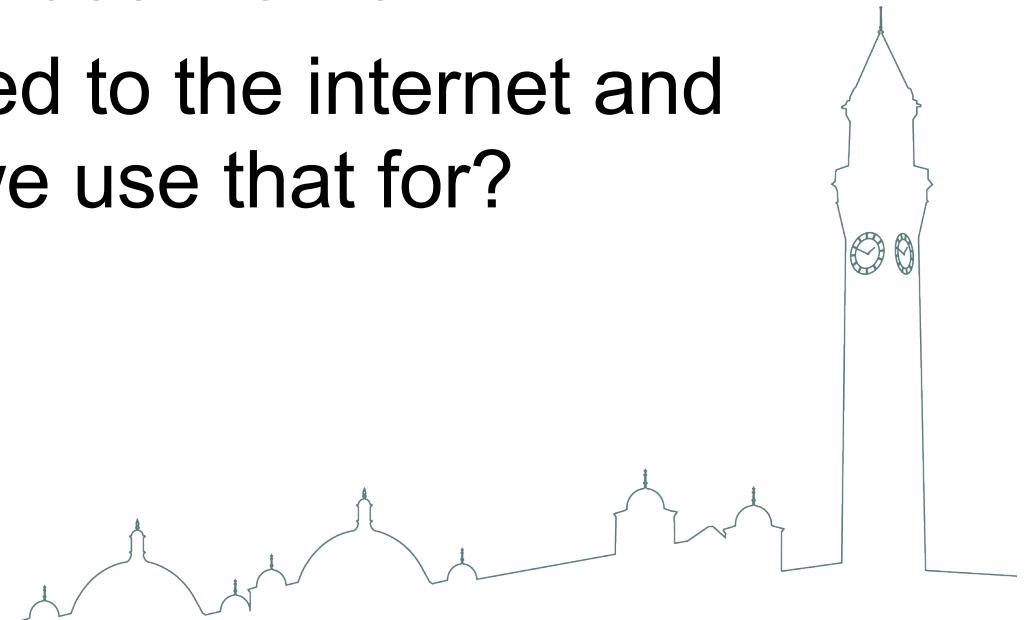
- Positive user experience
  - Fun, engaging, enjoyable
  - Interface as well as wider system experience
  
- Designing *for* a user experience

# Approaches: Building new interface technologies



# Approaches: Exploring uses for new technology possibilities

- smartphones are context aware - what can we use that for?
- we can now create large, interactive displays... What can we use that for?
- objects can be connected to the internet and each other - what can we use that for?



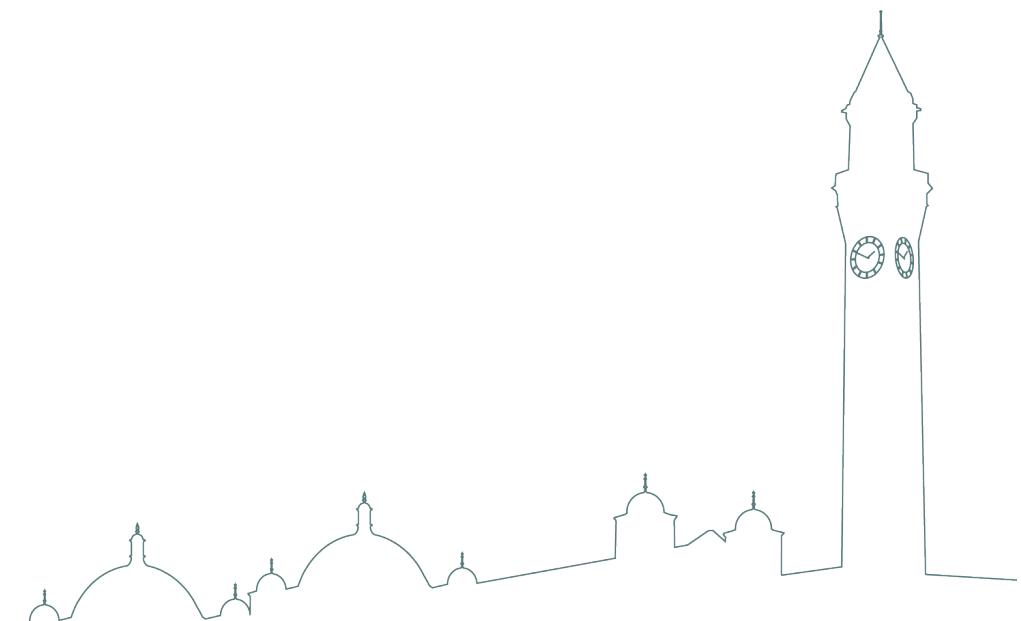
# Approaches: Understanding the impact of technology on our lives



© davidgoldmanphoto/Corbis

# Approaches: Designing technology solutions

- E.g. Designing an application that helps students determine the suitability of different career paths.
- How would you solve this problem?



Why should you study HCI?

# Who values HCI?



Google YAHOO!



# HCI related jobs

**Usability  
Consultant**

**UX  
Designer**

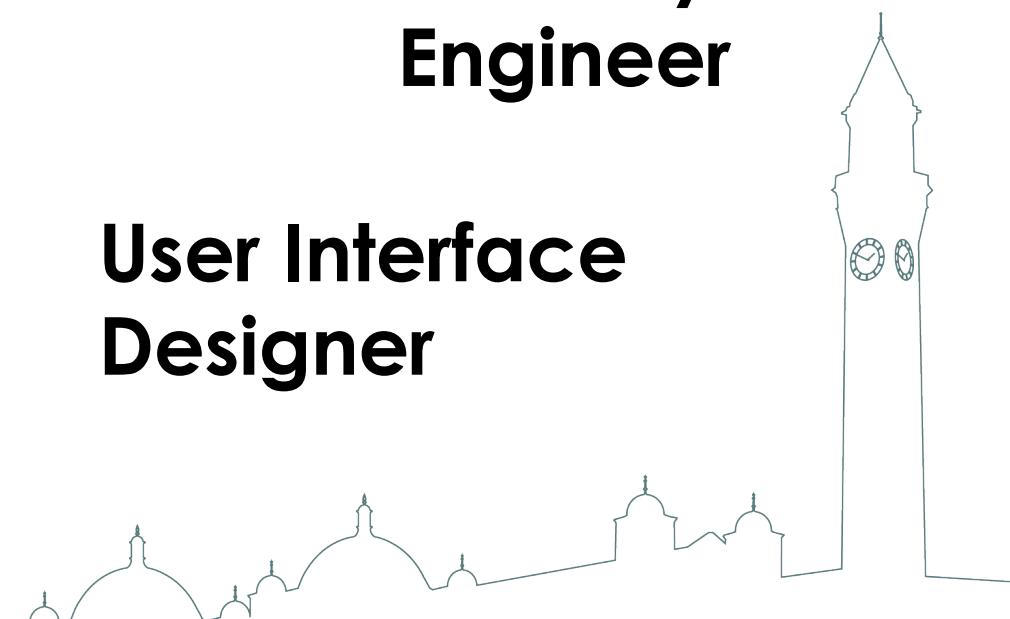
**Information  
Architect**

**Usability  
Engineer**

**User Researcher**

**User Interface  
Designer**

**User Interaction  
Designer**



# Why should you study it?

If you are going to become a programmer/CS professional:

- So you don't build badly designed computing systems that no-body needs or wants or can use
- So you know how to go about finding out WHAT to build
- So you know how to evaluate what you have built
- So you know the value of working alongside HCI professionals

# What we will cover

- Understanding people, how they work and think in order to guide design
- Design process topics
- Methods, tools and techniques in HCI
- Examples of HCI/psychology research
  - which show-cases methods in practice
  - Informs us about aspects of human functioning relevant to HCI design
  - Informs us about how people engage with technology or situations in order to inform design



# HCI Pre-requisites

- A willingness to engage with theories of human behaviour.
- A willingness to think deeply about how to design technology for people.
- You will need to READ
- You will need to WRITE
- You will need to THINK

