SWEN422
Human Computer Interaction
1. Introduction

SWEN422 - 2024

Dr Jennifer Ferreira
Dr Craig Anslow

Agenda

- Safety Briefing
- Background
- Course Details
- Human Computer Interaction (HCI)
- HCI Research
- Class Rep Election

Safety Briefing

https://www.youtube.com/watch?v=97jIkp-XyFg

First Computer Experiences …

https://history-computer.com/computers-in-the-1980s

Is this the Future?

https://www.youtube.com/watch?v=FZc4dxlqJjs

SWEN422 Team

- **Dr Jennifer Ferreira**
  - Lecturer
  - Teaching weeks 1-5
  - Office: CO230
  - Office hours: Tuesday 14:00-1500
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- **Dr Craig Anslow**
  - Course Coordinator & Lecturer
  - Teaching weeks 6-12
  - Office: CO260
  - Office hours: by appointment
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Online Spaces

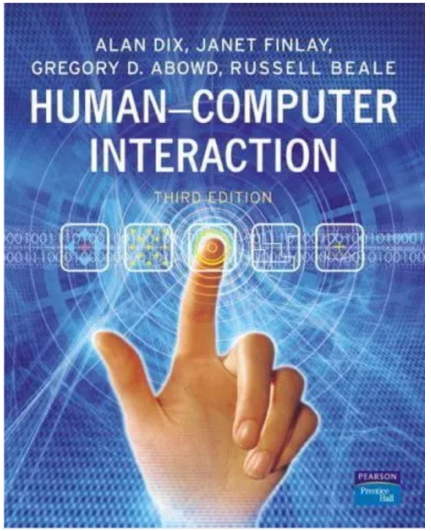
- SWEN422 Home Page
  - https://ecs.wgtn.ac.nz/Courses/SWEN422_2024T1
  - https://nuku.wgtn.ac.nz/courses/20457
- Lecture Schedule
  - https://ecs.wgtn.ac.nz/Courses/SWEN422_2024T1/LectureSchedule
- VStream/Panopto/Zoom for streaming and recording lectures
- Nuku Discussion Board for questions and discussions
  - https://nuku.wgtn.ac.nz/courses/20457/discussion_topics
- Nuku for course announcements
- ECS Assessment System for assignment submissions

In Person Lectures

- **MYLT 220**
- Wednesday 10:00 - 10:50
- Friday 10:00 - 10:50

Course Readings

- Relevant readings will be provided on the lecture slides
- Access readings through the university library
  - https://www.wgtn.ac.nz/library
- Or the reading list (Talis)
  - https://rl.talis.com/3/victoria/lists/A32F1044-200F-0DEC-0197-B623BE306737.html



Assignments

Assignment	Due	Week	%
Assignment 1: Essay	Thursday 28 March	5	30
Assignment 2: Essay	Friday 17 May	10	35
Assignment 3: Group Project	Friday 14 June	14	35

https://ecs.wgtn.ac.nz/Courses/SWEN422_2024T1/Assignments

Slip Days and Extensions

- Students have **three** slip days across the course that will be granted automatically.
- Work submitted after slip days without an extension will have its mark reduced by a shrinking cap of 10% per day.
- Extensions may be granted by the course coordinator by applying for an extension through the ECS submission system.

Using ChatGPT in assignments

SWEN422 is AI Green 

- Students are ***encouraged*** to use AI tools to assist in learning and production of content.
- Students need to ***reference*** the technology they are using and will be assessed assuming full access to AI tools.

Using ChatGPT in Assignments

WARNING: 

- Low quality prompts = low quality results
- Results are sometimes false/erroneous
- AI is a tool and must be acknowledged in your work to preserve academic integrity

https://www.linkedin.com/posts/emollick_i-added-an-ai-policy-to-my-syllabus-we-activity-7021676210443145216-FVhy/?originalSubdomain=np

Humans ----- Computers

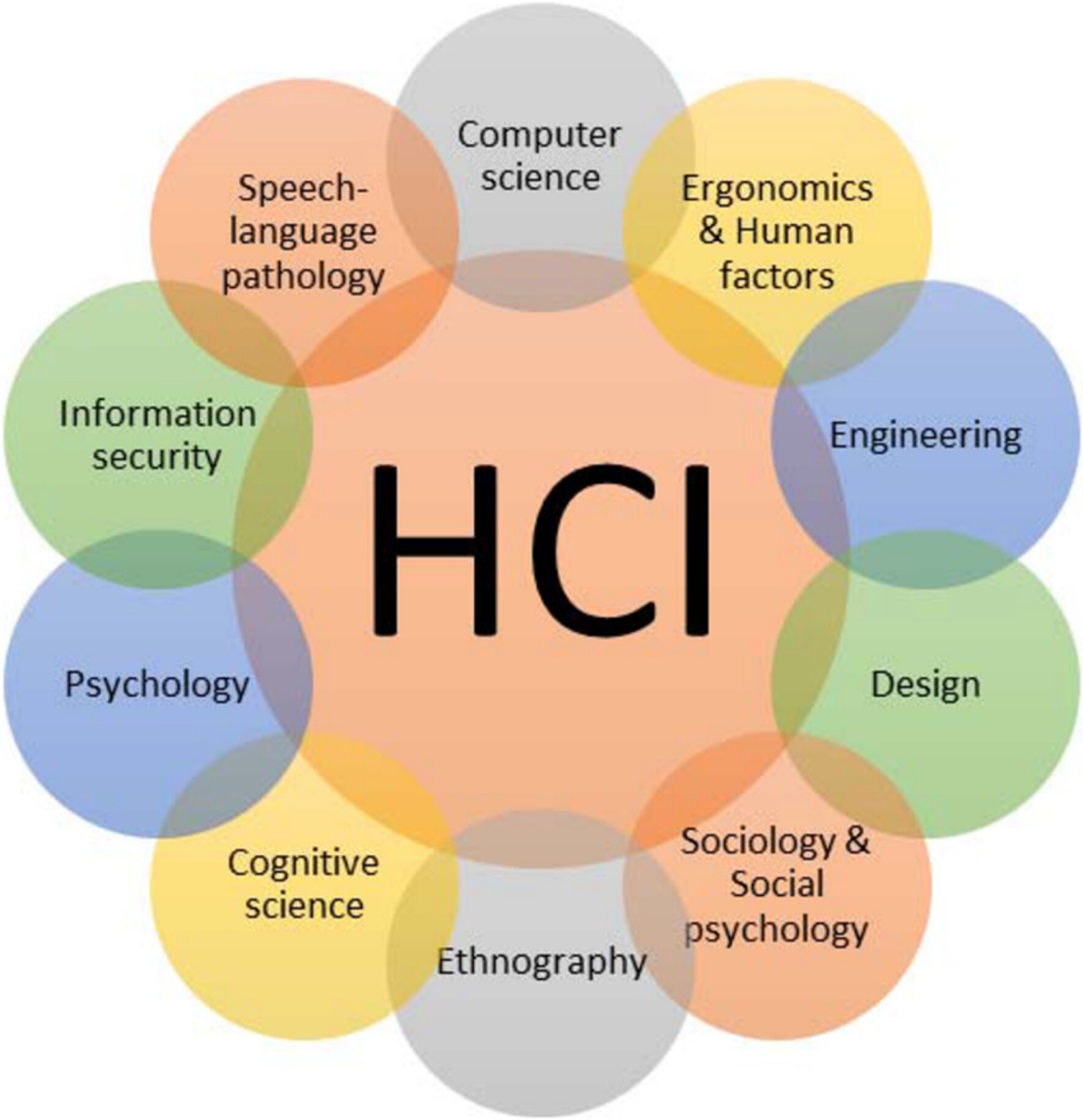
Humans

- **Physiology**
  - Visual System
  - Cognitive performance
  - Human Performance Modelling
- **Psychology**
  - Mental state
  - Consciousness
- **Sociology**
  - Social Context

HCI

Computers

- **Hardware**
  - Physical world
  - Tangible components
  - System performance modelling
- **Firmware**
  - Controllers
  - Signal processing
- **Software**
  - Instructions as Data
  - Modifiable



Chakraborty, Biplab & Sarma, Debajit & Bhuyan, Manas & MacDorman, Karl. (2017). A Review of Constraints on Vision-based Gesture Recognition for Human-Computer Interaction. IET Computer Vision. 12. 10.1049/iet-cvi.2017.0052.

What is HCI

Human Computer Interaction (HCI) is the study of how people interact with computers and to what extent computers are or are not developed for successful interaction with human beings.

Professor Russell Beale
https://www.cs.bham.ac.uk/~rxb/Teaching/HCI%20II/intro.html

Goals of HCI

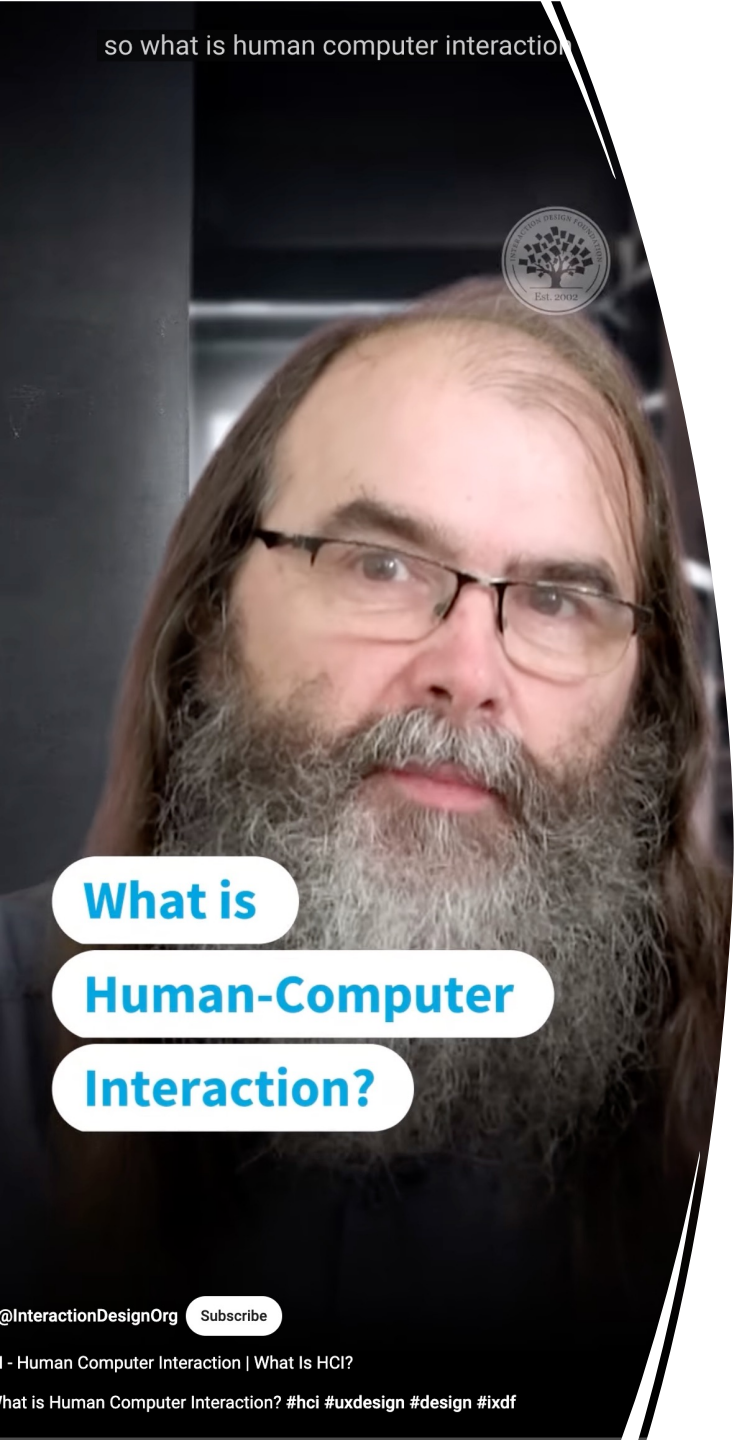
- Produce **usable** and **safe** systems, as well as **functional** systems. In order to produce computer systems with good usability, developers must attempt to:
  - **understand** the factors that determine how people use technology
  - **develop** tools and techniques to enable building suitable systems
  - **achieve** efficient, effective, and safe interaction
  - put **people** first

Professor Russell Beale
https://www.cs.bham.ac.uk/~rxb/Teaching/HCI%20II/intro.html

Goals of HCI

- Underlying the whole theme of HCI is the belief that **people** using a computer system should **come first**.
  - Their needs, capabilities and preferences for conducting various tasks should direct developers in the way that they design systems.
- **People** should **not have to change the way** that they **use a system** in order to fit in with it
  - The system should be designed to match their requirements.

Professor Russell Beale
https://www.cs.bham.ac.uk/~rxb/Teaching/HCI%20II/intro.html



What is HCI?

- **Academic discipline** (*research*)
  - developing empirical understandings of users,
  - theorising about design/users
  - HCI researchers
- **Applied discipline** (*practice*)
  - industry-focused
  - building products or services
  - User experience designers, interaction designers

https://www.youtube.com/shorts/TlsTIreGR4g

https://www.youtube.com/watch?v=cK3YXzvfZIE

https://www.youtube.com/watch?v=yNzLBI0wsGU

Research

- Methodology – How you do something
- Disciplines have standard approaches
- HCI – Multidisciplinary
  - Computer Science
  - Psychology
  - Information Science
  - Physiology
  - Anthropology
  - …….

Types of Research

- **Scientific Method**
  - Hypothesis testing
  - Look to prove something is wrong
  - Assume “everything is the same” and reject that possibility
- **Action Research**
  - Diagnose a problem
  - Intervention with analysis
- **Observational**
  - See what people are doing
  - Good for suggesting research, weak for advice.

A Reminder of Some Terminology

- **Quantitative**
  - Math/stats measurement of *something.*
  - Could be a numeric combination of subjective opinions.

- **Qualitative**
  - Analysis of phenomena often with non-numerical observation, interviews, or other complex data.
  - Could include coding of language

Many dimensions within

- **Observational**
  - Ethnographic Research
    - Embedded in the community
    - Observations
  - Grounded theory
    - Collect data before making assumptions
    - Let the data speak
  - Phenomenological
    - Interviews to find common themes
  - …..

Contributions

- **Empirical** Research – experiments, observations
- **Artefact** Contributions – actual new tools
- **Methodological** Contributions – new ways to investigate
- **Theoretical** Contributions – definitions, frameworks, principles, …
- **Datasets** – rigorously collected/compiled corpora
- **Surveys** – meta-analysis of existing research, new interpretations
- **Opinions** – Reinterpretation of existing research

https://interactions.acm.org/archive/view/may-june-2016/research-contribution-in-human-computer-interaction
https://dl-acm-org.helicon.vuw.ac.nz/doi/fullHtml/10.1145/2907069

Common HCI Research Themes

- Understanding people
- UX design and evaluation
- Input/output methods
- Visual design and visualization
- Games
- Learning
- Ethics
- AR/VR/XR experiences
- Explainable AI
- Health technologies
- Wearable devices
- Etc.

Class Representatives

- Class Representative
  - https://www.youtube.com/watch?v=TdADUaxh-Qk
- Learn more about it here and our Class Rep will need to submit the form online:
  - https://www.vuwsa.org.nz/class-representatives/
- Class Rep Policy
  - https://www.wgtn.ac.nz/documents/policy/academic/class-representative-policy.pdf
- And now for election time!

Further Reading

- https://www.lri.fr/~mackay/pdffiles/DIS97.Triangulate.pdf
- https://www.cs.bham.ac.uk/~rxb/Teaching/HCI%20II/intro.html
- MacKenzie, I. S. (2012). Chapter 1-Historical Context. In *Human-computer interaction: An empirical research perspective*. Pp 1-26.
- https://www.interaction-design.org/