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Welcome to this session:

Skills Bootcamp - Case Study Analysis of HCI

The session will start shortly...

Questions? Drop them in the chat.
We'll have dedicated moderators answering questions.

Skills Bootcamp Data Science Housekeeping

- The use of disrespectful language is prohibited in the questions, this is a supportive, learning environment for all - please engage accordingly. **(Fundamental British Values: Mutual Respect and Tolerance)**
- No question is daft or silly - **ask them!**
- There are **Q&A sessions** midway and at the end of the session, should you wish to ask any follow-up questions. We will be answering questions as the session progresses as well.
- If you have any questions outside of this lecture, or that are not answered during this lecture, please do submit these for upcoming Academic Sessions. You can submit these questions here: **Questions**

Skills Bootcamp Data Science Housekeeping

- For all **non-academic questions**, please submit a query: ***www.hyperiondev.com/support***
- **Report a safeguarding incident: *www.hyperiondev.com/safeguardreporting***
- We would love your feedback on lectures: ***Feedback on Lectures.***
- Find all the lecture **content** in your **Lecture Backpack** on GitHub.
- If you are hearing impaired, kindly use your computer's function through Google chrome to enable captions.

Safeguarding & Welfare

We are committed to all our students and staff feeling safe and happy; we want to make sure there is always someone you can turn to if you are worried about anything.

If you are feeling upset or unsafe, are worried about a friend, student or family member, or you feel like something isn't right, speak to our safeguarding team:

Ian Wyles
Designated Safeguarding Lead

Simone Botes

Nurhaan Snyman

Rafiq Manan

Ronald Munodawafa

Tevin Pitts

Scan to report a safeguarding concern

or email the Designated Safeguarding Lead:
Ian Wyles
safeguarding@hyperiondev.com

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Skills Bootcamp Progression Overview

✅ Criterion 1 - Initial Requirements

Specific achievements within the first two weeks of the program.

To meet this criterion, students need to, by no later than **01 December 2024 (C11)** or **22 December 2024 (C12):**

- **Guided Learning Hours** (GLH)**:** Attend a minimum of 7-8 GLH per week (lectures, workshops, or mentor calls) for a total minimum of **15 GLH**.
- **Task Completion:** Successfully complete the **first 4 of the assigned tasks**.

✅ Criterion 2 - Mid-Course Progress

Progress through the successful completion of tasks within the first half of the program.

To meet this criterion, students should, by no later than **12 January 2025 (C11)** or **02 February 2025 (C12):**

- **Guided Learning Hours** (GLH)**:** Complete at least **60 GLH**.
- **Task Completion :** Successfully complete the **first 13 of the assigned tasks**.

Skills Bootcamp Progression Overview

✅ Criterion 3 – End-Course Progress

Showcasing students' progress nearing the completion of the course.

To meet this criterion, students should:

- **Guided Learning Hours** (GLH)**:** Complete the **total minimum required GLH,** by the **support end date.**
- **Task Completion : Complete all mandatory tasks**, including any necessary resubmissions, by the end of the bootcamp, **09 March 2025 (C11)** or **30 March 2025 (C12).**

✅ Criterion 4 - Employability

Demonstrating progress to find employment.

To meet this criterion, students should:

- **Record an Interview Invite:** Students are required to record proof of invitation to an interview by **30 March 2025 (C11)** or **04 May 2025 (C12)**.
  - **South Holland Students** are required to proof and interview by **17 March 2025.**
- **Record a Final Job Outcome :** Within 12 weeks post-graduation, students are required to record a job outcome.

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Learning Outcomes

- Analyze successful and failed HCI designs and extract key lessons.
- Explain the role of security-oriented design in HCI.
- Critically assess and propose improvements to real-world HCI examples.
- Discuss ethical considerations in design, especially concerning data privacy.

Lecture Overview

- Introduction
- Case Studies

What does HCI stand for, and why is it important in technology design?

A. Human-Computer Intelligence
B. Human-Computer Interaction
C. Hardware-Computer Interface
D. Human-Cloud Integration

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A. The number of colors used in an interface
B. The ease with which users can interact with a system
C. The speed of the internet connection
D. The number of features a system has

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A. Making the UI as complex as possible to challenge users
B. Ensuring users can recall information instead of recognizing it
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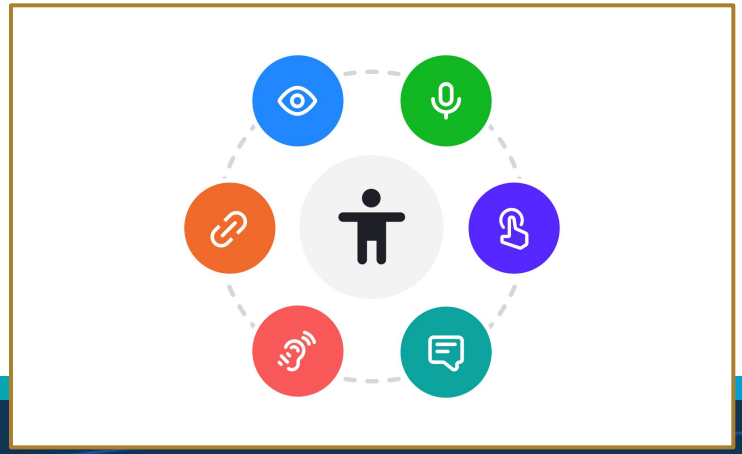
What is HCI?

- Human-Computer Interaction (HCI) focuses on designing user-friendly systems.
- It combines psychology, design, and computing.
- The goal:
  - Enhance usability and user experience (UX).

Why Study HCI Case Studies?

- Learning from both successful and failed designs.
- Understanding how users interact with technology.
- Improving accessibility, security, and overall usability.



Success Case Study – Apple iPhone UI

- Why It Succeeded:
  - First intuitive touchscreen UI (2007).
  - Natural gestures (swipe, pinch, tap).
  - Minimalist, user-friendly design.
  - Strong ecosystem integration (App Store, iCloud).

The Case for Apple iPhone UI

Let’s Breathe!

Let’s take a small break before moving on to the next topic.

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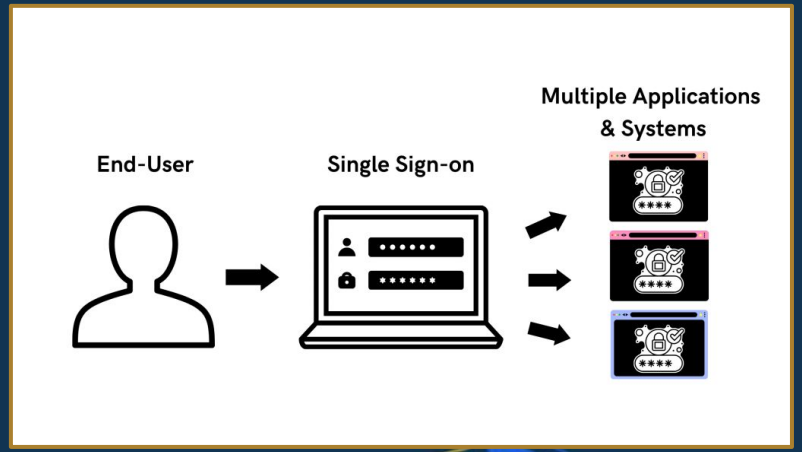
Failure Case Study – Windows 8

- Why It Failed:
  - Removed Start button, confusing UI shift.
  - Forced touchscreen design on desktop users.
  - Steep learning curve and user resistance.

The Case for Windows 8

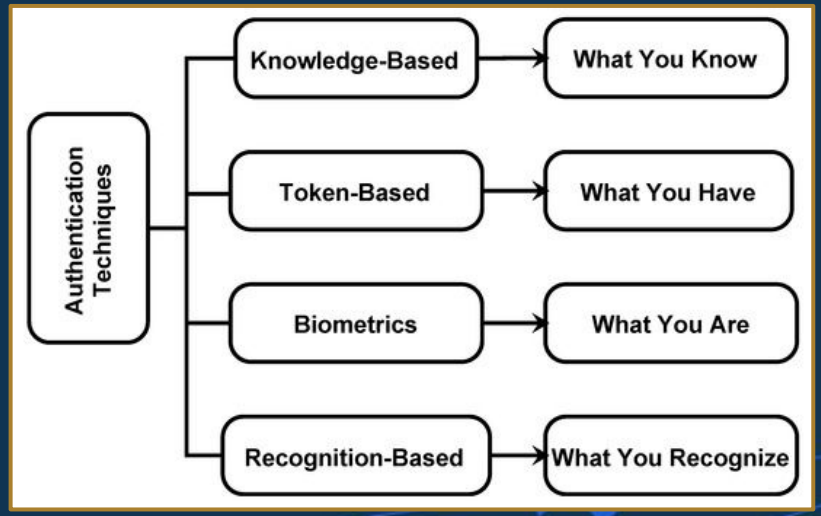
Security-Oriented Designs in HCI

- Balancing Security & Usability:
  - Users demand easy authentication but also security.
  - Poor security practices lead to breaches.
  - Best practices include biometrics, Single Sign-On (SSO), and password managers.



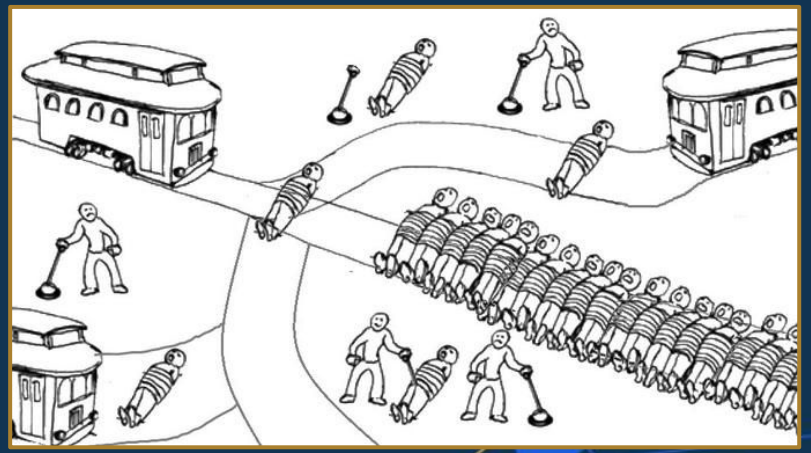
Case Study – Secure Authentication

- Good Design: Apple Face ID
  - Secure, seamless, and fast login.
  - Reduces reliance on passwords.
- Bad Design: Complex CAPTCHAs
  - Hard to read, frustrating user experience.
  - Causes accessibility issues.



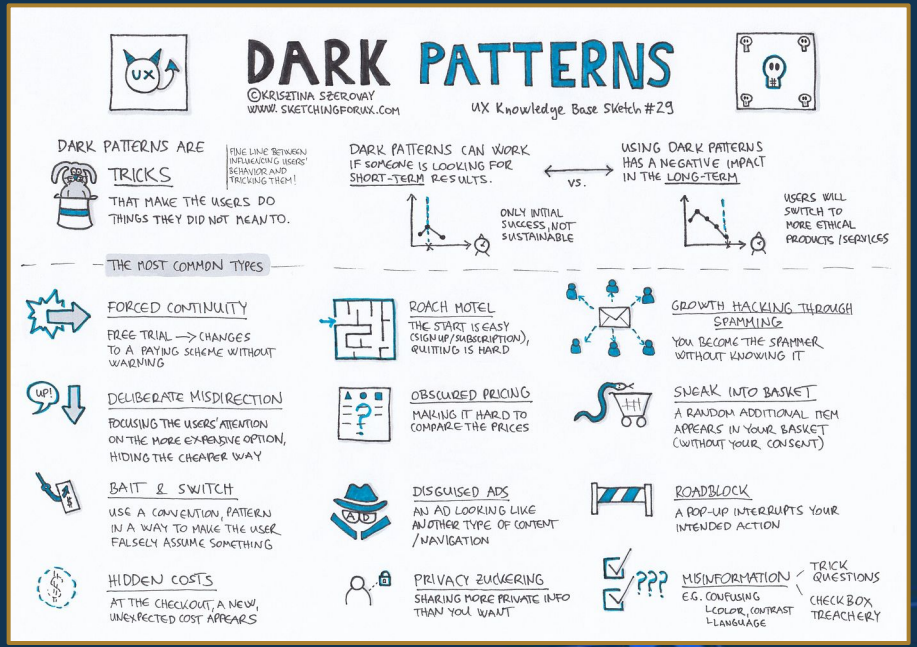
Ethical Considerations in HCI

- Key Issues:
  - Data privacy concerns (e.g., Facebook-Cambridge Analytica).
  - Dark patterns (tricking users into actions).
  - AI bias in design (facial recognition inaccuracies).



Spotting Dark Patterns

- “Free trials” that auto-renew without clear notice.
- Making it easy to sign up but hard to cancel.
- Misleading UX (e.g., disguised ads).



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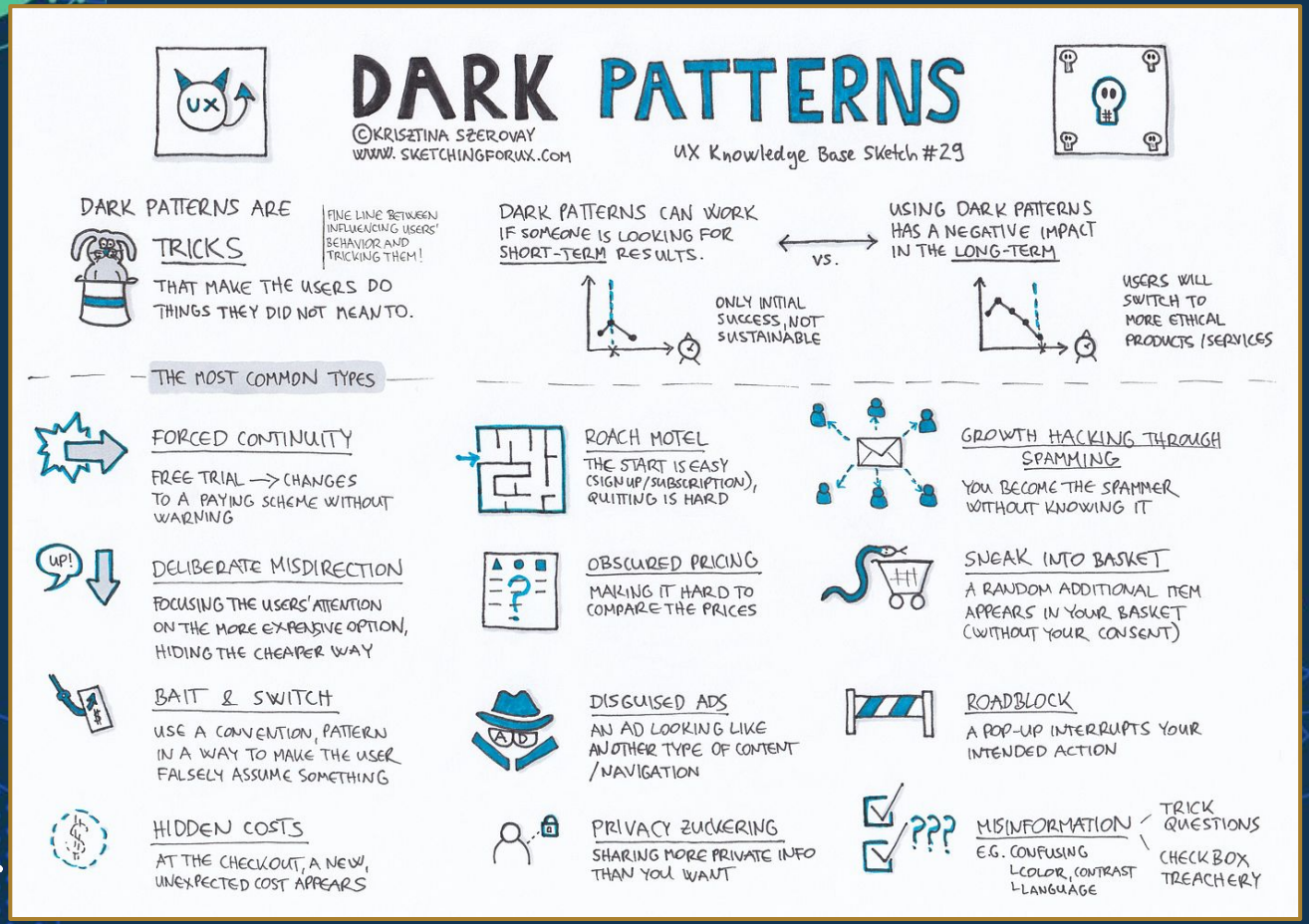

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Key Takeaways

- Learn from both success and failure in HCI.
- Security must be user-friendly.
- Ethical design choices build trust.
- Always prioritize user experience.

Which of the following is a key reason why Windows 8's UI was considered a failure?

A. It introduced an intuitive Start menu.
B. It removed the traditional Start button, confusing users.
C. It improved usability with better keyboard shortcuts.
D. It was designed specifically for gaming performance.

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What is an example of a successful security-oriented HCI design?

A. Requiring users to create passwords with at least 15 characters, symbols, and uppercase letters.
B. Implementing biometric authentication like Face ID or fingerprint recognition.
C. Forcing users to enter a CAPTCHA before every login attempt.
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What is a key lesson learned from analyzing failed HCI designs?

A. Users always prefer highly complex interfaces.
B. Ignoring user feedback can lead to usability problems.
C. Security should always take precedence over usability, no matter the cost.
D. Adding more features to an interface always improves usability.

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Which of the following is an example of a dark pattern in UX design?

A. Providing clear privacy settings and options.
B. Making the “unsubscribe” button difficult to find in an email.
C. Offering users multiple secure login options.
D. Using large, readable fonts for accessibility.

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Which of the following best describes the trade-off between security and usability in authentication systems?

A. Security and usability always go hand in hand; improving one automatically improves the other.
B. Increasing security often makes usability worse, so designers must find a balance.
C. Usability is more important than security in authentication systems.
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Summary

- ★ Data science has the power to **drive social change** when used **responsibly**.
- ★ Case studies show its impact on **health, disaster response, education, and poverty reduction**.
- ★ **Challenges like bias, privacy, and scalability** must be carefully managed.
- ★ **Ethical considerations** should always be at the core of social good applications.

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Q & A SECTION

Please use this time to ask any questions relating to the topic, should you have any.

Thank you for attending

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SKILLS FOR LIFE
SKILLS BOOTCAMPS

Department for Education