COSC 341: Human Computer Interaction

Mohammad Khalad Hasan

COSC 341 People

Mohammad Khalad Hasan

- Assistant Professor
  - *UBC Okanagan*
- Postdoctoral Fellow
  - *University of Waterloo*
- PhD in Computer Science
  - *University of Manitoba*

18th November, 2010

19th November, 2010

18th November, 2010

19th November, 2010


ROGERS LTE 7:38 AM
Winnipeg
Humidity 70%
Chance of snow 0%
Wind WNW 11 kph
Wind chill -47°
Tuesday Today -29
Now 8AM 8:26AM 9AM 10AM
-36 -32 Sunrise -33 -32
Wednesday -22
Thursday -21
Friday -6
Saturday -20
Sunday -27
ROGERS LTE 7:40 AM
North Pole
Humidity 67%
Chance of snow 0%
Wind 0 kph
Wind chill -29°
Tuesday Today -19
Now 5AM 6AM 7AM 8AM
-29 -25 -24 -24 -26
Wednesday -13
Thursday -17
Friday -18
Saturday -22
Sunday -19

COSC 341 People

- Office hours: Tue 12:30-1:30, Thu 11:00-12:00
  - Or by appointment
- Office: SCI 260
- Email: khalad.hasan@ubc.ca
  - Always include COSC 341 in subject
  - Expect ~24hr turnaround (~**48hrs on weekends**)
  - Preferred: **Canvas** Inbox

Research Interest

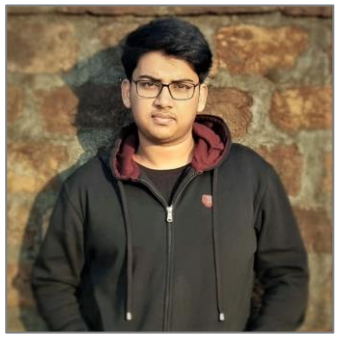
- Mobile and Wearable UIs
- Around-Device Interaction
- Information Visualization
- Social Acceptance of Technology
- Website: https://cmps-people.ok.ubc.ca/mkhasan/

- Sample Project:
- WriArm: Leveraging Wrist Movement to Design Wrist+Arm Based Teleportation in VR https://www.youtube.com/watch?v=ZJBGYBLHRIk&ab_channel=SohanChowdhury

Cell Phone Policy

COSC 341 People

- Teaching Assistants (TAs):



Tarik Hasan

Omang Baheti

Soumil Chhabra

LABORATORY COORDINATOR/INSTRUCTOR/TA:

Name	Location	Day	Time
Soumil Chhabra	ART 215	Tuesday	16:00 - 18:00
Tarik Hasan	ART 215	Wednesday	16:00 - 18:00
Omang Baheti	ART 215	Thursday	16:00 - 18:00
Tarik Hasan	ART 215	Friday	16:00 - 18:00

Syllabus

What to expect

How to be successful

Next steps

Course Focus

- How to **design**, **build/implementation** and **evaluate** user interfaces that satisfy users' needs

TENTATIVE COURSE SCHEDULE

Wk	Date	Topic
1	Wed, Sep 4	Introduction
	Fri, Sep 6	Android UI Development
2	Wed, Sep 11	A History of Interaction
	Fri, Sep 13	Android UI Development
3	Wed, Sep 18	Usability Goal
	Fri, Sep 20	Design Principles
4	Wed, Sep 25	Design Principles
	Fri, Sep 27	Users and Requirement Gathering
5	Wed, Oct 2	Android UI Development
	Fri, Oct 4	Android UI Development
6	Wed, Oct 9	User and Requirement Gathering
	Fri, Oct 11	Scenarios and Tasks, Prototyping
7	Wed, Oct 16	Prototyping + Midterm Review
	Fri, Oct 18	Midterm exam
8	Wed, Oct 23	Experiment Design
	Fri, Oct 25	Heuristic Evaluation
9	Wed, Oct 30	Android File System
	Fri, Nov 1	Input Devices
10	Wed, Nov 6	Project Step 3 Presentation
	Fri, Nov 8	Input Performance
11	Wed, Nov 13	No class – Midterm Break
	Fri, Nov 15	No class – Midterm Break
12	Wed, Nov 20	Visual Perception
	Fri, Nov 22	Visual Design
13	Wed, Nov 27	Accessibility
	Fri, Nov 29	HCI Research
14	Wed, Dec 4	Project Presentation
	Fri, Dec 6	Project Presentation

Design
Implementation
Evaluation

Design

- Design principles and guidelines
- Human capabilities/limitations
- Devices capabilities/limitations

Build/Implementation

- Android UI development
- Techniques for constructing a high-fidelity prototype
- Methods for transforming user data into prototypes

Evaluate

- Interviews/questionnaires
- Performance models
- Experiment design
- Heuristic evaluation

Course Objectives

- Acquire the fundamentals of Human-Computer Interaction
- Develop a toolbox of proper design guidelines
- Acquire GUI programming skills
- Learn a variety of interface evaluation techniques
- Develop critical UI evaluation skills

Keep eyes wide open to UI of all types of devices

Grading

- Evaluation Criteria for **COSC 341**:
  - Labs 20%
  - Midterm Exam 20% (October 18 at 12:30pm)
  - Final Exam 30% (TBA)
  - Project 30%

Labs

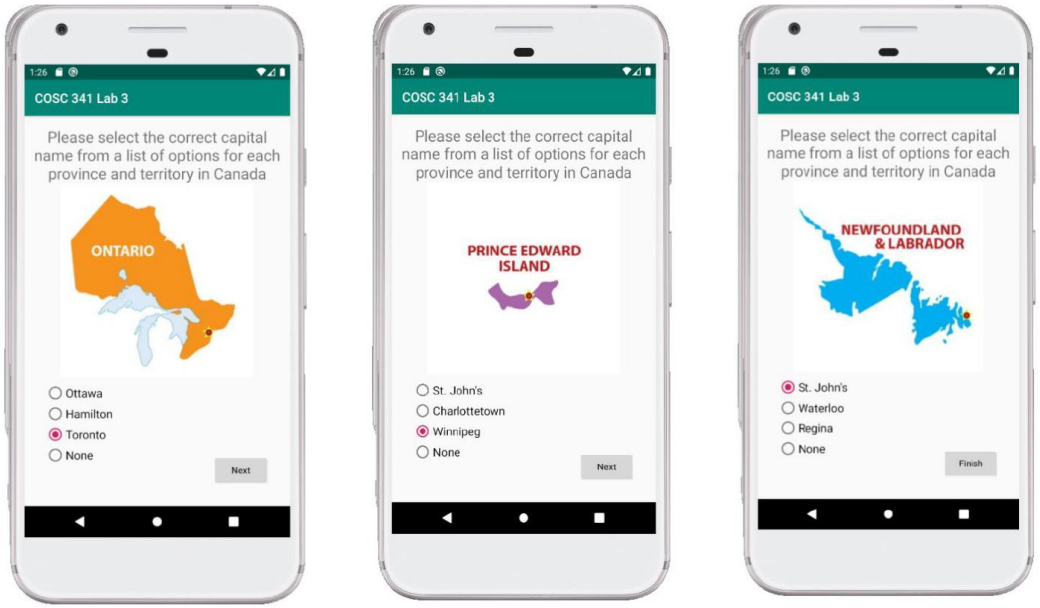
20% Lab 0

20% Lab 1

20% Lab 2

20% Lab 3

20% Lab 4



In-Class Activities (Bonus)

Approximately 10 in-class activates (1 mark for each)

In-class activity marks will be added to your lab marks

Please note that bonus marks from Labs or Project **will not overflow** and be added to other components.

Late Lab Submission Policies

- Labs due dates are posted on Canvas
  - You are allowed to submit your labs, **lab 0 to lab 4**, up to 1 day late (i.e., up to 24 hours late for each lab).
  - **No lab** submissions will be considered 24 hours after the due date/time.
  - Please note that if the late submission date falls on a **weekend**, there will be **no TA or instructor support available** for labs.

Late Project Steps Submission Policies

- Project steps due dates are posted on Canvas
- No late submissions will be considered for project steps

Course Project

- **Design**, **build/implement** and **evaluate** mobile user interfaces that satisfy users' needs
- The course project will be group-based (4 members per group)
- Deliverables with tentative dates
  - See the project description

Project Group Work

- Duties should be distributed equally among members.
  - Each group member should be given the opportunity to participate in all aspects of the project
- Group members evaluate one at the end of the term
- Select your own group members
- Email you topics of interest (~2 projects) and send them to me at khalad.hasan@ubc.ca.
- Project topics must be finalized by September 13, 2024.

Development Platform

- The course project will be on Mobile platform
- There will be a few lectures on Android Application Development
- You will need to learn Android on your own time
  - Unfortunately, this is not a course in Mobile programming
- In-class instruction will focus on HCI theories, concepts and methods

Dates and Deadlines

LABORATORY SCHEDULE:

The scheduled lab time will be spent performing labs and projects to get familiarized with the course content.

Wk	Lab Date	Lab/Project: Topics	Lab/Project due
1	Sep 3 – 6	No Lab	
2	Sep 9 – 13	Lab 0: Getting familiar with Android	Project Step 0 **due Sep 13, 11:59pm**
3	Sep 16 – 20	Lab 1: Android Basics	Lab 0 **due Sep 20, 11:59pm**
4	Sep 23 – 27	Lab 2: Android Multiview Applications	Lab 1 **due Sep 27, 11:59pm**
5	Sep 30 – Oct 4	Project Step 1: Exploring usability criteria, user experience goal, and user profile for the selected project	Lab 2 **due Oct 4, 11:59pm**
6	Oct 7 – 11	Project Step 2: Requirement gathering for the project	Project Step 1 **due Oct 11, 11:59pm**
7	Oct 14 – 18	TA support for project/labs	Project Step 2 **due Oct 18, 11:59pm**
8	Oct 21 – 25	Lab 3: Designing Android Applications	
9	Oct 28 - Nov 1	Project Step 3: Paper prototyping and user evaluation	Lab 3 **due Nov 1, 11:59pm**
10	Nov 4 – 8	Lab 4: Android File Operations	Project Step 3 **due Nov 8, 11:59pm**
11	Nov 11 – 15	No Lab (Midterm Break)	
12	Nov 18 – 22	Project Step 4: Vertical prototyping, heuristic evaluation	Lab 4 **due Nov 22, 11:59pm**
13	Nov 25 – 29	TA support for Porject	
14	Dec 2 – Dec 6	TA support for Project and Final Exam	Project Step 4 **due Dec 6, 11:59pm**

Resources

- Primary Text (Optional):

Jenny Preece, Yvonne Rogers and Helen Sharp. Interaction design: Beyond Human-Computer Interaction, Wiley and sons. 3rd Edition. E-book available on UBC library)

- Other Material:

Alan Dix, Janet Finlay, Gregory Adowd, and Russell Beale. Human-Computer Interaction, Prentice Hall.

- Lots of online resources for Android programming

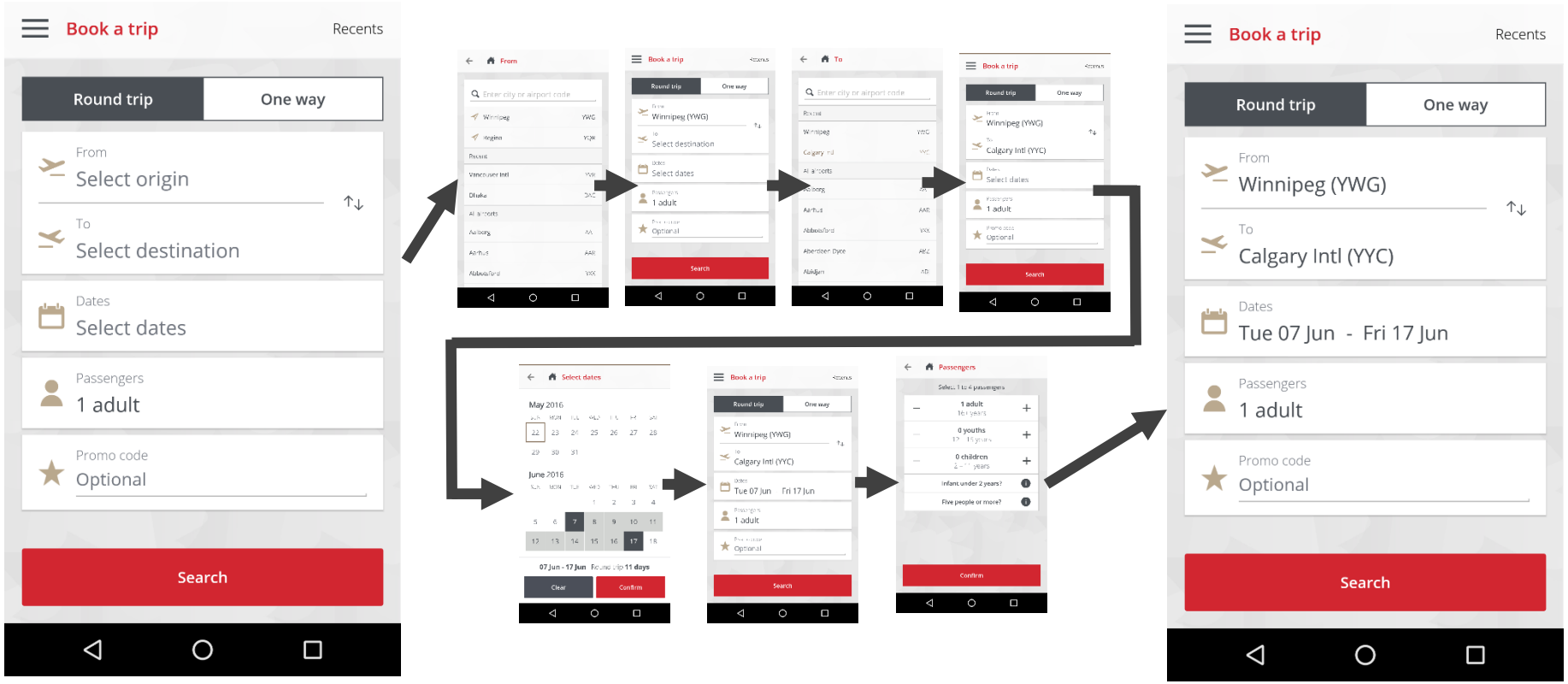
Getting Help

- Office Hours
  - Lecture and assignment help
- Canvas
  - Staff will monitor (best-effort response)
  - When posting
    - Answer questions, but don’t be too explicit
    - No code taken directly from assignment
    - Build one collaborative answer
    - Be nice

Next Steps

- Project Step 0

Do you have any recent or memorable experiences with good or bad UIs?


Book a trip
Recents
Round trip
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Select origin
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Dates
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Passengers
1 adult
Promo code
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Book a trip
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From
Winnipeg (YWG)
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Dates
Tue 07 Jun - Fri 17 Jun
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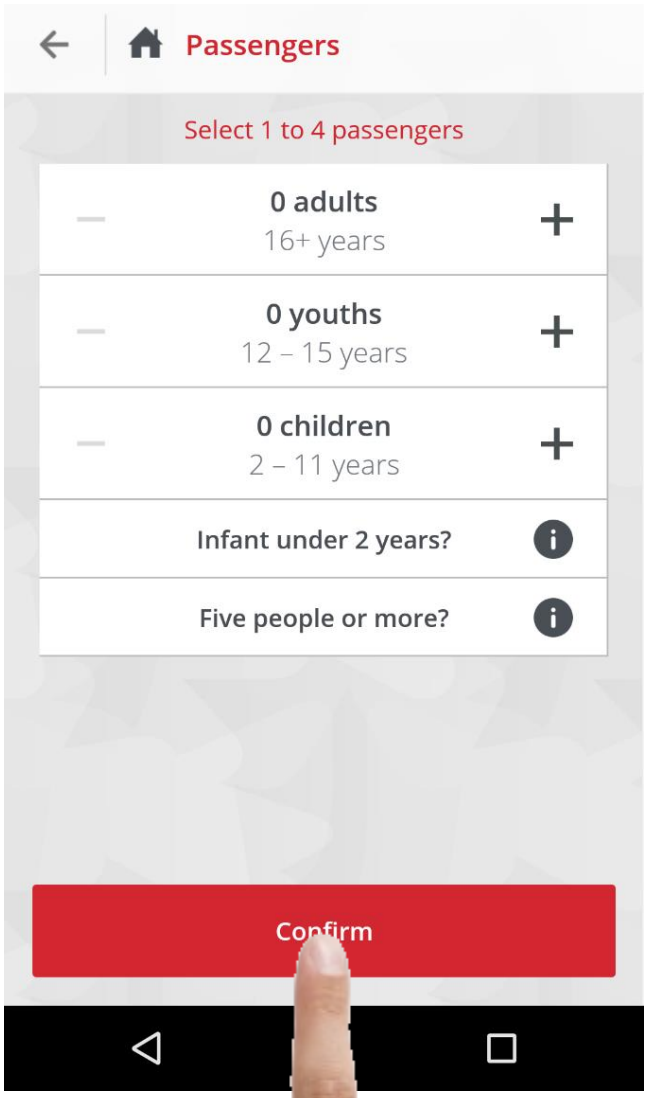
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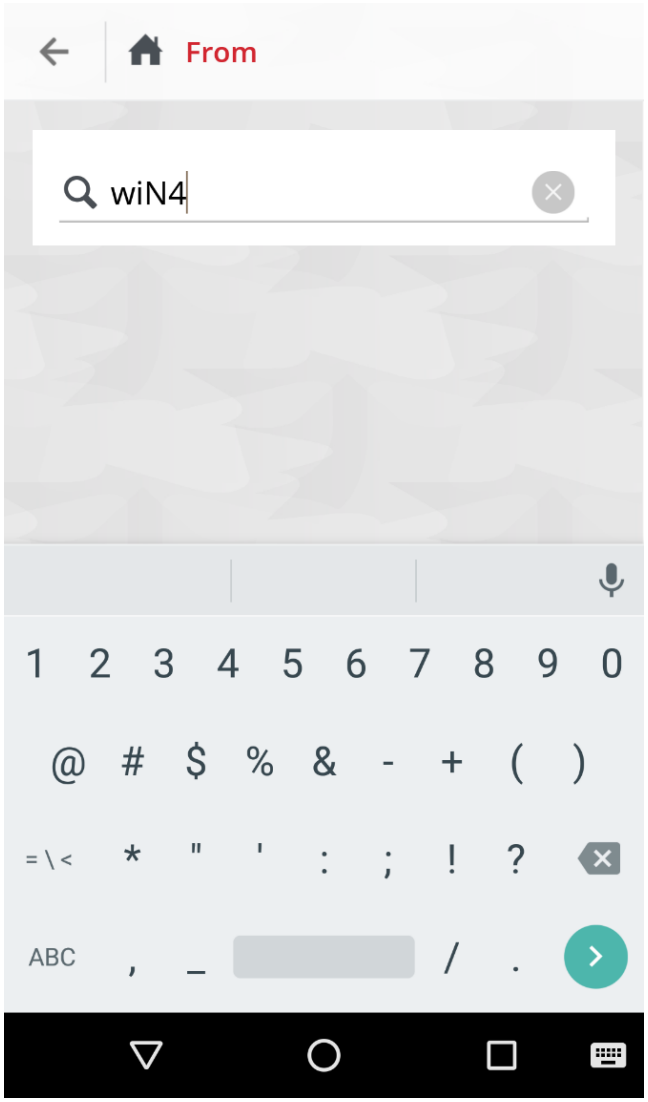
0 adults
16+ years
0 youths
12 – 15 years
0 children
2 – 11 years
Infant under 2 years?
Five people or more?
Confirm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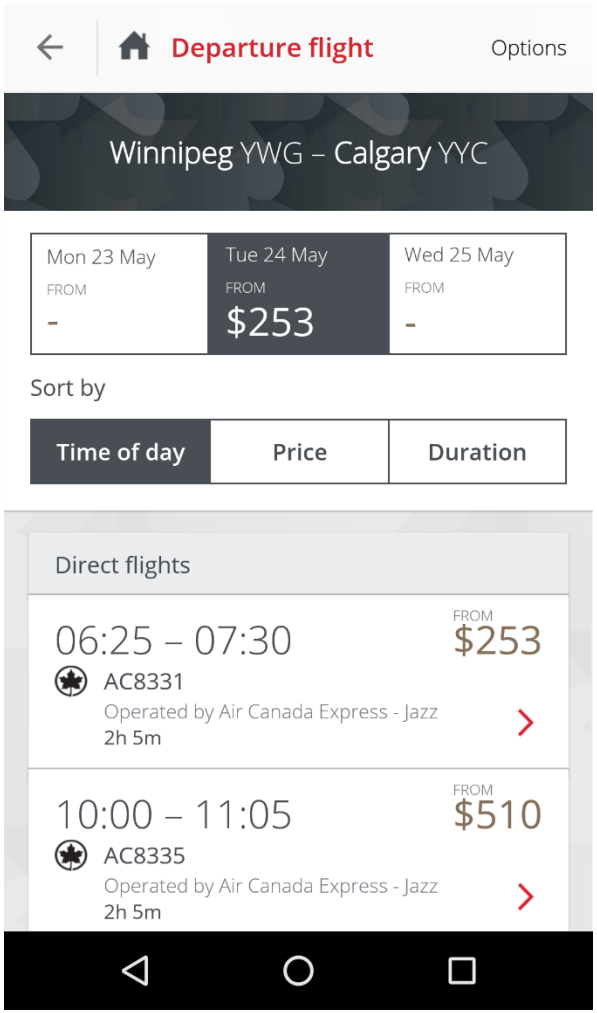
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Options
Winnipeg YWG – Calgary YYC
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Wed 25 May
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Sort by
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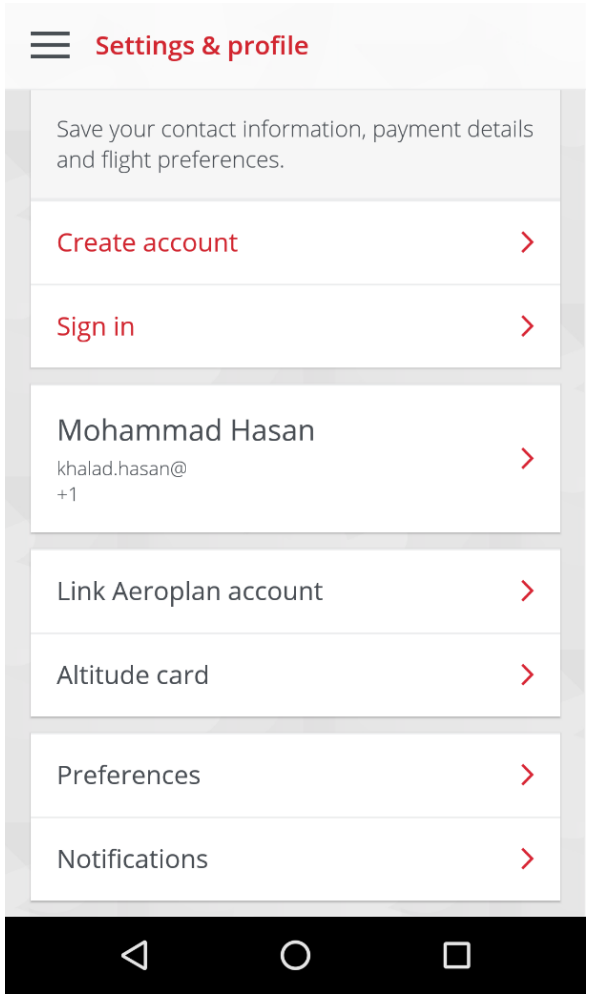
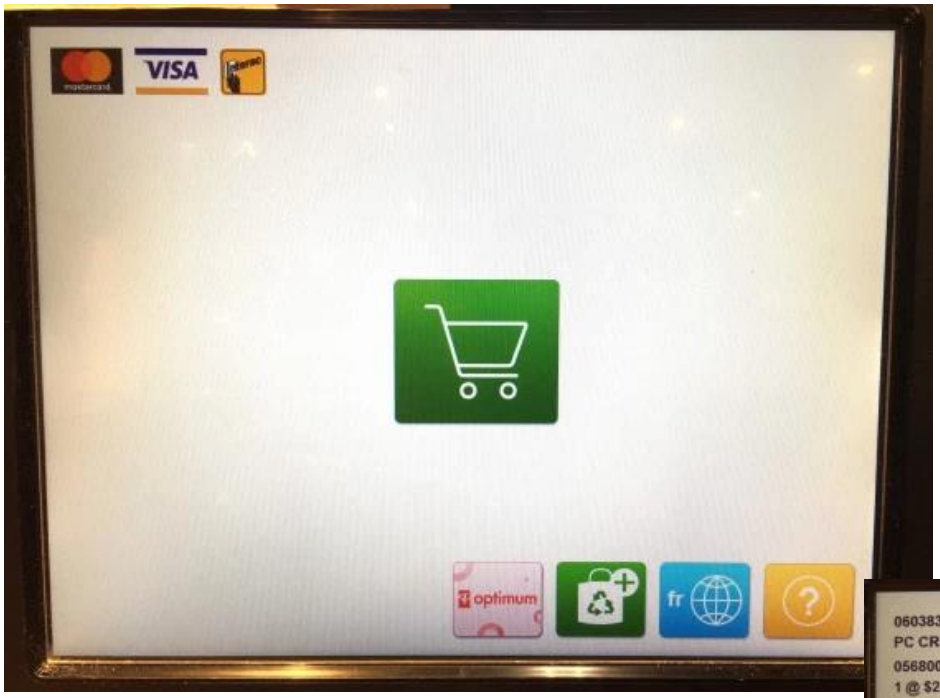

Settings & profile
Save your contact information, payment details and flight preferences.
Create account
Sign in
Mohammad Hasan
khalad.hasan@
+1
Link Aeroplan account
Altitude card
Preferences
Notifications


VISA
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1 @ $2.79 ea.
DANETTE VANILLA MRJ 2.79
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1 @ $2.79 ea.
DANETTE CHOC MRJ 2.79
SP 2/$5.00 MRJ -0.58
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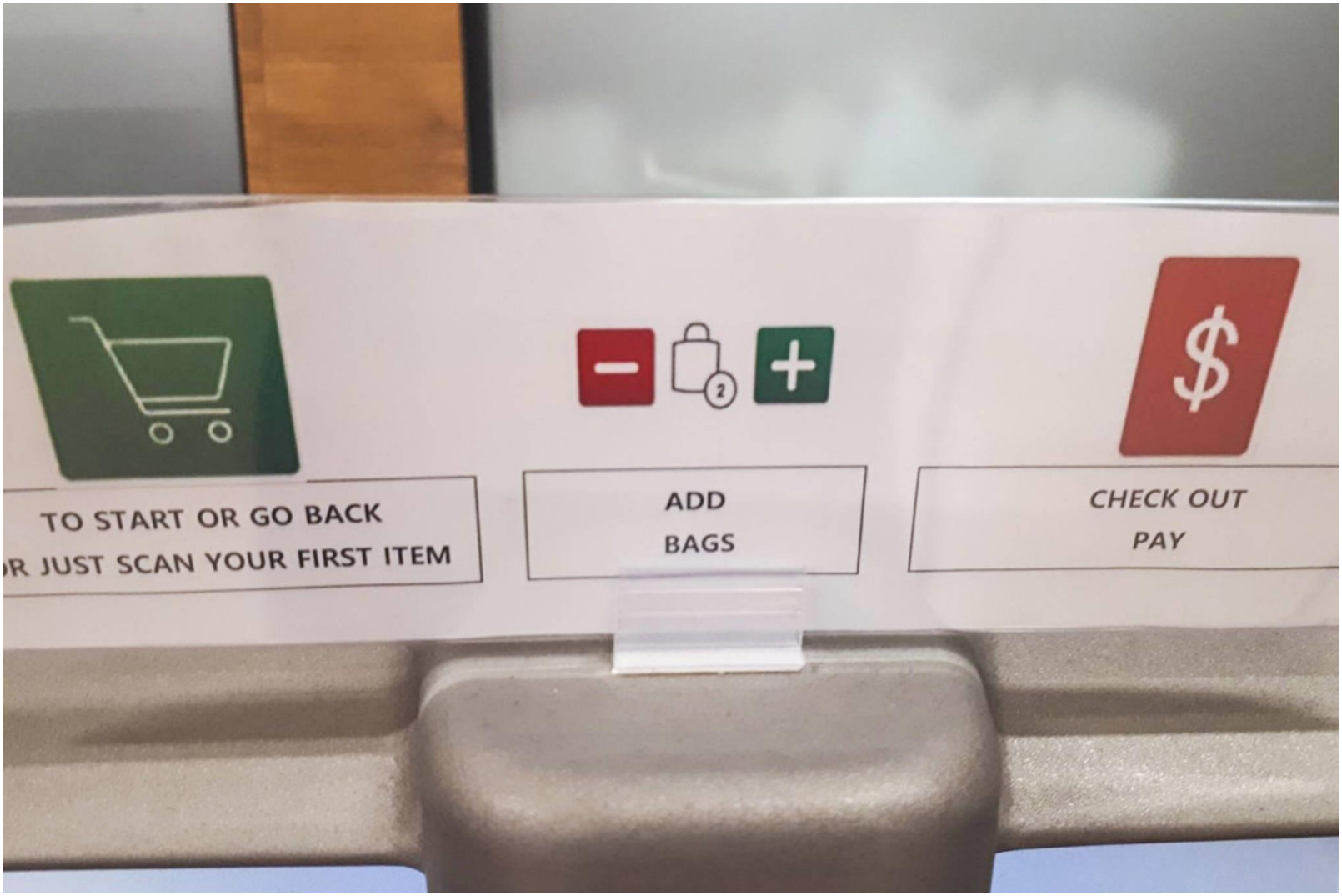

TO START OR GO BACK
R JUST SCAN YOUR FIRST ITEM
ADD
BAGS
CHECK OUT
PAY

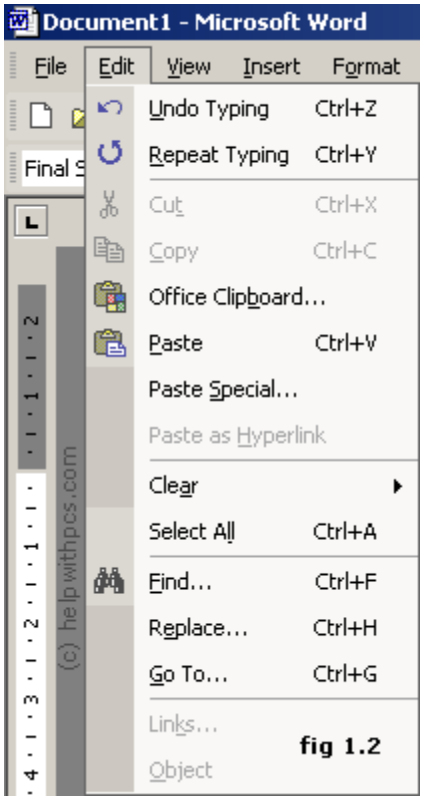
Norman Doors

- https://www.youtube.com/watch?v=qtCEoGyfsxk

Bad design is everywhere

New Laptop With No Keyboard:
https://www.youtube.com/watch?v=9BnLbv6QYcA

Good Design?


Document1 - Microsoft Word
File Edit View Insert Format
Undo Typing Ctrl+Z
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Object
fig 1.2

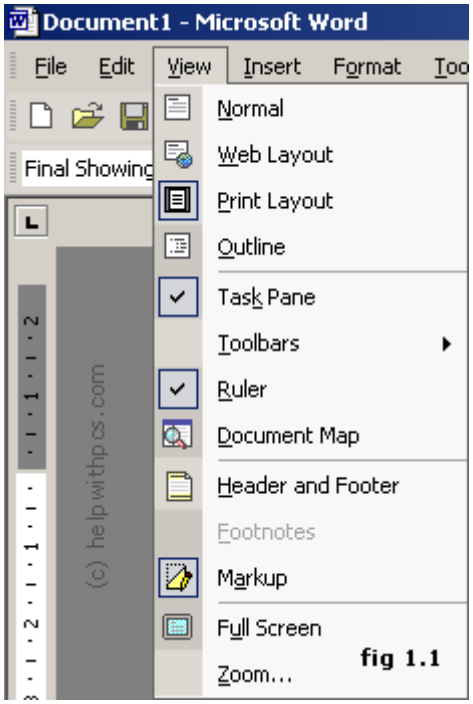
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fig 1.1

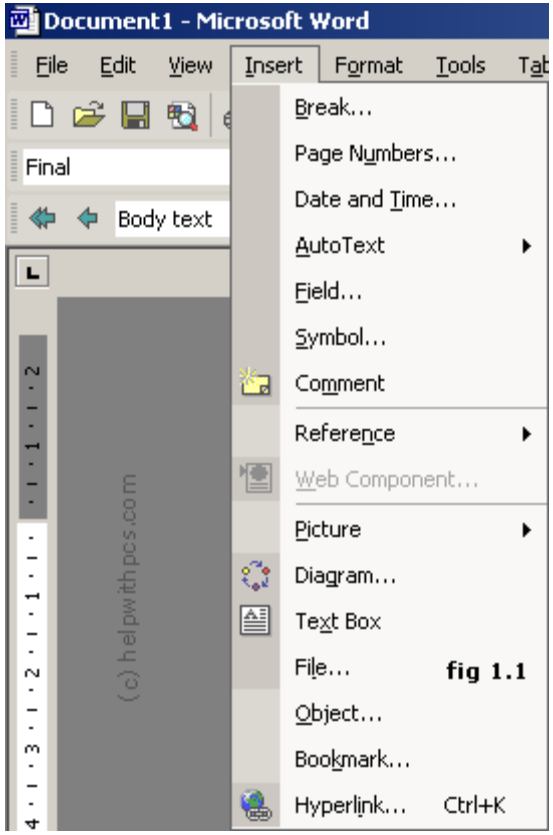
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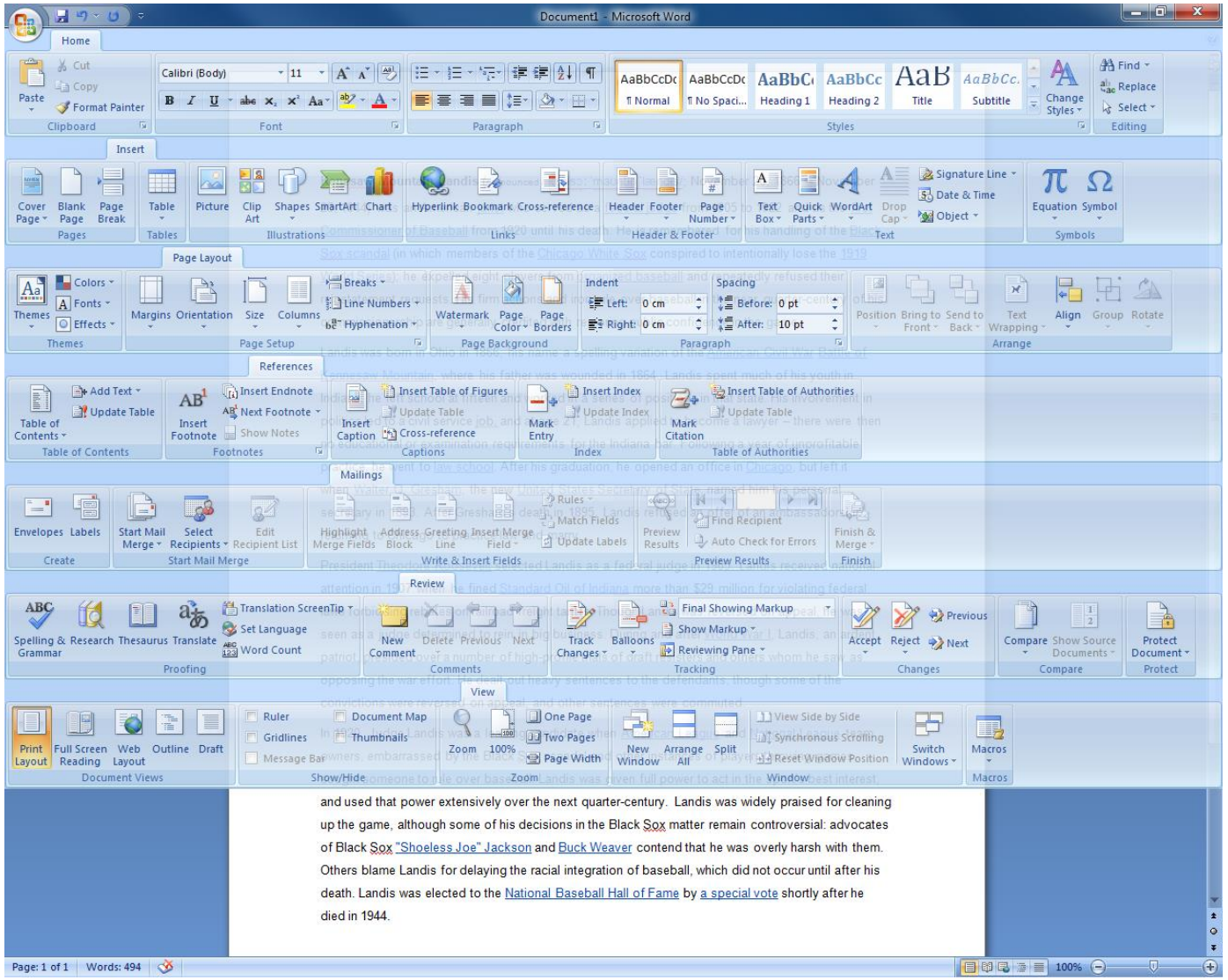
fig 1.1

Good Design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and used that power extensively over the next quarter-century. Landis was widely praised for cleaning up the game, although some of his decisions in the Black Sox matter remain controversial: advocates of Black Sox "Shoeless Joe" Jackson and Buck Weaver contend that he was overly harsh with them. Others blame Landis for delaying the racial integration of baseball, which did not occur until after his death. Landis was elected to the National Baseball Hall of Fame by a special vote shortly after he died in 1944.
Page: 1 of 1
Words: 494
100%

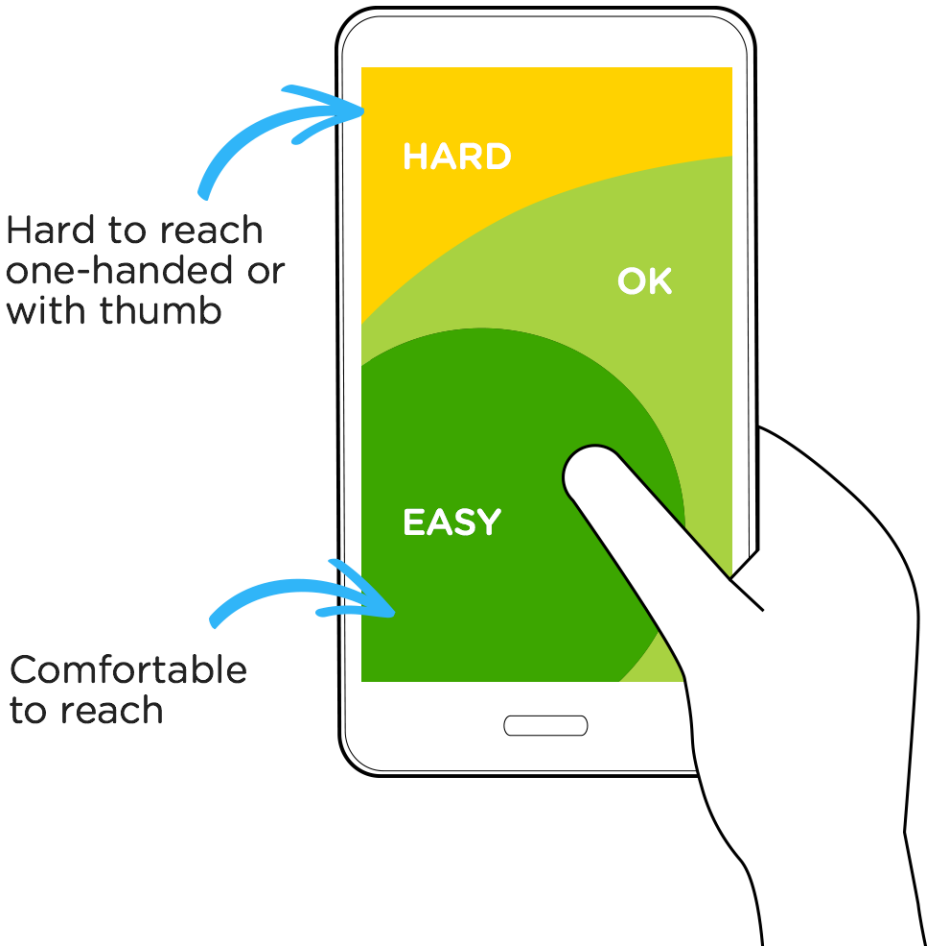
What is HCI?

- “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 definition

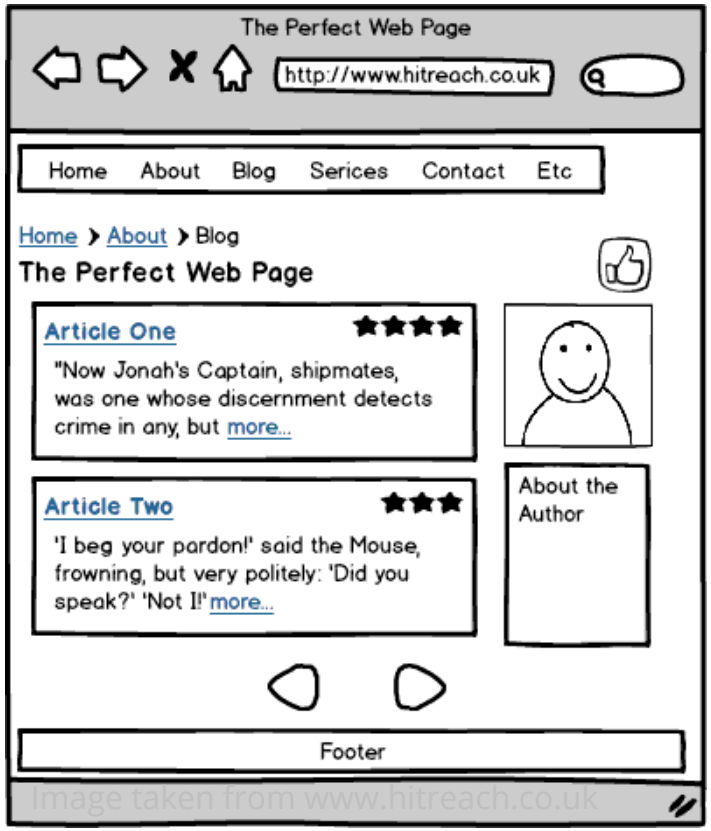
Goals of HCI

- Understand factors that determine how people interact with technology



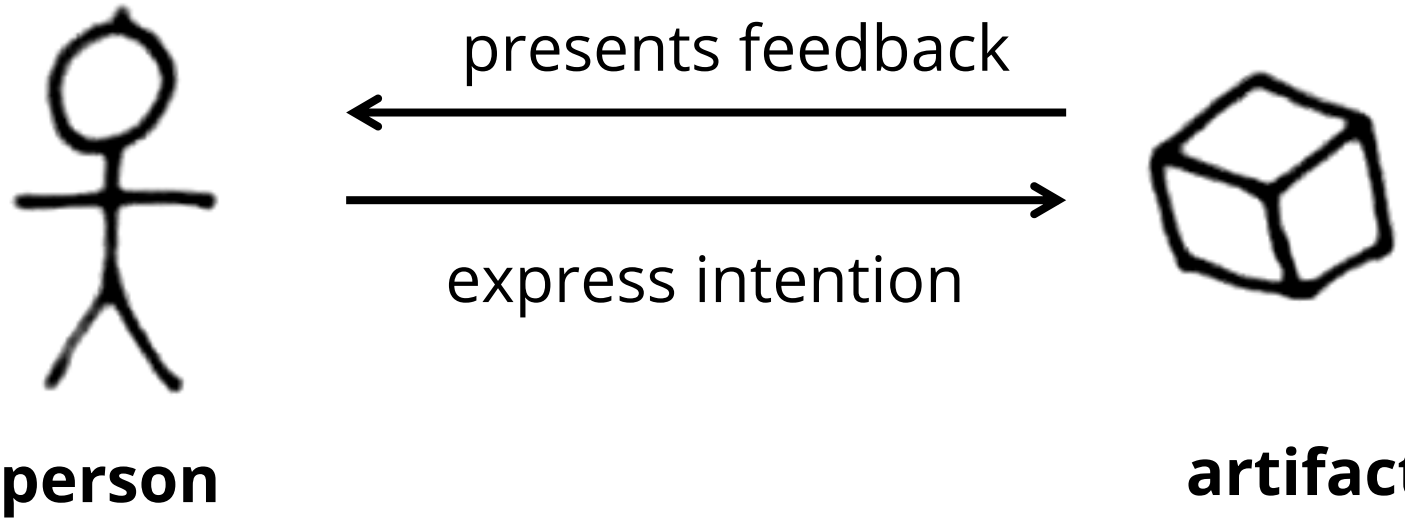
Goals of HCI

- Develop tools, techniques, and general guidelines to enable building usable systems



Terminology: User Interface

- A user interface is the place where a person expresses intention to an artifact, and the artifact presents feedback to the person.



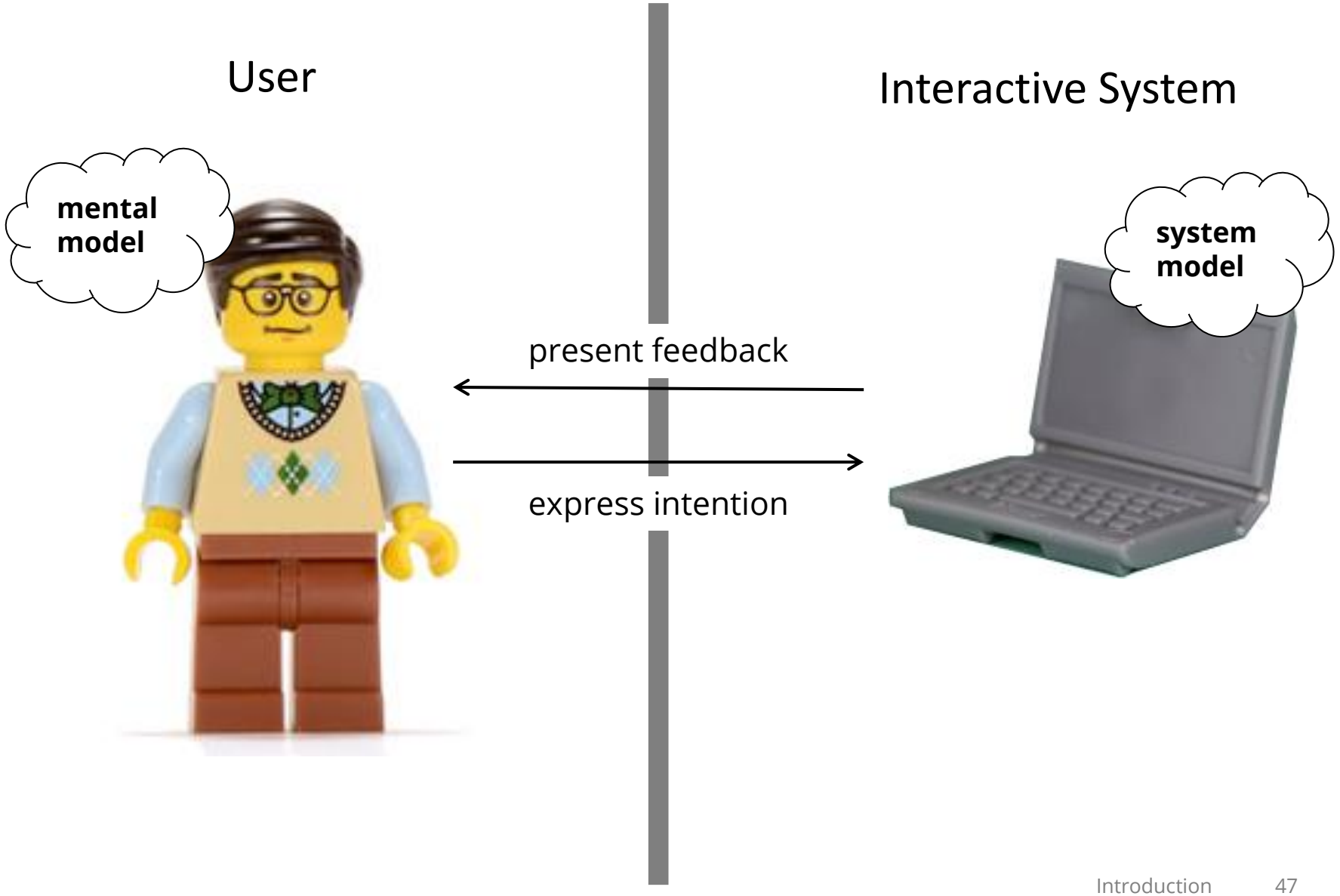
User Interfaces

- Does a microwave have an interface?
- A refrigerator?
- A door bell?
- A hammer?

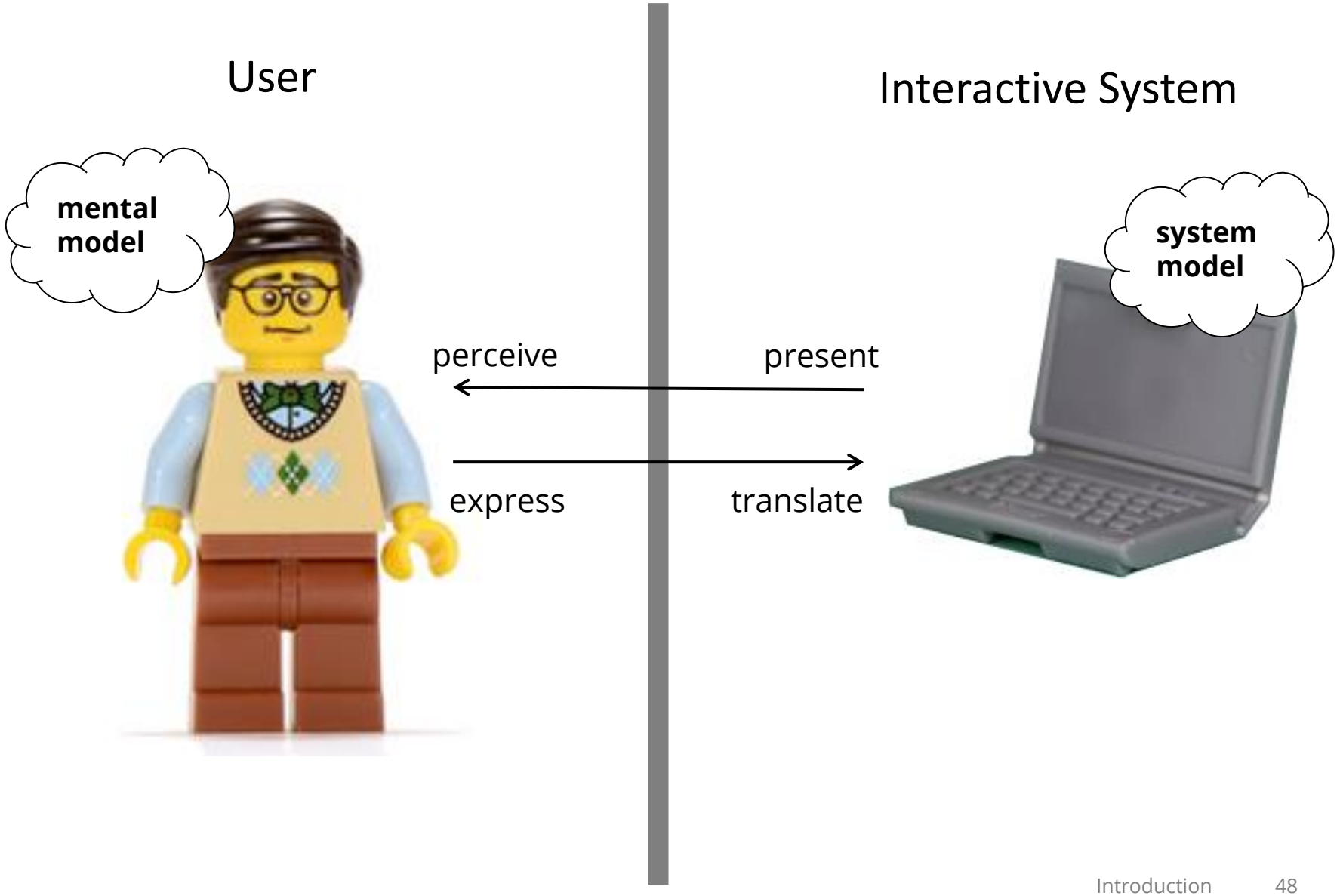
User Interface

- The place where humans and computers meet
- The human's view of the computer

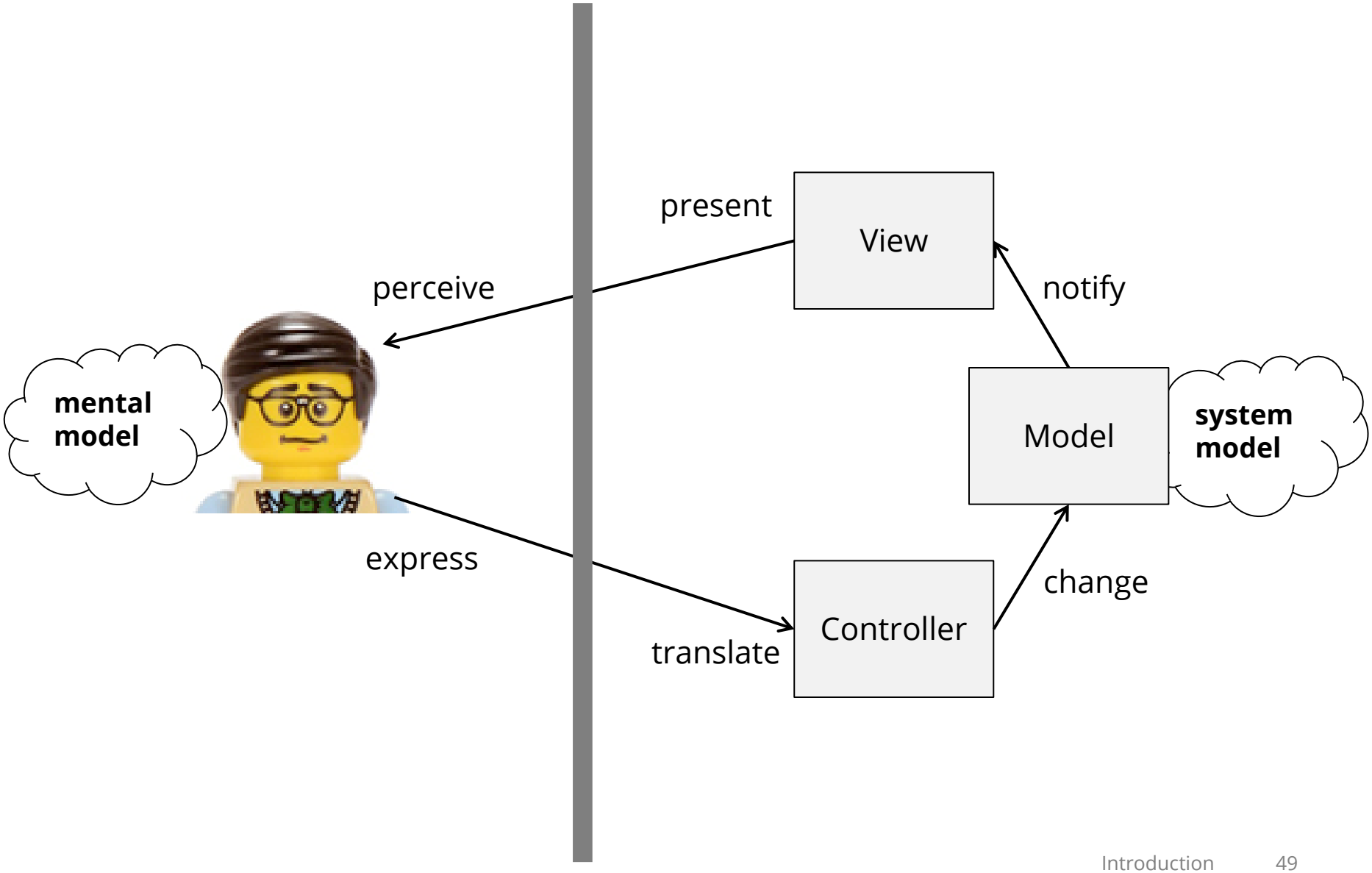
Interactive System Architecture



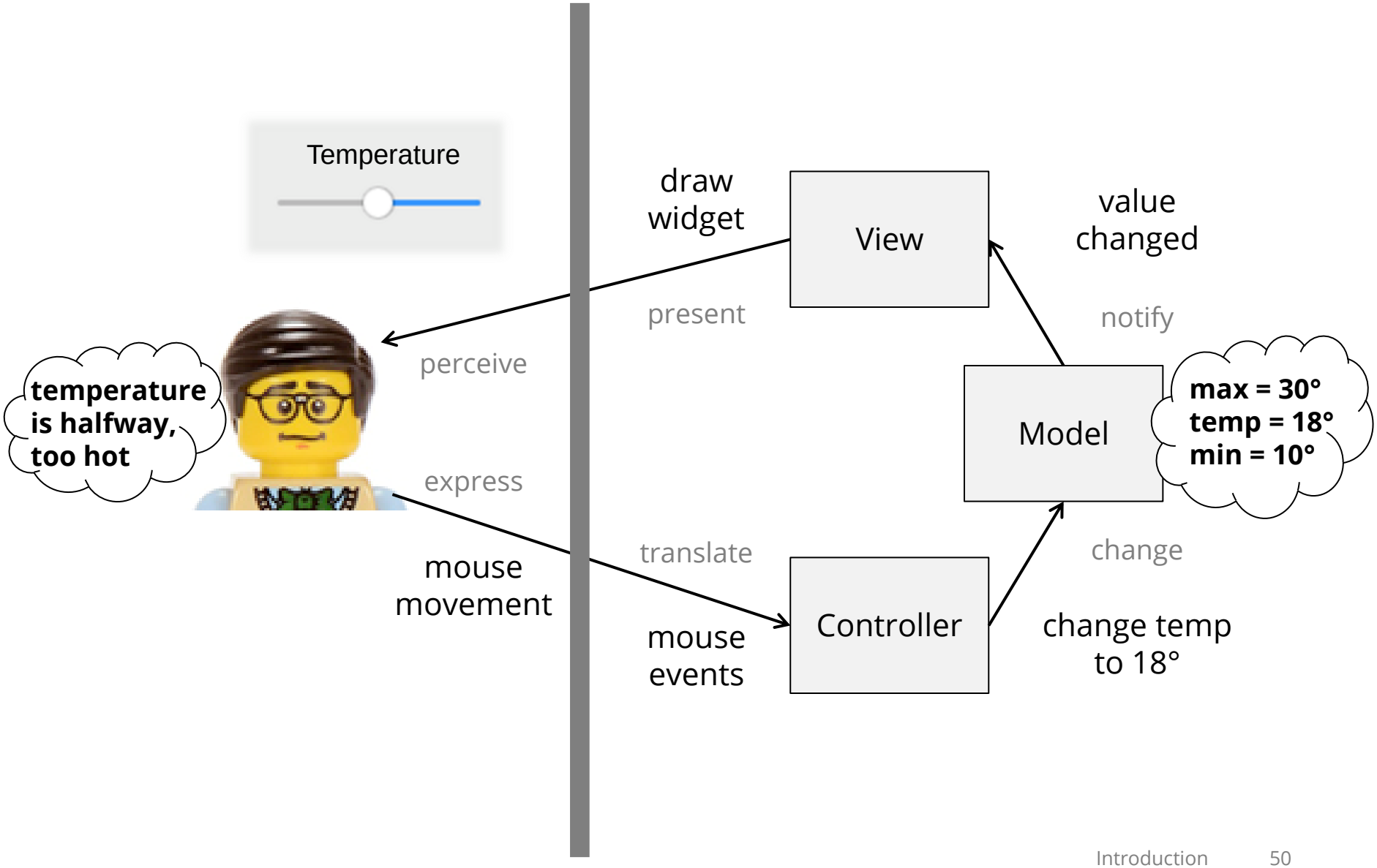
Interactive System Architecture



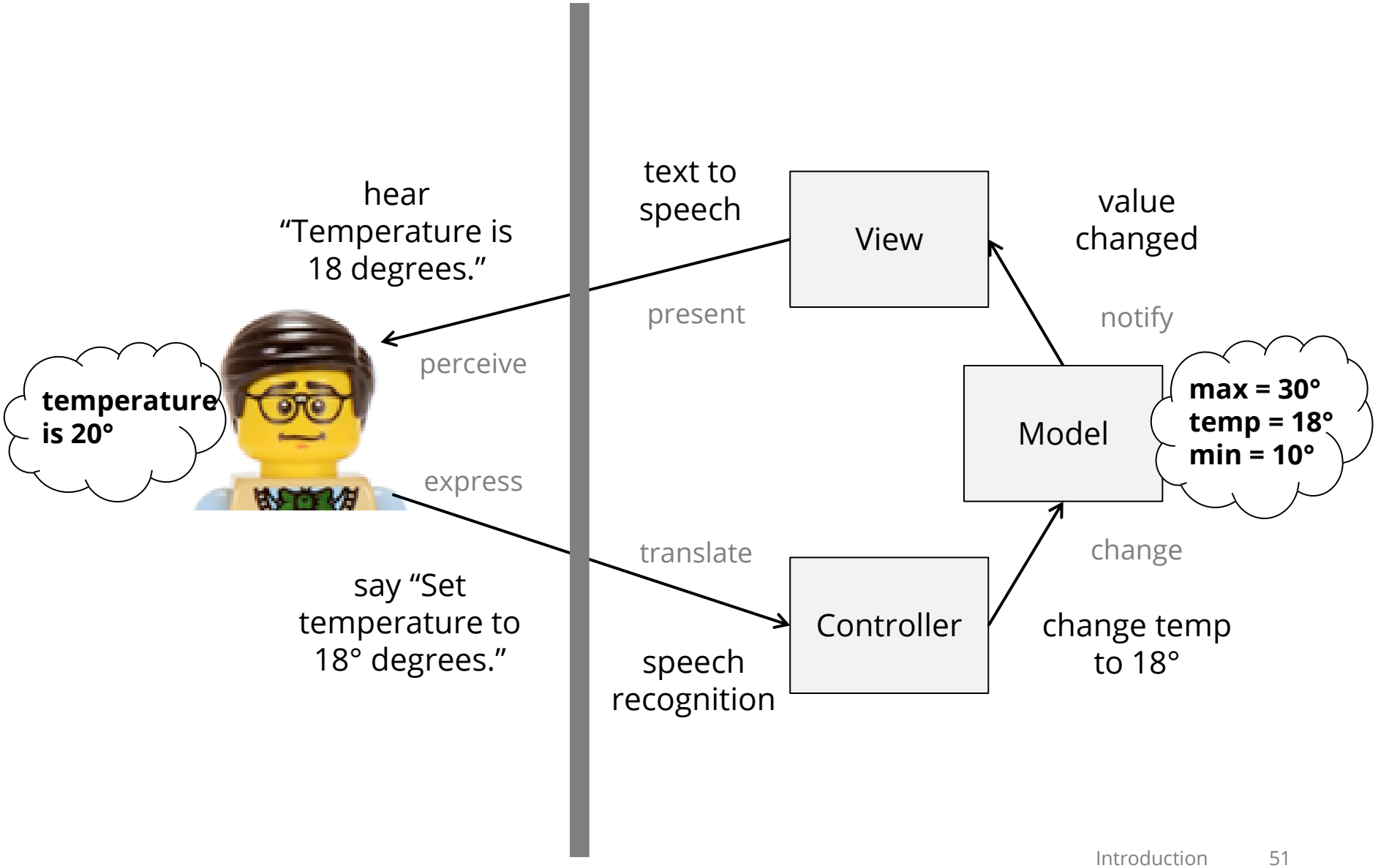
Model-View-Controller (MVC)



Graphical Temperature Control



Speech Temperature Control

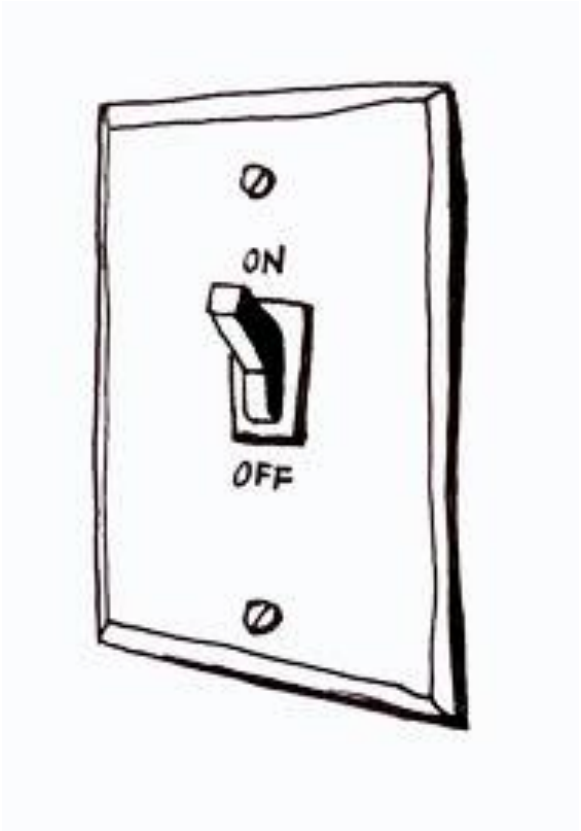


Interface vs. Interaction

- What is the difference between an *interface* and *interaction*?
- **Interface** refers to the external presentation to the user
  - Controls (what you can manipulate to communicate intent)
  - Feedback (what the program uses to communicate its response)
- **Interaction** refers to actions by user and system over time
  - interaction is a dialog with a cycle alternating between the user manipulating controls and the system responding with feedback

Interface and Interaction Design

- What is the **interface**?
- What is the **interaction**?
- Why is this good **interaction design**?



Interaction Design

- Challenging because of variability in users and tasks
  - Varying levels of expertise, skills (learning curves, training, assistance)
  - Range of tasks performed with the same tool
  - Preferences (styles, habits, content)
- No one “right way” to design an interface, interfaces can always be improved

Why Care About Interfaces?

- UIs are a major part of real-world systems
- You will work on real-world systems
  - intended for people other than yourself
- Bad user interfaces cost:
  - Money
  - Lives (e.g., Therac-25)
  - Time

Empowering People

- Well designed interfaces empower people to do things they couldn't otherwise do
  - Desktop publishing, grassroots journalism (blogs), movie production, music production, image editing, assistive technologies, …
- A well designed tool can change the world
  - The web browser, Linux, iPhone, spreadsheet, email, instant messaging, git, live streaming, …

Questions?