DESIGN OF INTERACTIVE SYSTEMS +TER

21 SEPTEMBER 2027





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WELCOME

DESIGN OF INTERACTIVE SYSTEMS + TER

Lectures
Tuesday 13:45 - 17:15
Room D101

TER
Friday 13:30 - 17:00
Room E212

Except today!

LECTURES 4

OVERVIEW

Category	Activity	Duration (min)	Start	End
Homework	Review Idea Archive	10	13:30	13:40
Lecture/ Exercise	Prototips & Paper Effects	10	14:05	14:15
Demo	Video Clipper	15	13:40	13:55
Lecture	Illustrating Interaction	10	13:55	14:05
Lecture/ Exercise	Video Brainstorming	60	14:15	15:15
	BREAK	**20**	**15:15**	**15:35**
Recap/ Exercise	Recap Design Dimensions	15	15:35	15:50
Recap/ Exercise	Design Space	30	15:50	16:20
Lecture/ Exercise	Exploring Design Spaces	20	16:20	16:40
Homework	Design Brief	10	16:40	16:50

GENERATIVE DESIGN

Discovery

— Who is the user?

Inspiration

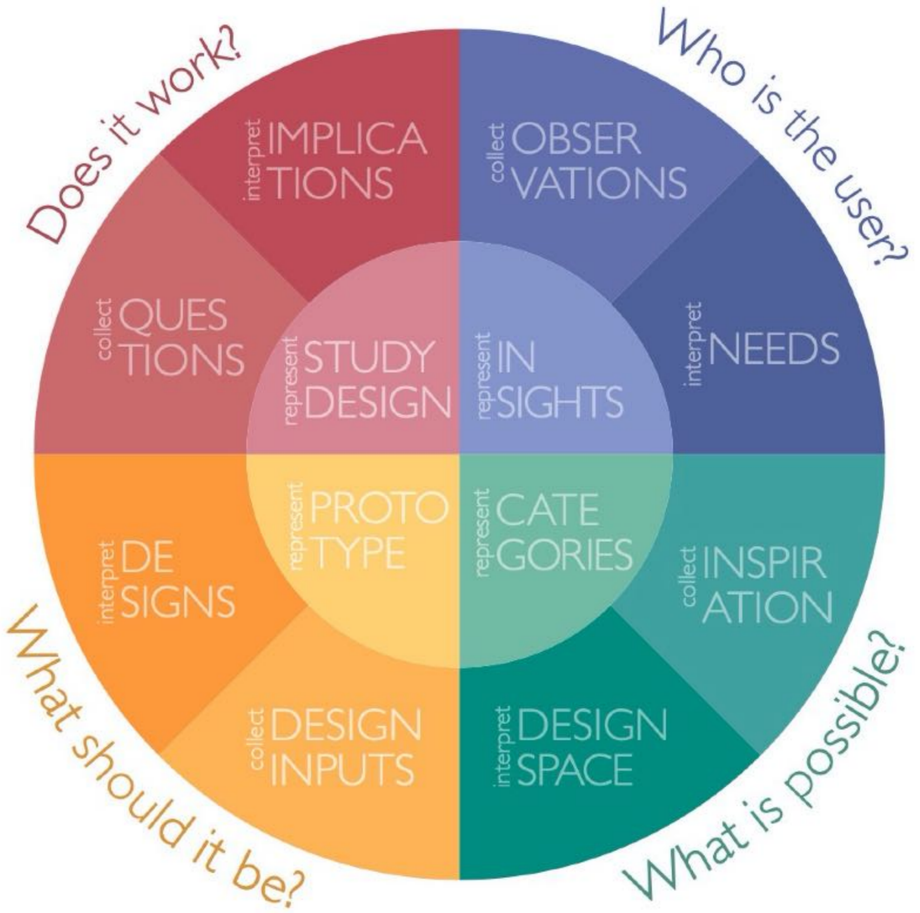
— What is possible?

Design

— What should it be?

Evaluation

— Does it work?



REVIEW HOMEWORK

IDEA ARCHIVE

Create your own idea archive

Take advantage of the internet to discover information about users and inspire ideas

Look for both problems and solutions related to the design brief

Look for alternatives:

- Which technologies?
- Which interaction techniques?
- Which metaphors?
- Which use settings?

Solo

HOMEWORK

IDEA ARCHIVE ___

Search the web for inspiration

Find 10 systems or interaction techniques
that inspire ideas relevant to the design brief

For each idea:
- Record the link
- Save an image
- Write a note as to why it is relevant
  (or why it is a poor idea)

GENERATIVE DESIGN

GENERATING IDEAS

Discovery

— Who is the user?

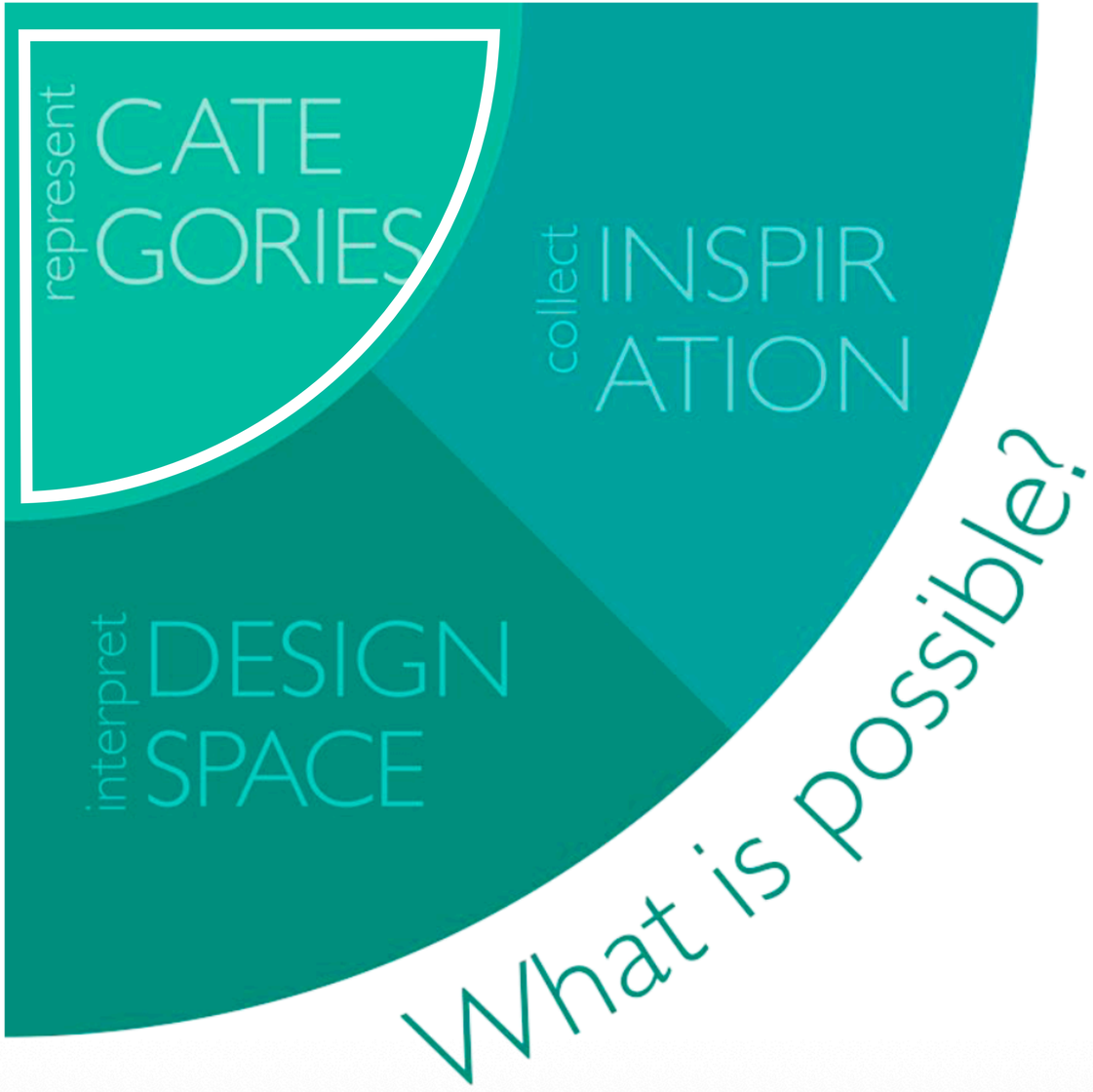
Inspiration

— What is possible?



INSPIRATION

REPRESENTING IDEAS



INSPIRATION

REPRESENTING IDEAS

Inspiring Ideas	System	Activity	Story
Collect	Web links Brainstorm ideas	GATHER IDEATE	Literature review Brainstorm interactions
Represent	Idea archive Video brainstorming Improvisation Cultural probes	SELECT SIMULATE EMBODY ENGAGE	Interaction snippets Video brainstorming Bodystorming Technology probes
Interpret	Idea dimensions Design space	CLASSIFY SKETCH	Breakdowns Interaction snippets

Increasing levels of depth

Text	Explain an idea in words Standard brainstorming
Sketch	Draw to illustrate an idea Interaction snippets
Mockup	**Interact with paper prototypes** **Rapid prototyping**
Theater	Act out the idea Rehearse brainstorming
Video	Capture interaction details Video brainstorming

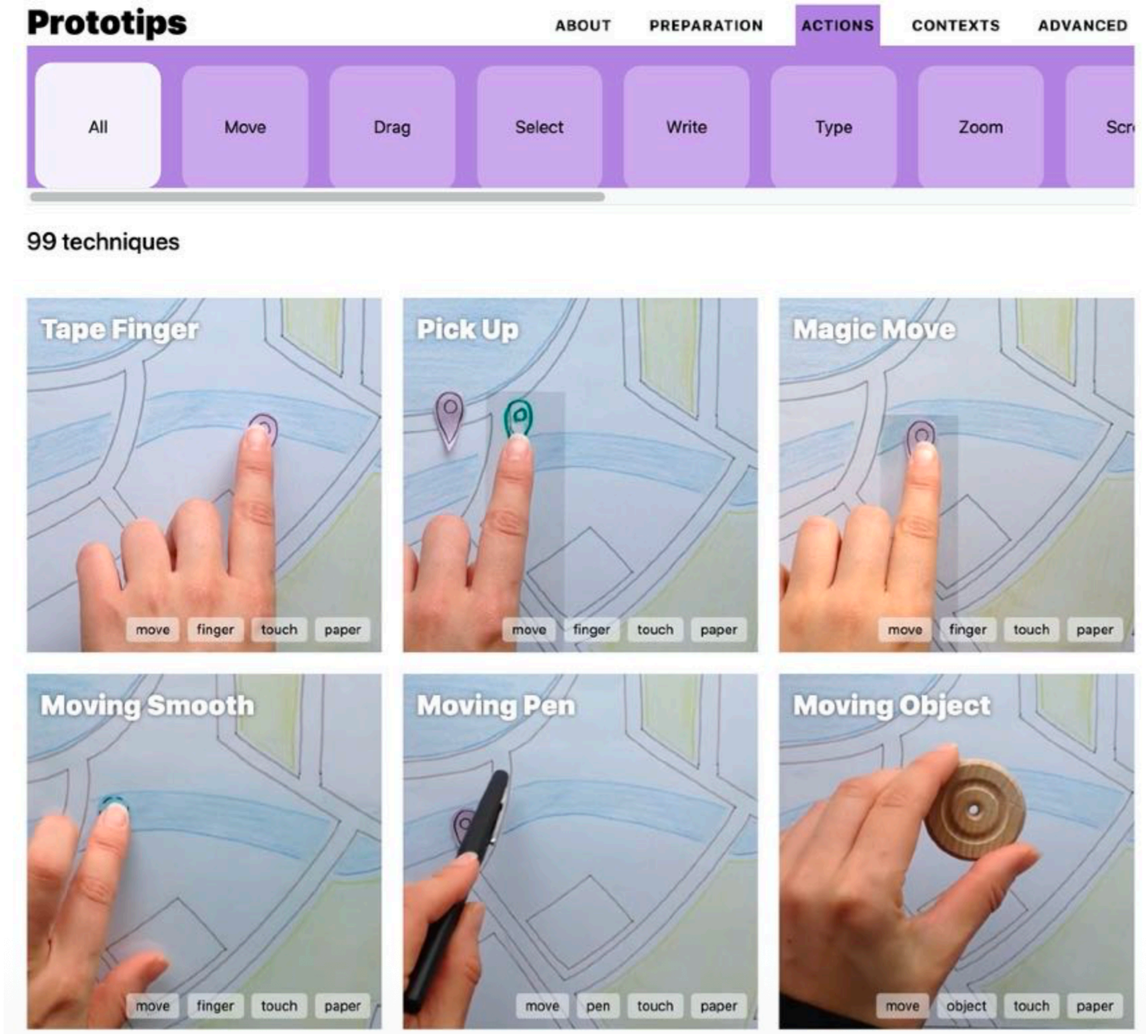
REPRESENT IDEA



PROTOTYPES & MOCKUPS

PROTOTIPS

https://prototips.lri.fr



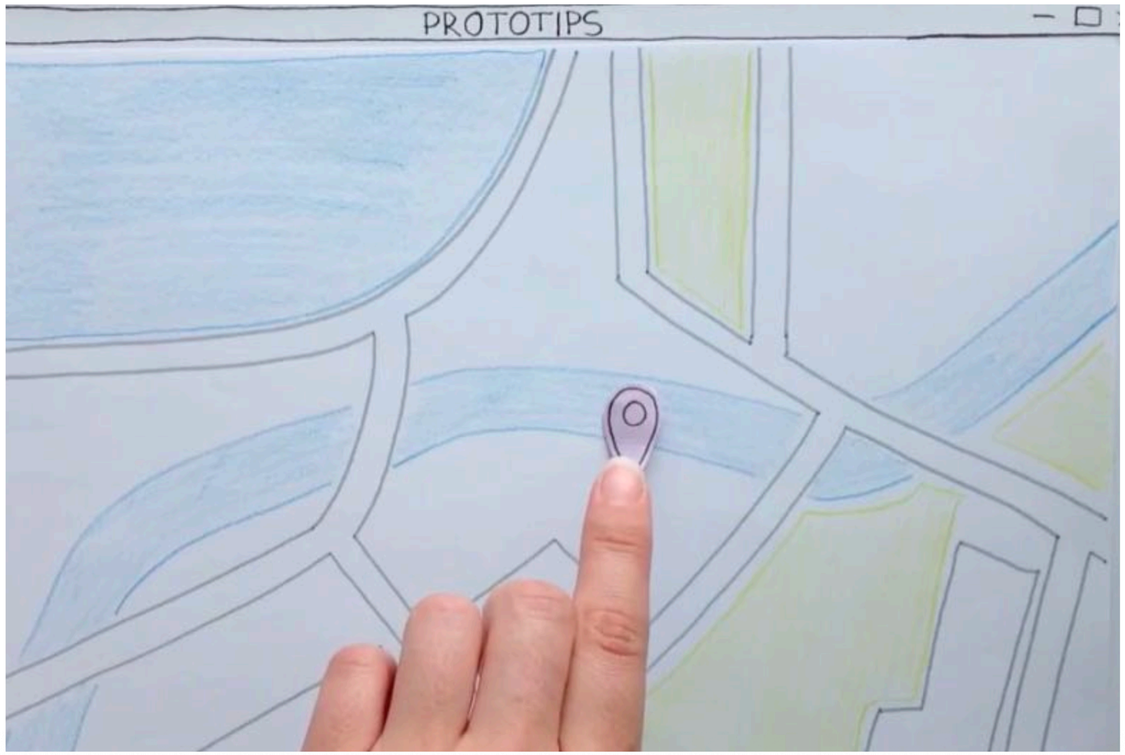
Solo — 5 min

EXERCISE

PAPER SPECIAL EFFECT

Go to the Prototips website: prototips.lri.fr

Illustrate an interaction snippet special effect



VIDEO CLIPPER



VIDEO CLIPPER

Interactive storyboard to help you shoot video
- video brainstorming
- video prototypes

But also:
- video interviews
- how-to videos
- marketing videos
- wizard-of-oz explorations

VIDEO CLIPPER

DEMO

Open Video Clipper on the Ipad

Each idea should include:

- Director's name
- Group number
- Description of the idea
- Idea number

Keep track of all of your ideas on a separate line

Increasing levels of depth

Text	Explain an idea in words Standard brainstorming
Sketch	Draw to illustrate an idea Interaction snippets
Mockup	Interact with paper prototypes Rapid prototyping
Theater	**Act out the idea** **Rehearse brainstorming**
Video	**Capture interaction details** **Video brainstorming**

REPRESENT IDEA

ILLUSTRATING INTERACTION

Methods

Improvisation

Bodystorming

Wizard of Oz

Video brainstorming

ILLUSTRATING INTERACTION

Methods

Improvisation

- Participants act as if the system would exist (use imaginary or representative artifacts)
- Play through a specific situation and improvise how a system would integrate into a situation
- Reflect on perceived impact on the user and/or environment
- Cheapest but also least realistic

—> focus on ‘natural’ integration into a situation environment without tech or form limitations

ILLUSTRATING INTERACTION

Methods

Improvisation

Bodystorming

- Participants take on the roles of users, digital interfaces, physical products or environments to simulate a complete interaction scenario
- Instead of drawing interaction workflows, participants use their body, simple props, and spatial movements to explore interactions
- Like in improvisational theater, participants react in real-time to uncover edge cases, physical constraints, and emotional responses

—> focus on physical ergonomics, spatial awareness and environment

ILLUSTRATING INTERACTION

Methods

Improvisation

Bodystorming

Wizard of Oz

- Participants interacts with what they think is an autonomous system using physical products and/or environments
- One designer takes on the role of the system to secretly simulate a system's intelligent responses

—> provides realistic user data because the participant believes the technology is real, removing the "imagination gap"

ILLUSTRATING INTERACTION

Methods

Improvisation

Bodystorming

Wizard of Oz

Video brainstorming

- Participants take on the roles of users using physical products or environments to simulate a particular interaction scenario
- Participant simulate intelligent system behavior
- Video shows interaction with the system and environment in a realistic situation

—> focus on interaction and integration of a system into a user scenario, reduces imagination gap



VIDEO BRAINSTORMING

Open Video Clipper on the Ipad

Register your group
  group number
  group members

Open “Video Brainstorming”

Create 8-10 video brainstormed ideas
   Each idea should be about 30-45 seconds

Show a complete interaction snippet
   either user-system-user
   or system-user-system

VIDEO BRAINSTORMING

One director per idea

Every director controls:

- Choice of the idea
- Presentation of the idea
- Recording the idea
- Assigning roles:

Scribe	complete title card
Makers	create paper prototypes
Camera	shoot the action
Talent	perform interaction
	record voice-overs

VIDEO BRAINSTORMING

Shoot at least 2 ideas per person

Show the user's experience
  focus on the interaction

Keep ideas short — 30' – 60'

Only one director per idea:
  No arguing – the director decides
  If you disagree, shoot another variation!
  Explore themes and variations

VIDEO BRAINSTORMING

Video brainstorming

Inspire Ideas **Worksheet**

ACTIVITY Record a video of one or more interaction snippets that illustrate how users would interact with a new design.

	Director	Idea
Idea 1.		
Idea 2.		
Idea 3.		
Idea 4.		
Idea 5.		
Idea 6.		
Idea 7.		
Idea 8.		

VIDEO BRAINSTORMING


HD
HI-DEF

https://ex-situ.lisn.upsaclay.fr/content/8-teaching/10-dois-2023-design-of-interactive-systems/4-student-s-workspace/group3/video_b-brainstorming_group3.mov

REMEMBER

-

ONLY ONE DIRECTOR PER IDEA:

NO ARGUING – THE DIRECTOR DECIDES

IF YOU DISAGREE, SHOOT ANOTHER VARIATION!

EXERCISE

VIDEO BRAINSTORMING

Team — 50 min

Finish at home..

Shoot at least 8 ideas (2-3 each)

Choose a team scribe to summarize all ideas
Each team member chooses 2+ ideas to direct

Roles:

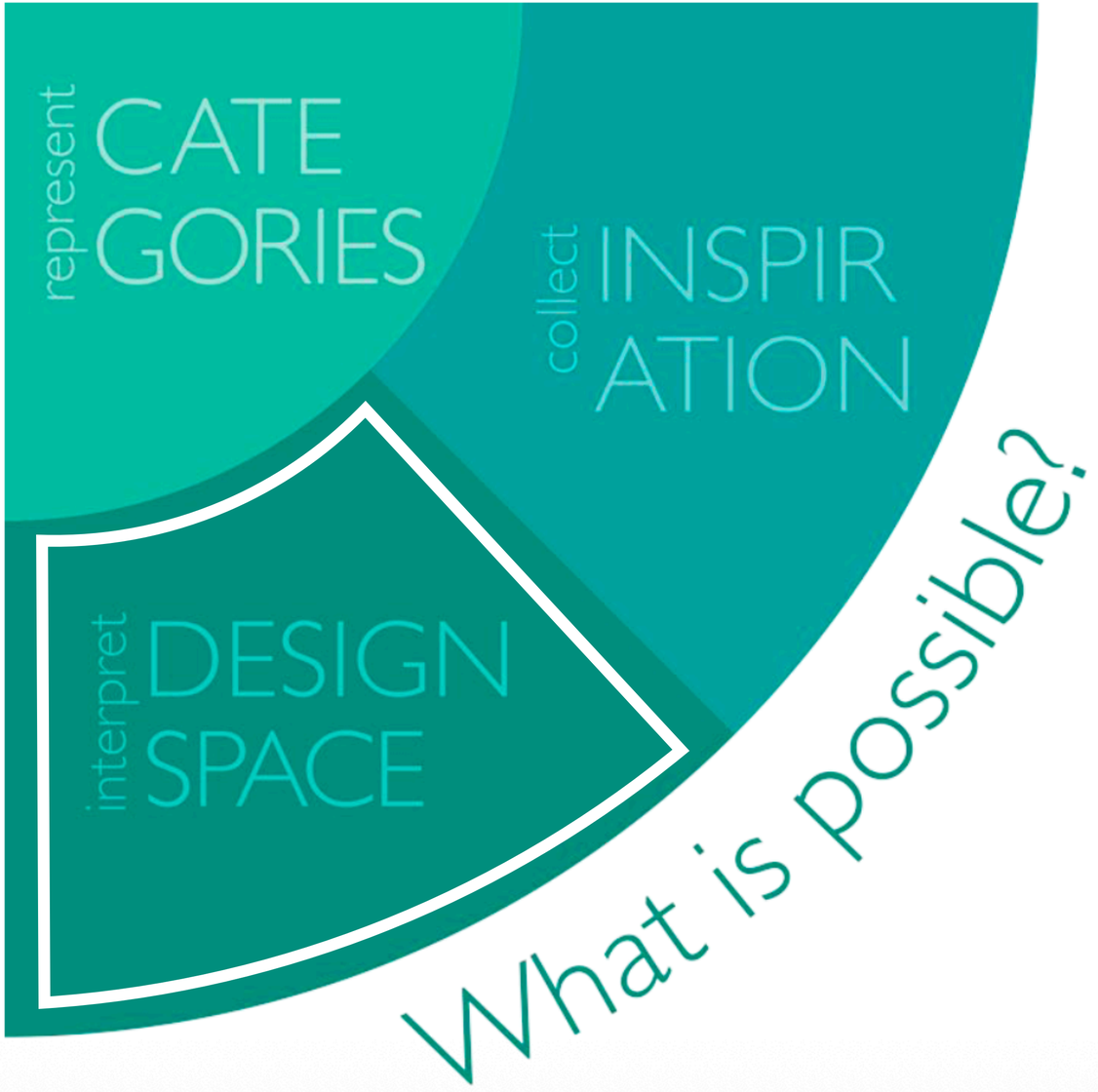
Director	Choose idea, roles, presentation
Makers	Create paper prototypes
Talent	Manipulate prototype, act as user
Camera	Shoot 30”-60” sequences

Now: Shut up and start shooting! :)

BREAK

INSPIRATION

REPRESENTING IDEAS



RECAP

INTERPRETING IDEAS

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RECAP
-
DESIGN DIMENSIONS
DESIGN SPACE

DESIGN DIMENSIONS

Categorize ideas

Group ideas into different categories

Transform the characteristics into dimensions with multiple waypoints

Draw a line for each dimension
place ideas at appropriate waypoints

Example:
“ Communication style”

synchronous	mixed	asynchronous
Zoom call	Slack	Email

Solo — 10 min

EXERCISE

DESIGN DIMENSIONS

Create a design dimension that captures at least three of your design ideas

Name		Team		Due	

Design dimensions

Inspire Ideas **Worksheet**

ACTIVITY Categorize and code the potential scope of the design.

Dim.	Way points	Dim.	Way points

Create a multi-dimensional design space

Lay out dimensions to create a design space
Fit ideas at the intersections
of one or more dimensions

Methods

- Necker cube

- Graph

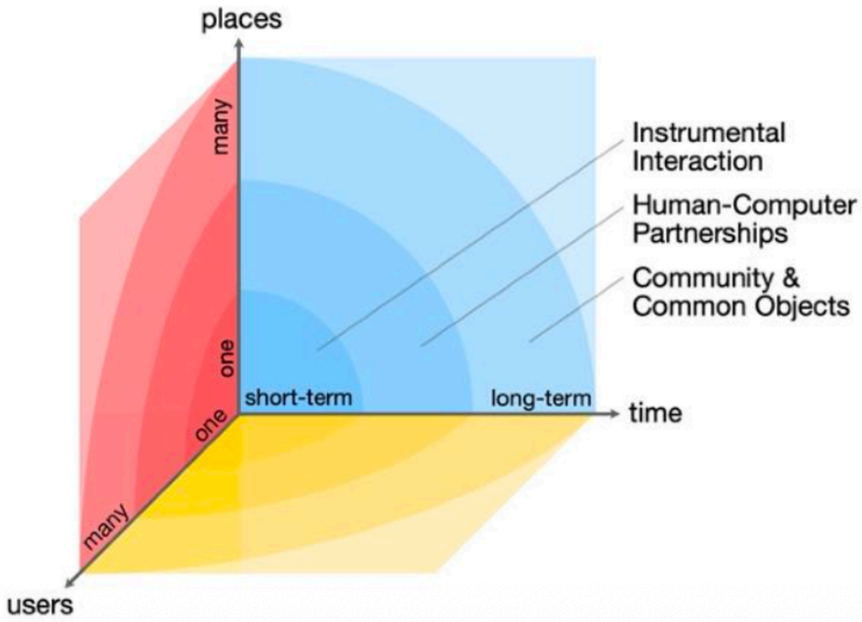
- RADAR diagram

DESIGN SPACE

Necker cube

Easy to draw 3-dimensional space

Systematically extend each dimension
- From one to many users
- From immediate to short term to long term
- From one to many places

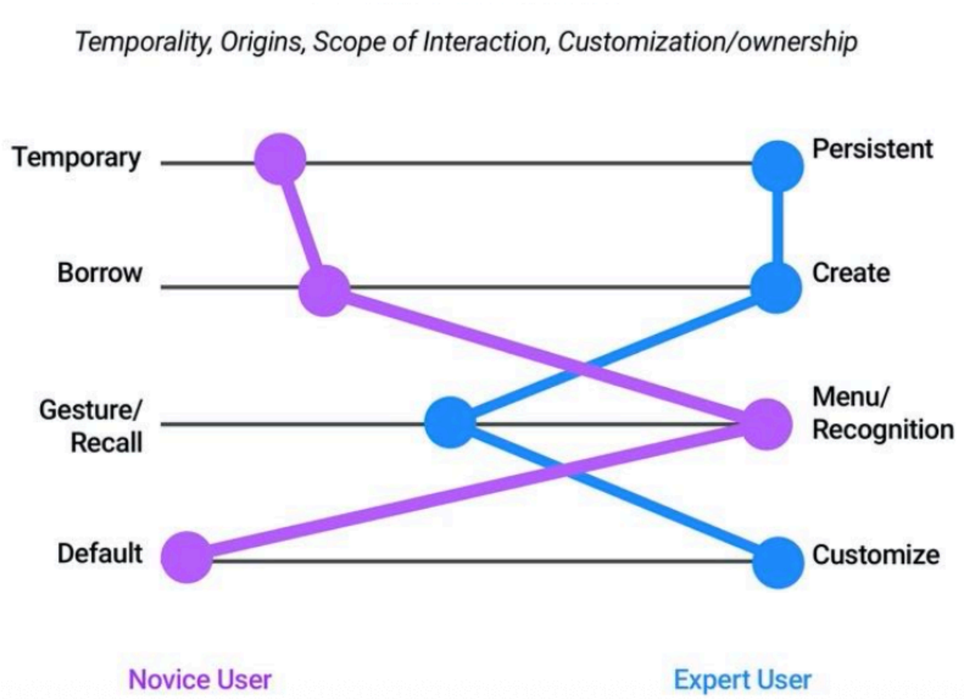


DESIGN SPACE

Graph: Semantic Differential (Osgood, 1957)

Draw dimensions
Allows to map systems/target users/…

Example: compare novices vs. experts

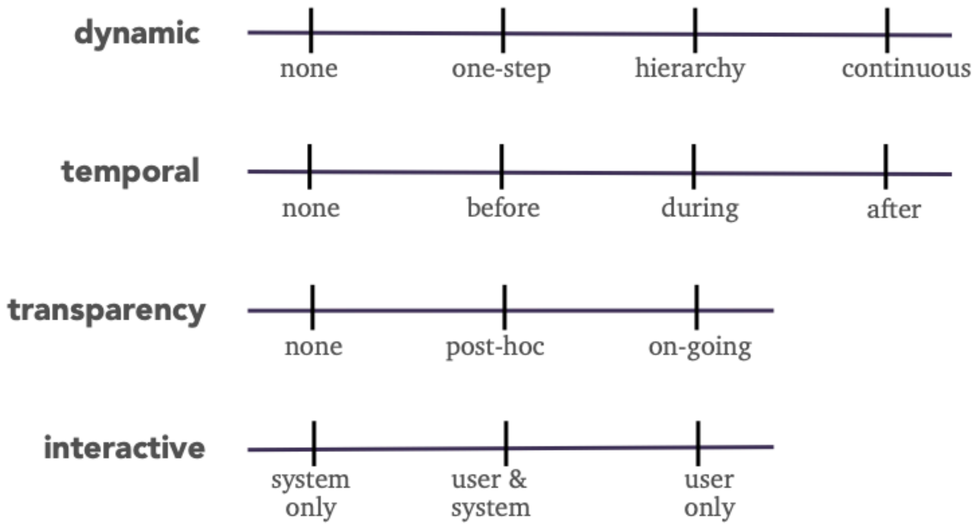


DESIGN SPACE

DESIGN SPACE

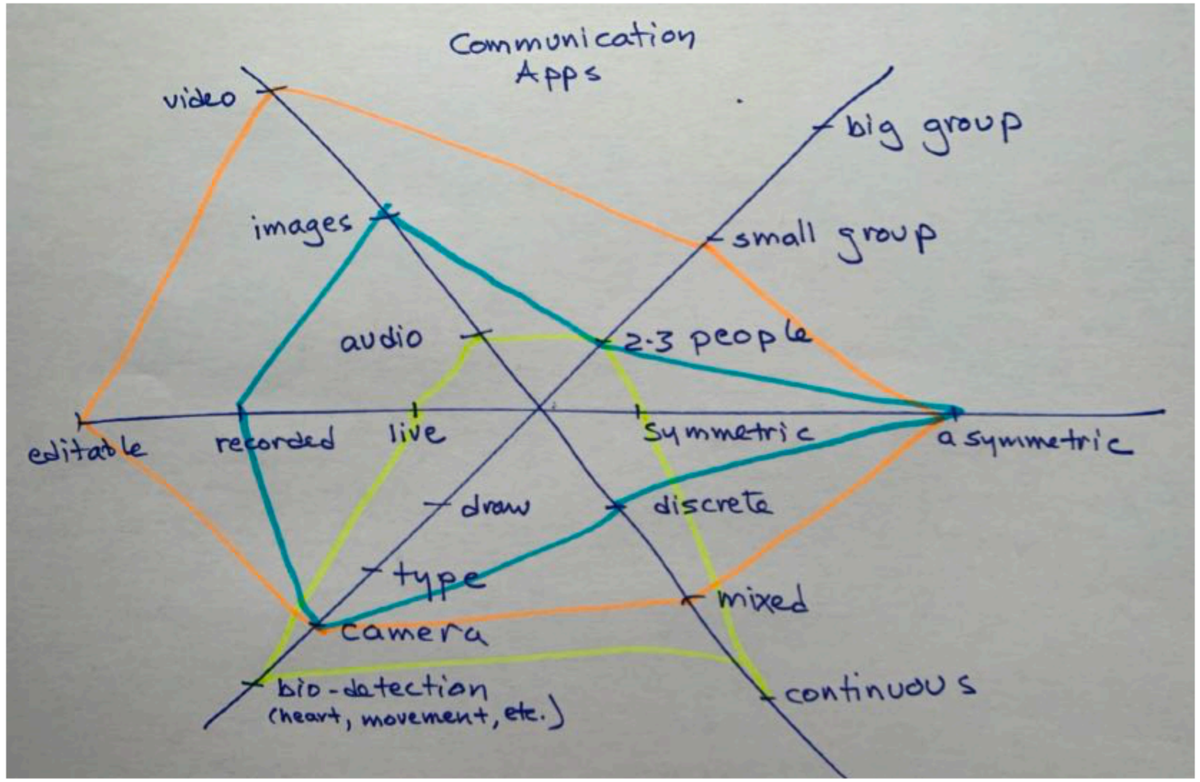
Graph: Octopocus (Bau & Mackay, 2008)

Set of dimensions based on research literature
Identify waypoints within these dimensions



RADAR diagram

Lay out dimensions in a radial pattern
Color code and compare each idea or system



DESIGN SPACE

How to specify a design space

Organize relevant design possibilities

Choose dimensions to design problem
- Identify way points

Lay out ideas on each dimension

Design spaces help you:
- Choose among ideas
- Generate new ideas
  - Look for gaps
  - Check intersections

DESIGN SPACE

Team — 20 min

EXERCISE

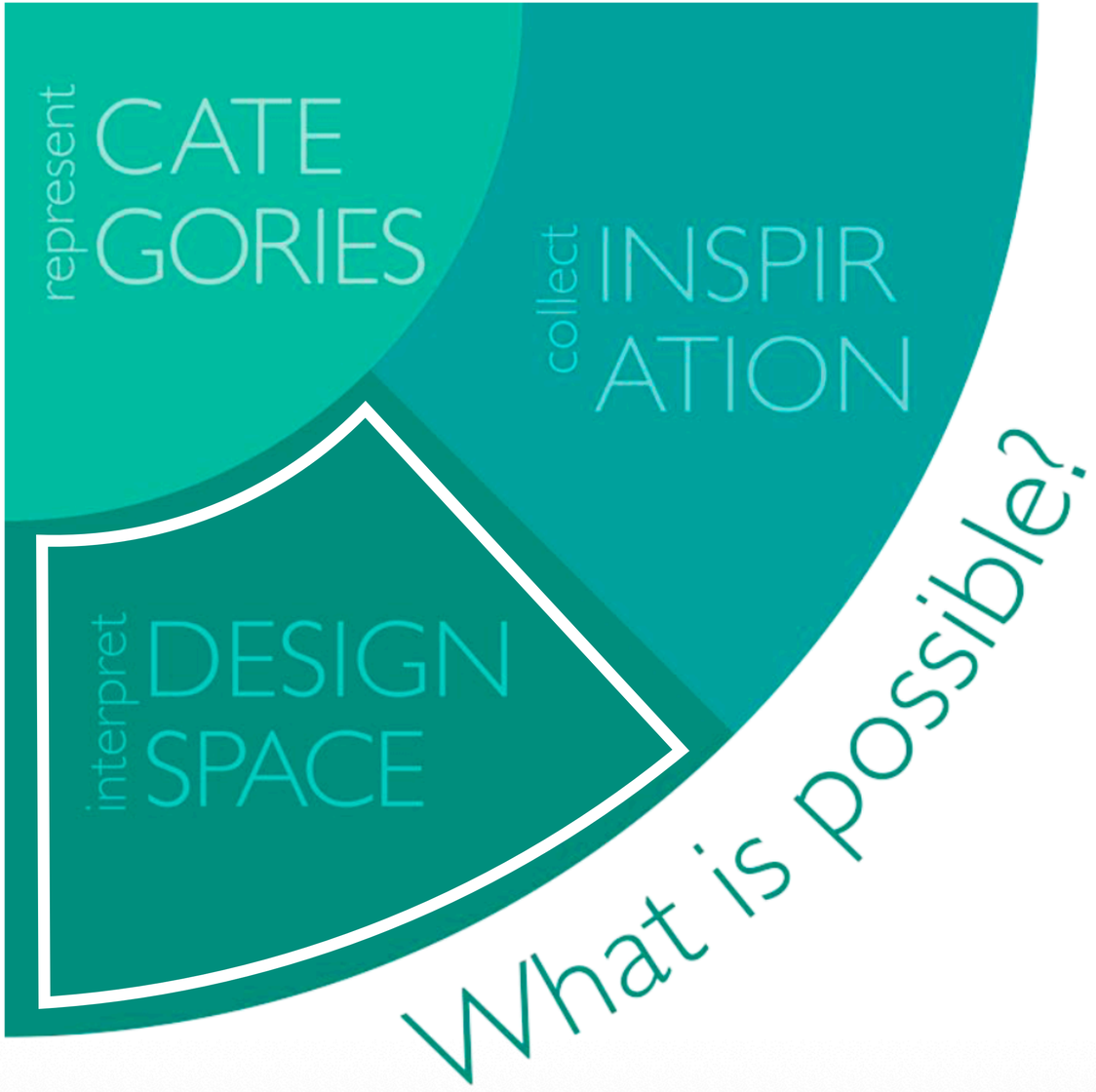
DESIGN SPACE

Review your idea archive and brainstormed ideas

Create a RADAR diagram-style design space with 5-6 dimensions to capture your ideas

INSPIRATION

INTERPRETING IDEAS



EXPLORING DESIGN SPACES

Goals

Finding gaps

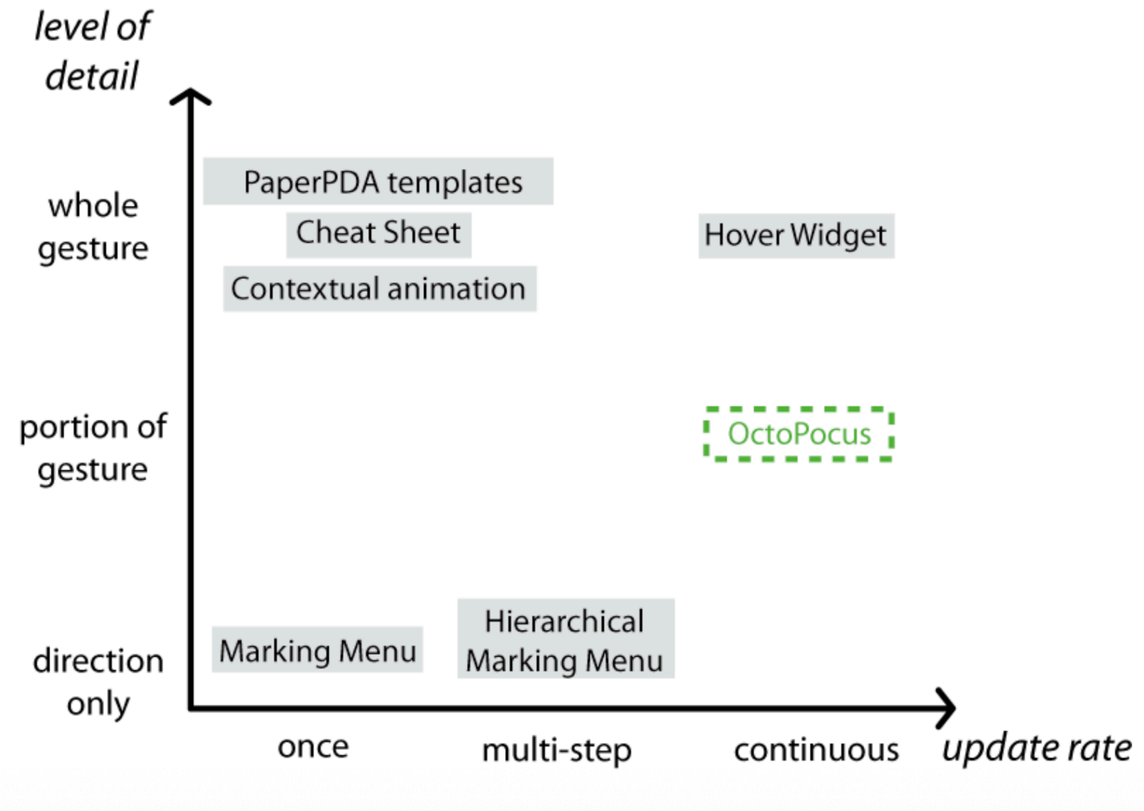
Exploring intersections

Generating innovations

FINDING GAPS

Example: Octopocus (Bau & Mackay, 2008)

Compare Octopocus to existing systems:

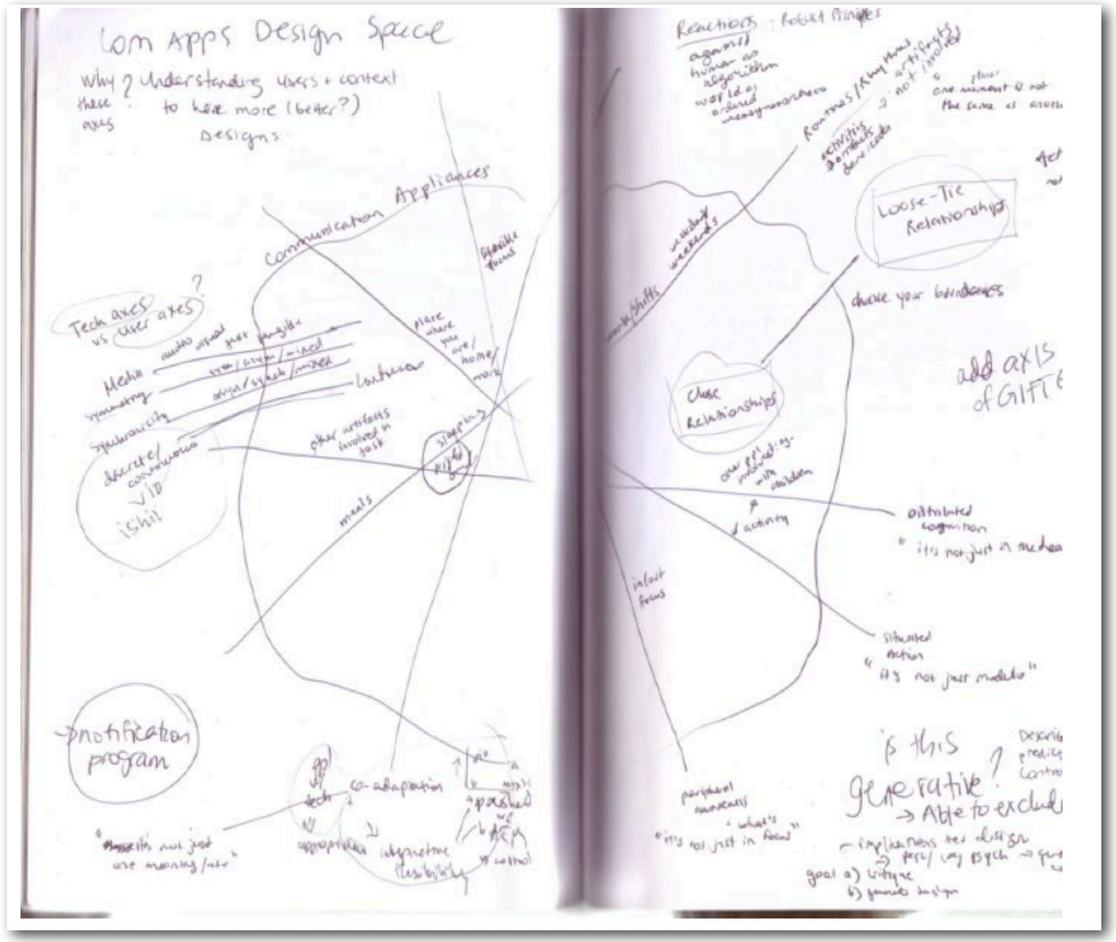



Call Alice
Search
To Work
To Home

https://youtube.com/watch?v=0eRfQ2i_UMU

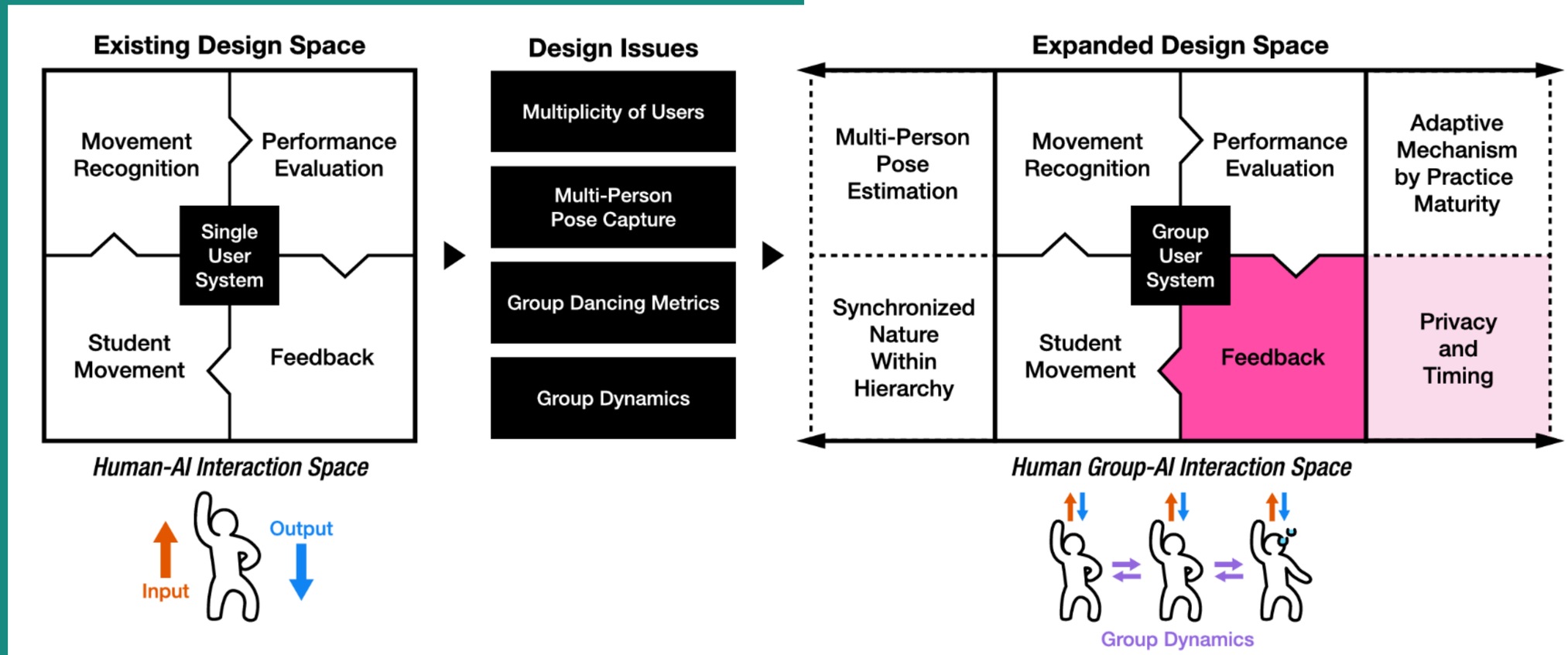
EXPLORING INTERSECTIONS

Messy “Comm App” design space



GENERATING INNOVATIONS

Design space for Group Dance Practice
(Lee et al, 2024)



Team — 10 min

EXERCISE

DESIGN SPACE

Identify gaps, intersections and opportunities for innovation within your design space

HOMEWORK

DESIGN BRIEF

Clarify your design brief

- Who is the target audience?
- What is the context of use?
- Is the technology:
    worn by the user?
    embedded in an object?
    part of the environment?

- What is the key problem it will address?

