

# Embracing the real world's messiness



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Integration of  
technologies in our  
everyday life

ubiquitous computing

human-computer interaction

Visions

seamlessness

calmness

ambient intelligence

invisibility

Reality

messiness

heterogeneity

ownership

uncertainty

Approaches

learn from the past

seamful design

co-evolution

design for appropriation

Please keep this  
door closed when  
in use, as steam  
from the bathroom  
can activate our  
sensitive fire alarm

A red rectangular sign with a white border hangs from a chain in a dark, industrial-looking space. The sign has the words "PARADISE IS HERE" in bold, white, sans-serif capital letters. In the background, there is a globe on a stand, various wires, and a control panel with many buttons and a small red light. The overall atmosphere is mysterious and high-tech.

**PARADISE  
IS HERE**

seamlessness, invisibility, calmness,  
“ambient intelligence”



A low-angle photograph looking up at a complex web of power lines and cables. The lines crisscross the frame, creating a dense, interconnected pattern. In the background, a building is under construction, covered in scaffolding. The sky is overcast with soft, grey clouds. A bright green banner is positioned at the bottom of the image, containing white text.

“cloud of connectivity”



# automatic doors





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the world is messy



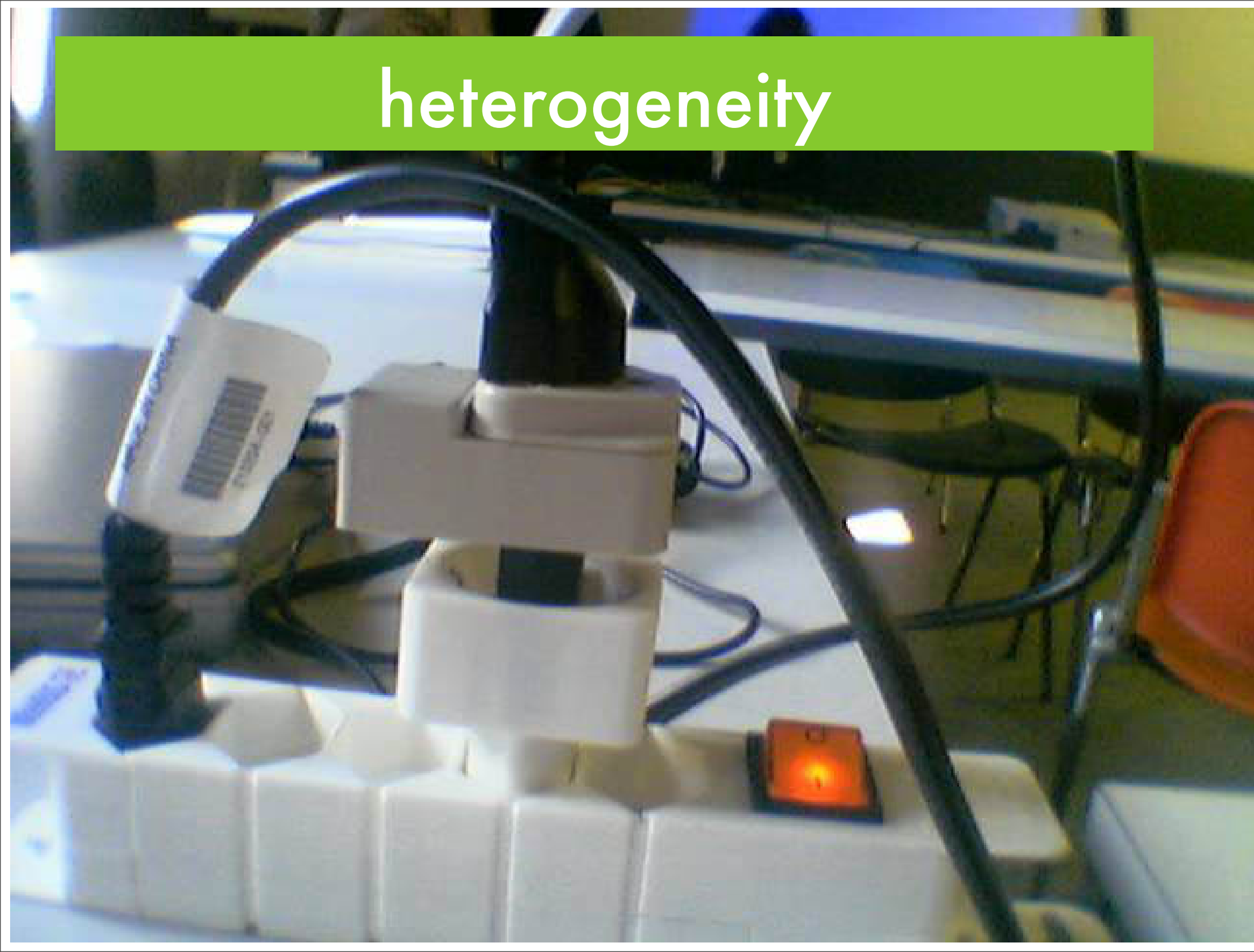




infrastructures break down



# heterogeneity







heterogeneity





Eboy  
[http://hello.eboy.com/eboy/2007/01/20/pt\\_babeltower\\_01tpng/](http://hello.eboy.com/eboy/2007/01/20/pt_babeltower_01tpng/)

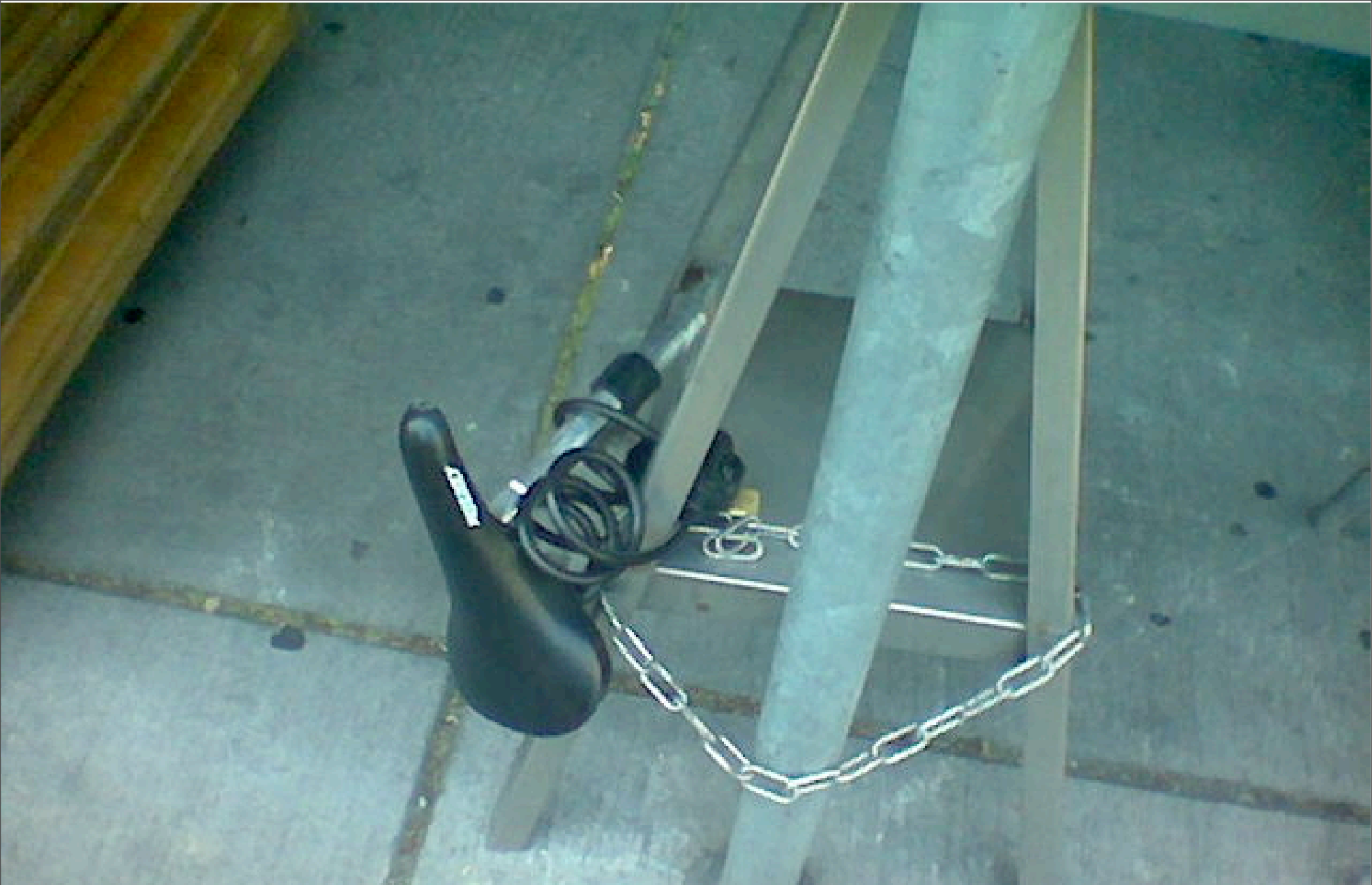
co-existence of technologies

**These sockets  
are NOT for  
public use**

T1 SKT 107



ownership



ownership



# uncertainty

inaccuracy of physical sensing and the ambiguity of references

complex and dynamic technical problems related to bandwidth, power, latency, disconnection, and so forth

mismatch between what can be sensed and what is expected create uncertainty

# unpredictability



A photograph of a public restroom sink. The sink is white and has two chrome faucets. The faucet on the left has a red cap on its handle. The faucet on the right has a silver handle. In the center of the sink is a drain. Above the sink is a white hand dryer with a green band that says "Hand Dryer". The background is a light-colored wall.

cultural bias





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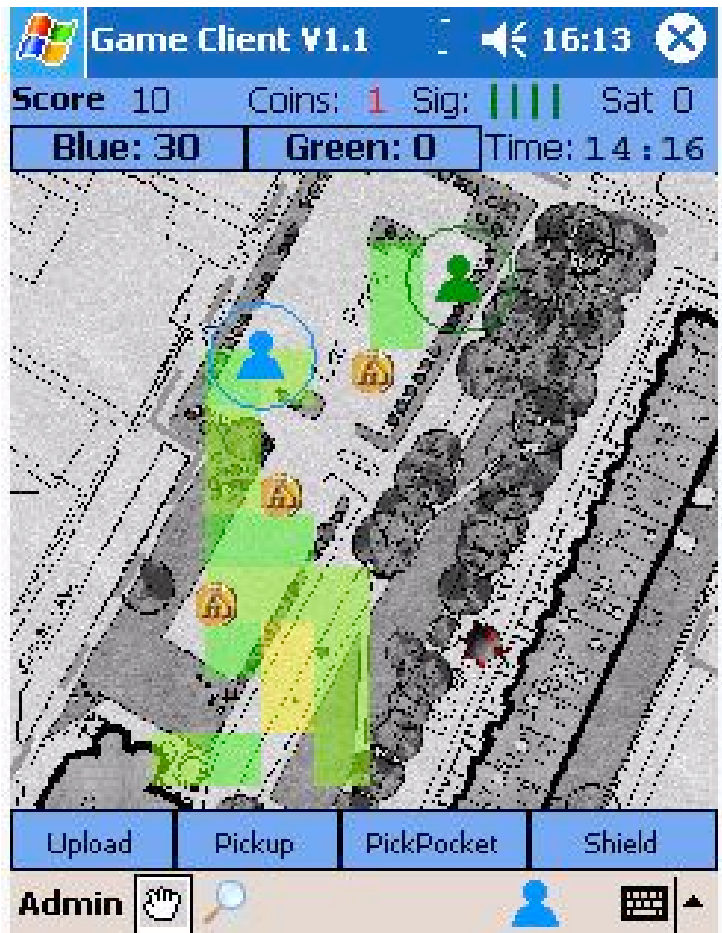
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# seamful design



revealing the “seams” (limits, boundaries, uncertainty)



embraces the messiness of everyday life



know when to reveal or hide the imperfections



seamfulness



A photograph of a modern architectural structure featuring glass panels and metal frames. A bright red curved line is overlaid on the image, starting from the left and curving towards the right, passing behind the glass panels. The background is a dark, textured surface.

seamfulness

# design for appropriation

co-evolution with technologies is about accommodation and appropriation

we play with noise and disorder. It is what allow us to be in command

users as actors, not as passive recipients

configure, adapt and customize technologies

appropriation not only by simplification

# conclusions

seamlessness is the exception

messiness and limits cannot be ignored

design technologies with that in mind

same errors as strong AI?

do we really want to live in a calm world?