

EUvsVirus: Ethical and Transdisciplinary Practices when Designing for Societal Issues

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*CS-E4002: Human-Centred Research and Design in Crisis
Aalto University*



WELCOME!

NICE TO "SEE" YOU ALL!

WHAT ARE WE GOING TO TALK ABOUT TODAY

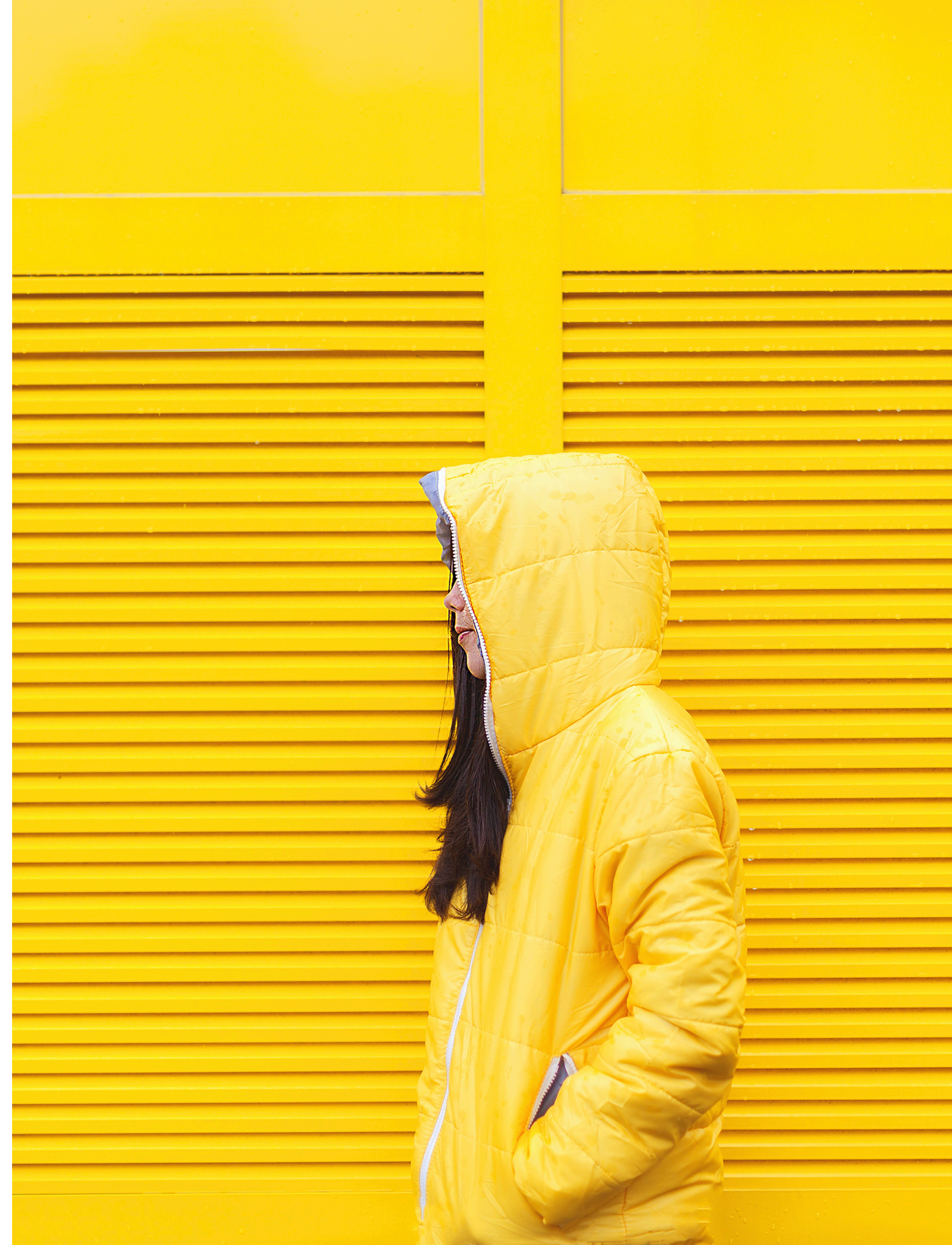
PROGRAM

1. Intro and my journey to design
2. Hackathons: friends or foe?
3. The shift to transdisciplinary and responsible design
4. So you want to build a robot as a solution for a crisis
5. Take-home messages
6. Mini-Break and Discussion

INTRO AND MY JOURNEY TO DESIGN

**I AM GOING TO DISCUSS EXPERIENCES AND
METHODOLOGICAL CONUNDRUMS ABOUT TACKLING
SOCIETAL ISSUES, ESPECIALLY IN CRISIS.
I AM GOING TO USE MY EXPERIENCE AT EUVSVIRUS, MY WORK
AT THE DESIGNLAB OF THE UNIVERSITY OF TWENTE AND MY
RESEARCH IN AI AS EXAMPLES.**

**I WILL INTRODUCE THEORIES, TERMS AND METHODS.
BUT TAKE THIS SEMINAR AS AN OPPORTUNITY TO
DISCUSS THIS SUBJECT MATTER. IT IS A TWO WAY
STREET.**



ASSISTANT PROF. AT HCD GROUP OF THE UNIVERSITY OF TWENTE

RESEARCHER AT THE DESIGNLAB OF THE UNIVERSITY OF TWENTE

INTERDISCIPLINARY BACKGROUND: HUMANITIES, COGNITIVE SCIENCE AND COMPUTER SCIENCE

**LIVED IN ITALY, USA, NL. WORKED IN VARIOUS INDUSTRIES.
COMMON DENOMINATORS? SOCIAL IMPACT AND ACADEMIC VALUE**

**I GOT INTO DESIGN BECAUSE I THINK DESIGNERS CAN BE PRINCIPLE ENABLERS OF
SOCIAL IMPACT**

**I BELIEVE WE SHOULD GO TOWARDS POST-HUMAN CENTRED DESIGN, AND HAVE A
SOCIETY AND ENVIRONMENT CENTRED POINT OF VIEW**



HACKATHONS: FRIENDS OR FOE

OK, WE KINDA KNOW WHAT A HACKATON IS

BUT, HOW ARE IT IS RUN?

Who have participated to an hackathon? Give me a thumbs up if you did. 👍

Pan-European Hackathon
#EUvsVirus 2020

DESIGN

Cristina Zaga
Social & Political Cohesion
Mentor

#EUvsVirus challenge

MATCHATHON

WORLD RECORDS!

- 2235 New Partnerships
- 1500 Curated Meetings
- 200 Speed Datings
- 500+ Partners
- 120 Projects
- 40 Countries

European Commission

www.euvsvirus.org

OK, WE KINDA KNOW WHAT A HACKATON IS

BUT, HOW ARE THEY RUN?

The European Commission, in close collaboration with EU member states, hosted a pan-European hackathon to connect civil society, innovators, partners and buyers across Europe to develop innovative solutions to overcome coronavirus-related challenges.

- Teams are formed around an array of topics: health, finance, community, remote working, social cohesion
- Mentors are invited/ sign-up, they support the process and the content
- Team Leaders monitor the activity

- Slack for communication
- DevPost to showcase the projects
- Facebook for central organisation and branding
- Zoom/Skype

Methods???

Elements of Design Thinking — the Tim Brown wave (*Brown, T., and Wyatt, J. Design thinking for social innovation. De-velopment Outreach 12 1 (2010), 29–43.*)

Mainly Scrum/Agile , engineering/CS methods

DIVIDE AND COMMON GROUND

Cramton, C. D. (2002). Finding common ground in dispersed collaboration. *Organizational Dynamics*, 30(4), 356–367.

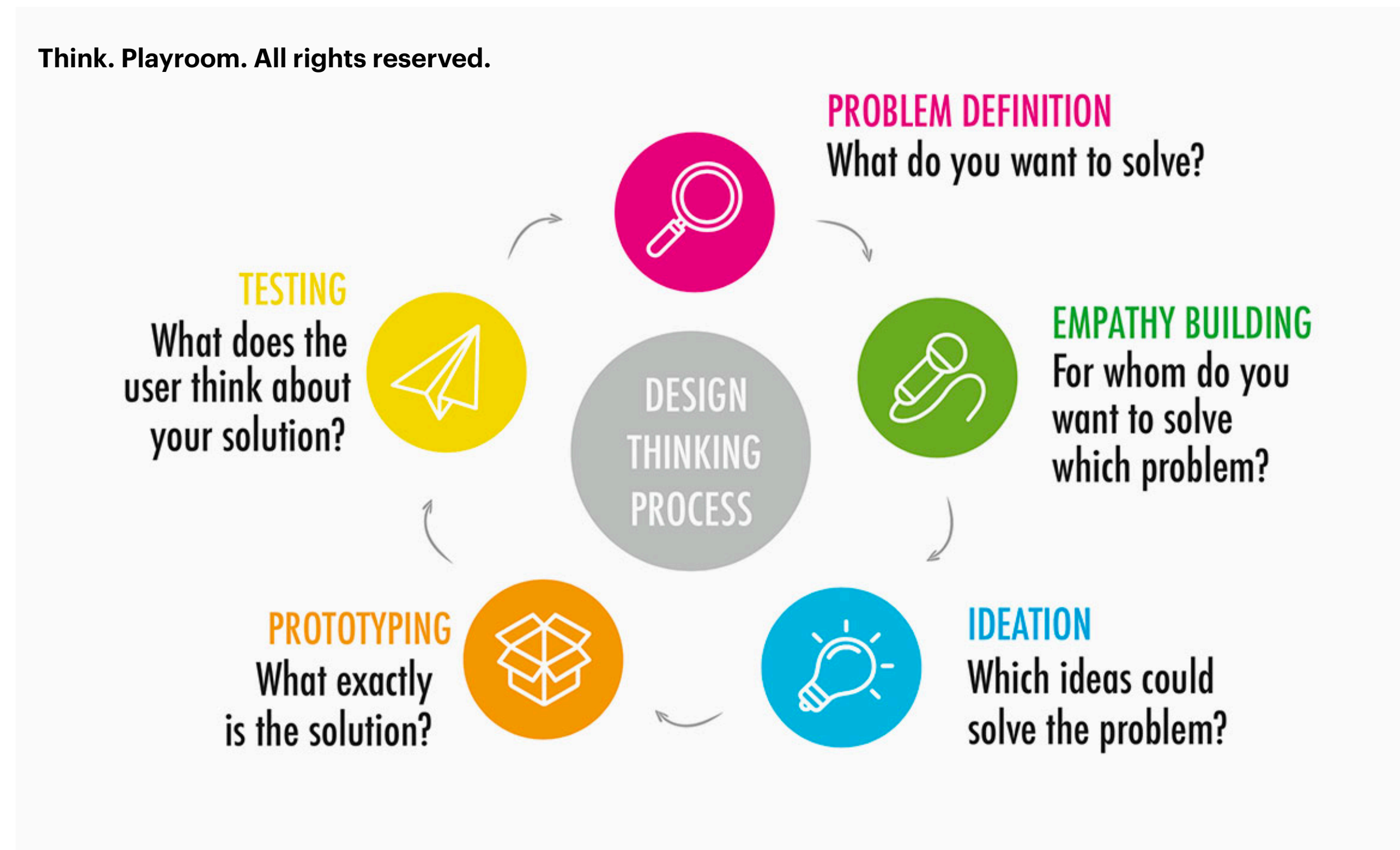
Hinds, P. J., & Mortensen, M. (2005). Understanding conflict in geographically distributed teams: The moderating effects of shared identity, shared context, and spontaneous communication. *Organization science*, 16(3), 290–307.



- Language asymmetry create faultiness, it is difficult to find common ground → inclusiveness is hard
- National asymmetry become salient → latent fault-lines
- Asymmetry in digital knowledge: difficult to solve. Again fault lines and it is hard to find a common ground.

THE DIVISIVENESS OF DESIGN THINKING

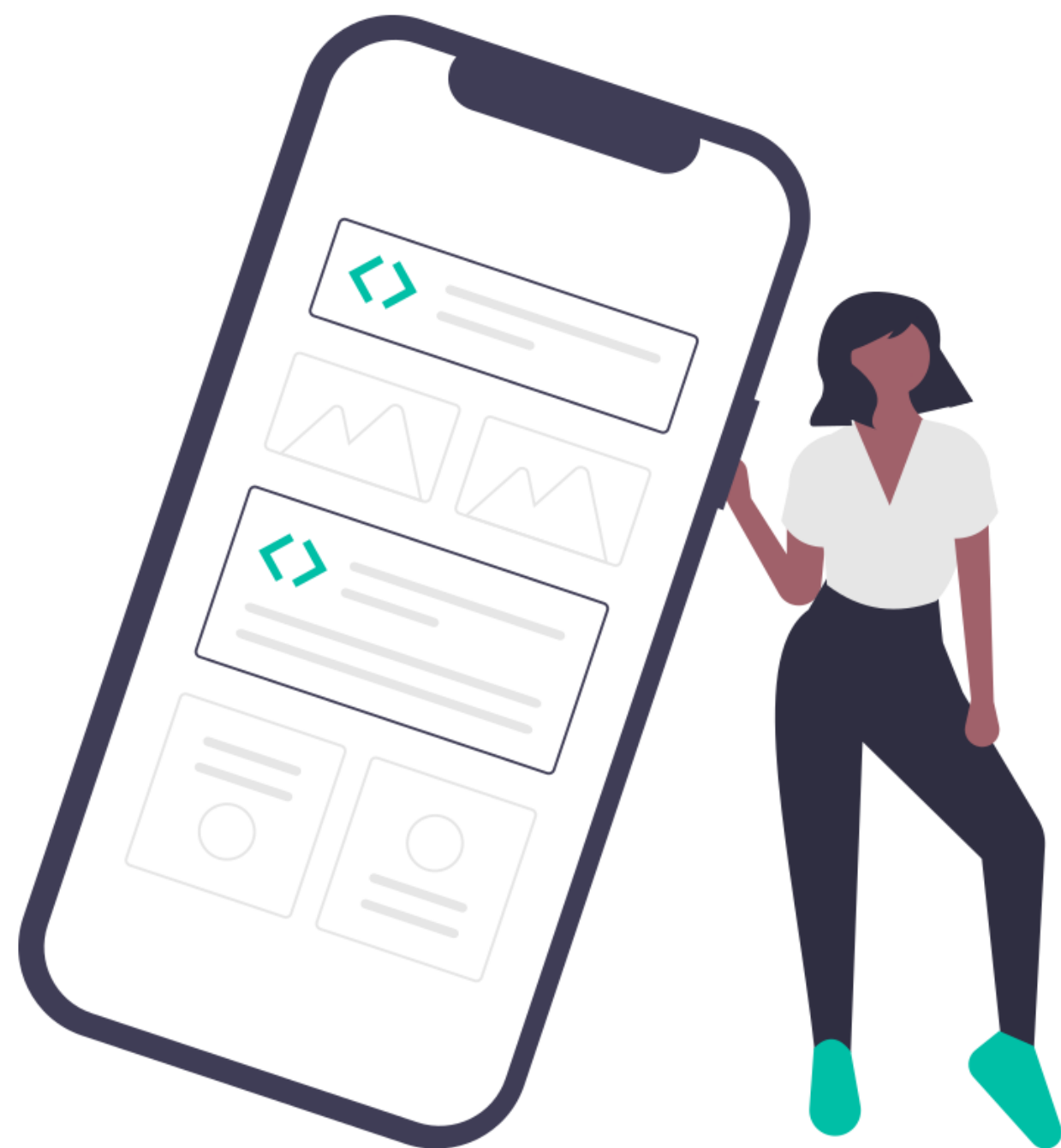
J. KOLKO, THE DIVISIVENESS OF DESIGN THINKING, INTERACTIONS, 25-3, 2018



“As a result, instead of **empathy** as the result of long-term immersion in a culture, as is the case of Pelle Ehn's work in Scandinavia, we have **two-hour "subject-matter expert" interviews** where we gain a scratch-the-surface understanding of business needs. **Instead of Osborn's view of structured brainstorming**, we have chaotic **"working sessions."** Instead of Simon's **methodical understanding of how the human brain works**, we have a **"grip it and rip it"** culture of test and iterate, **abdicating proactive reflection** for reactive alterations. Instead of a view of design as a way of understanding culture and carefully shaping it through craft and care, we appropriate it as a way of driving innovation through a relentless pursuit of newness. And instead of beautiful, usable, significant, and relevant *designed things*, we have "canvases" and "playbacks" and "design sprints"—and lots and lots of Post-it notes.” J. Kolko

THE HERITAGE OF HACKER CULTURE

Ames, M. G. (2018). Hackers, Computers, and Cooperation: A Critical History of Logo and Constructionist Learning. *Proceedings of the ACM on Human-Computer Interaction*, 2(CSCW), 1–19.



Hacker culture stems from American universities and the counter culture in California in the 1960s and 1970s — as described by journalist Steven Levy

Morgan Ames posited that the consequences of the “**anti-authority, every-person-for-themselves, wild-west-like ethos**” ([6] p. 18:15) might have contributed to 1) see computers (and technology at large) as the only solution to social problems, 2) focus on the individualized computer-centric perspective and 3) give-up our agency towards algorithms.

Is it the right way to understand the complexity of socio-technical problems?

SURVEILLANCE AND BIAS

Noble, S. U. (2018). *Algorithms of oppression: How search engines reinforce racism*. NYU Press.

D'Ignazio, C., & Klein, L. F. (2020). *Data feminism*. MIT Press.

- No ethical training for most, difficult to implement in such fast paced environment
- Socio-technical implications are an after-thought
- Bias is rampant, because it is not addressed: team not very diverse



Team Discover, Winner in the Health Domain, Pictures are available at DevPost

THE SHIFT TO TRANSDISCIPLINARY AND RESPONSIBLE DESIGN

WHAT IS MISSING?

THE EUVSVIRUS WAS SUCCESSFUL BUT

We should remember it is about society, not tech.

We should enable co-creation online while fighting the digital divide.

We should consider going beyond the hacker culture.

We should embrace social responsibility and connectedness.

We should incorporate moral and ethical thinking into creative process

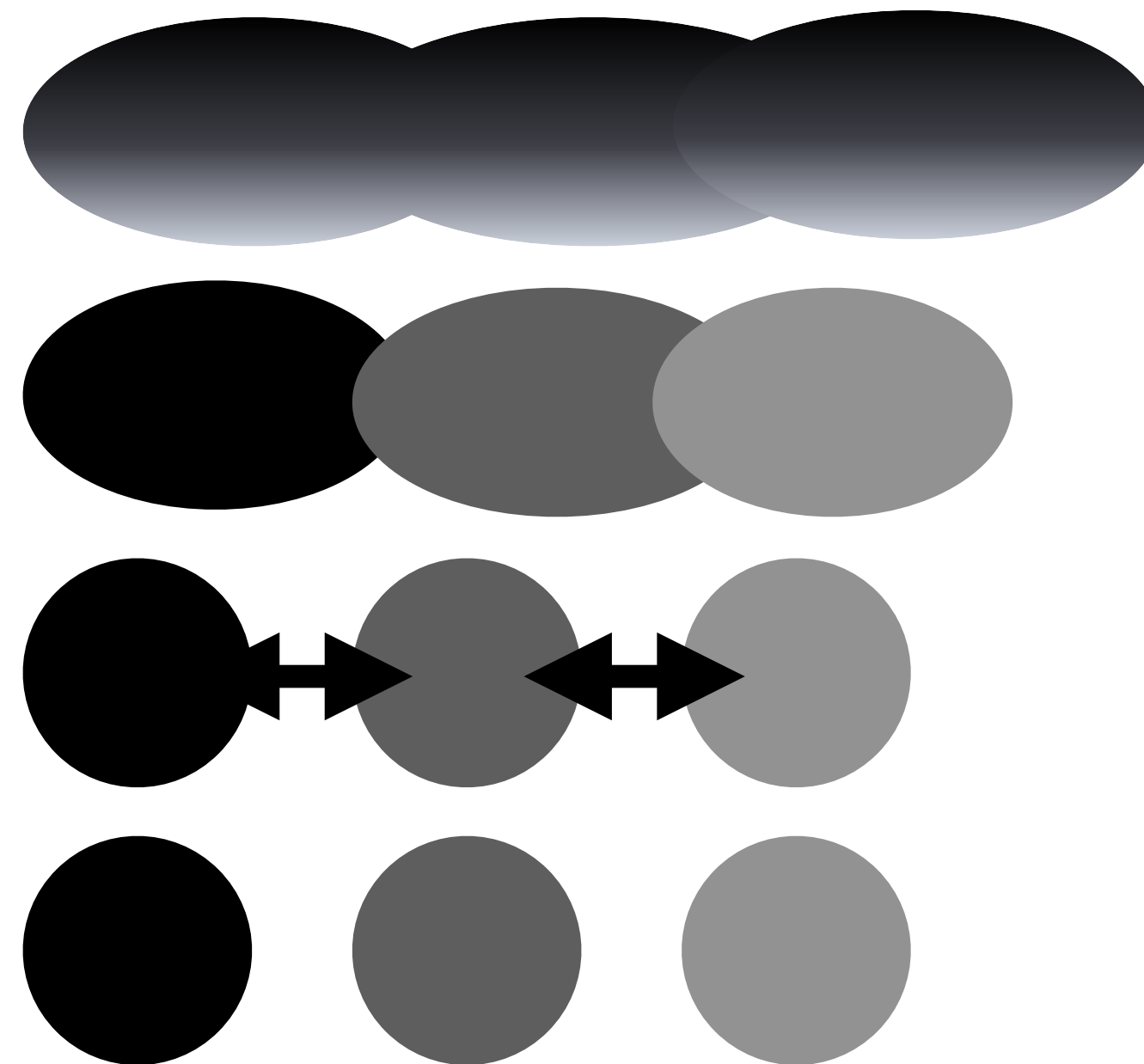
And, last but not least, academia and society should work hand-in-hand to tackle societal challenges.

But how?



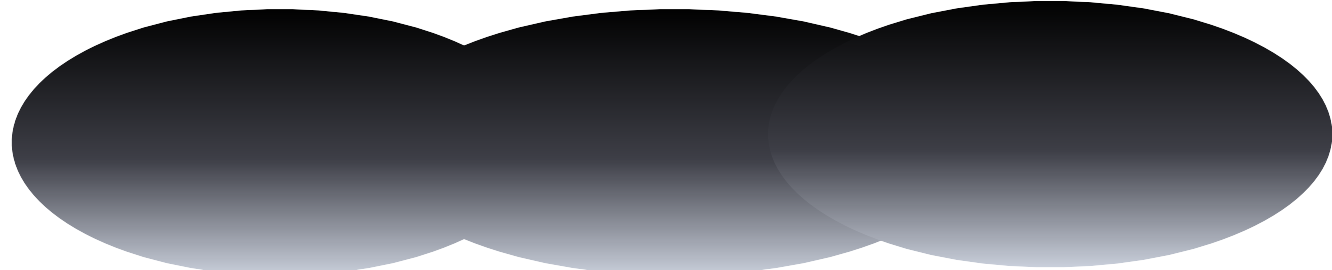
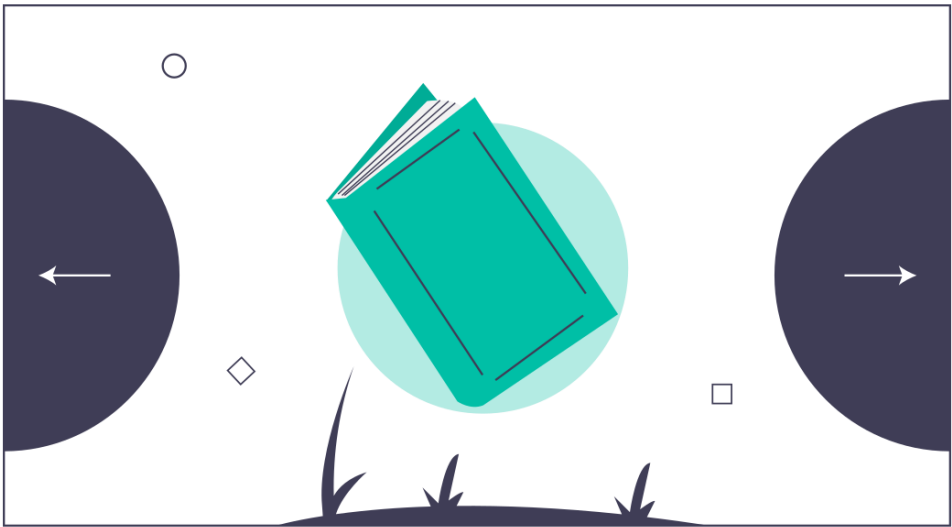
TRANSDISCIPLINARITY

WHAT IT IS? HOW IT DIFFER FROM MULTIDISCIPLINARY, INTERDISCIPLINARITY?
Let's figure out together

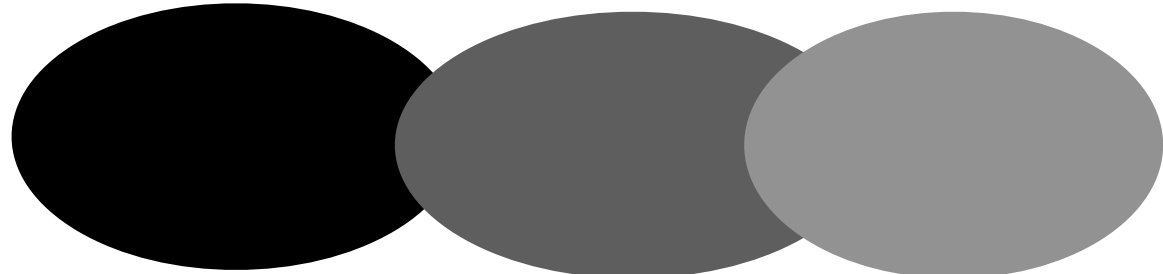


TRANSDISCIPLINARITY

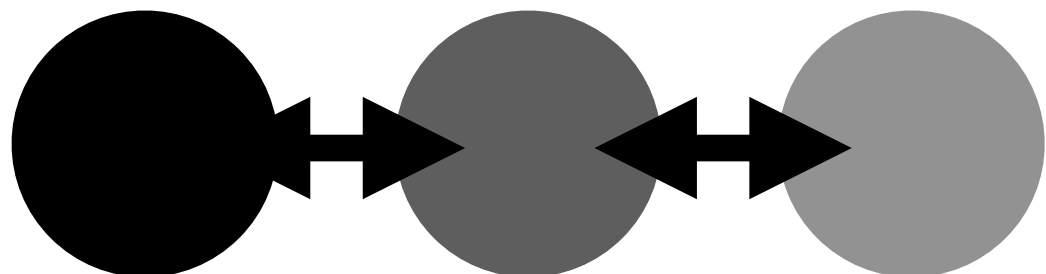
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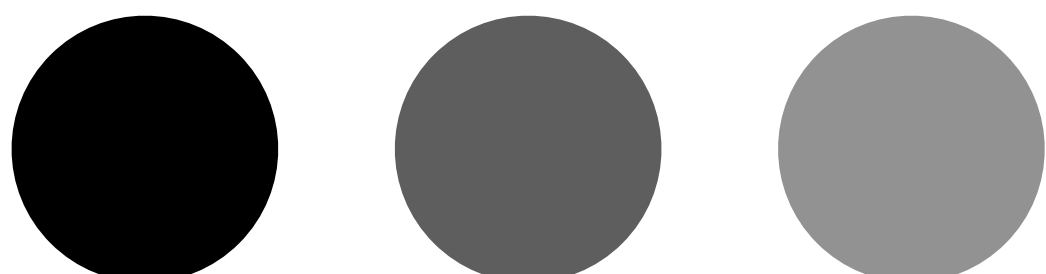
Transdisciplinary



Interdisciplinary



Multidisciplinary



Disciplinary



CITIZEN INVOLVEMENT

Citizen Science is defined as “the general public engagement in scientific research activities when citizens actively contribute to science either with their intellectual effort or surrounding knowledge or with their tools and resources” (Socientize Consortium 2013, Den Broeder et al. p. 506).

Over the years, various methodological strands of citizen science developed. Approaches range from citizens as sensors or crowdsources, to citizens participating in data analysis, to citizens contributing to scientific problem definition and co-constructing knowledge. At the University of Twente, we take an approach to citizen science that focuses on the development and implementation of health technologies, such as the *handscan* and the app “*SamenGezond*” (Healthy Together) and seek to involve in particular citizens of the Twente region. —> Work by Sabine Wildevuur, Julia Hermann and Karin Vanderdriesche.

We are working towards ways in which citizens get actively engaged in co-shaping human-technology relations by enabling researchers to actively include citizens in scientific endeavors. In addition to co-constructing knowledge, citizens and researchers would also co-shape how the technologies will affect attitudes, norms, and values. This way, citizen science would bring about an awareness of the profound impact of healthcare technologies on society and the human condition. The participating citizens would not only be citizen scientists, but also “citizen ethicists.

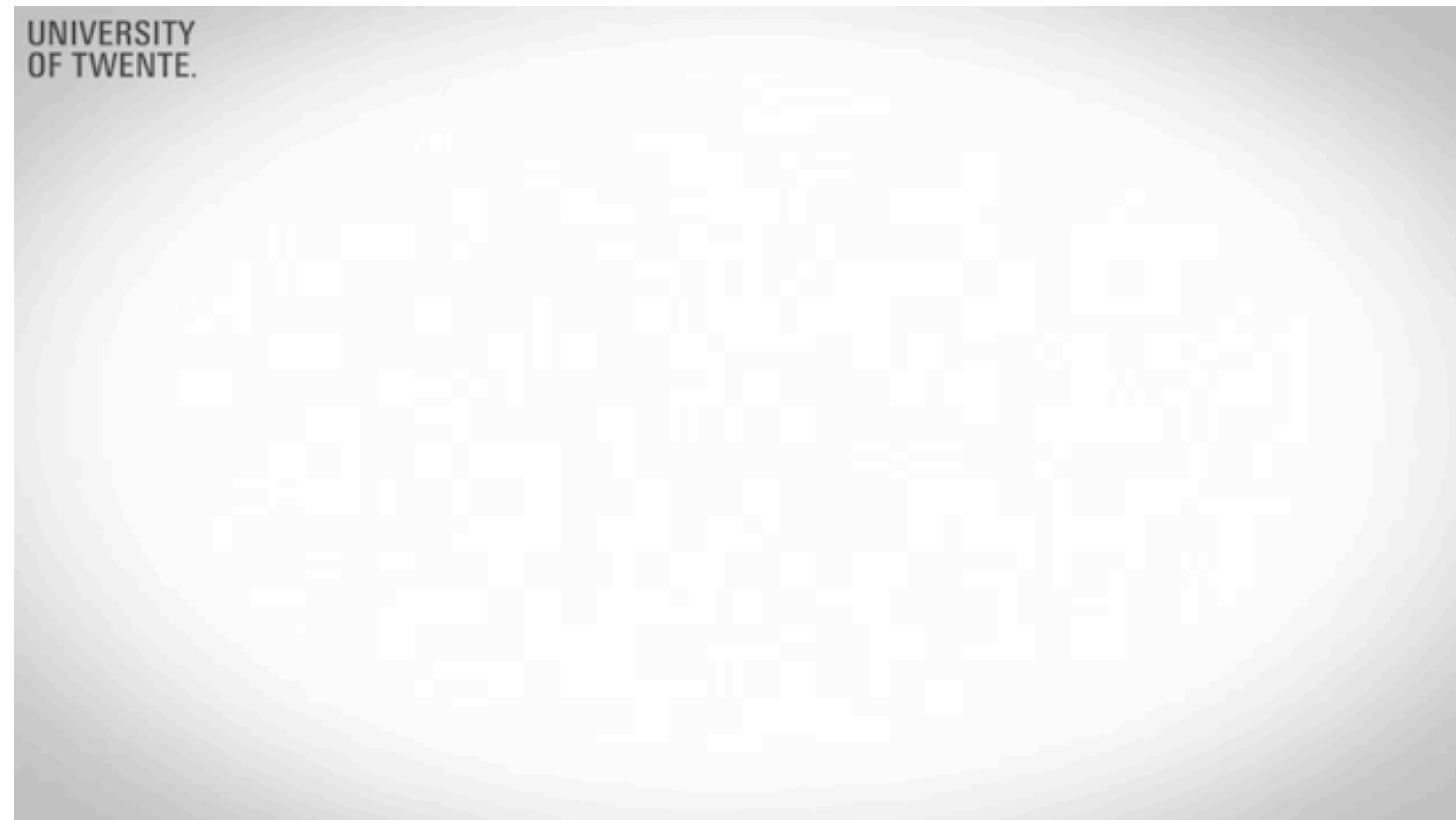
Scenario based design + moral reflection + co-ideation

Example: In Twente, now testing the Corona App of the Netherlands: philosophy, psychology, health working together with citizen. No top-down, but bottom-up

RESPONSIBLE DESIGN

WE NEED TO UNDERSTAND HUMAN-TECHNOLOGY RELATIONS AND TAKE THE RESPONSIBILITY

Let's watch a video from Prof. dr. ir. P.P. Veerbeek to understand a bit more: <https://www.youtube.com/watch?v=FVhrLwBNbvU>



RESPONSIBLE DESIGN

AGENCY AND RESPONSIBILITY

- By taking a transdisciplinary turn, all the stakeholders citizen included, participate in the frame definition beyond their particularly disciplinary/knowledge focus to tackle societal challenges. In this way, we enable citizen participation (one of the many forms of **Citizen Science**) in the framing and ideating process.
- By taking, a moral turn we make salient how technology (from a simple chair to sophisticated robots) shape human, perceptions actions and decisions. Technologies help to shape how human beings are in their world, and how the world can be there for human beings; they mediate actions and perceptions, practices and experiences at the individual and social level.
- What does it mean methodologically?
- Establishing common ground, enabling framing and reframing using metaphors and critical design

RESPONSIBLE DESIGN

HOW MIGHT THIS LOOK LIKE? AN APPROACH IN DEVELOPMENT

Work in progress for the DesignLab of the University of Twente. Subject to change and iteration :-)



**SO YOU WANT TO BUILD A ROBOT AS A
SOLUTION FOR A CRISIS**

(DON'T) PUT A ROBOT ON IT

OR, UNDERSTAND WHY EMBODIED AI COULD WORK



**An example for a past project,
EU FP7 Squirrel, but
applicable also to crisis**

What do you see here?

(DON'T) PUT A ROBOT ON IT

OR, UNDERSTAND WHY EMBODIED AI COULD WORK



An example for a past project,
EU FP7 Squirrel, but
applicable also to crisis

Find them scary or repulsive
Uncanny valley

We feel deceived
Expectations are not met

We don't use them
Non-use is an issue

(DON'T) PUT A ROBOT ON IT

OR, UNDERSTAND WHY EMBODIED AI COULD WORK



Robots perceive, reason, and act to communicate with humans not only has an effect on natural human tendency of attributing agency to things that behave, but it enriches robots of relational qualities. As humans and robots become ontologically inseparable, notable socio-technical and moral implications arise

We need to design in human-terms

Understanding the problem

Involving people in the frame

Avoid Deception

This is hard because we miss methods

Also, it is hard to translate design into engineering practices

CO-DESIGN

METHODS TO ACHIEVE A SHARED UNDERSTANDING AND INFORM ROBOT DESIGN

PeerPlay: Perspective Taking in Embodied Role Play

Understand how people make sense of an agent that behaves

Design behaviours that are not deceiving

Opening a window into human-robot relationships by taking perspective

Understanding people's frame and reframing with them

Doing ethics with other means





CO-DESIGN TECHNIQUE PEER PLAY: 1ST PERSON

Explanation of Behavior

Action

Believes

Desires



CO-DESIGN TECHNIQUE PEER PLAY: 2 ND PERSON SCENARIO

Explanation of Behavior
Action
Believes
Desires

Narratives
Folks Psychology

Responsible illusion of life

TAKE HOME MESSAGES

TAKEAWAYS

EUVS VIRUS

1. When responding to a crisis hackathon can be a potent way to generate ideas and value but we need to reconsider methodologies (a more in depth-look to design thinking), we need to create common ground and enable inclusiveness. Ethics and moral reflection cannot be an after-thought, the socio-technical implications need to be tackled at the beginning of the design process



TAKEAWAYS

TRANSDISCIPLINARITY AND RESPONSIBLE DESIGN

2. We should work in a transdisciplinary fashion: beyond disciplines, with society (and citizen) to tackle societal challenges that really matter. To do so, we need methods and techniques, we should work on that

3. Designing embedding values and moral reflection is the way to go. There are many approaches available, but we believe an approach that comprises the mediation theory and co-design and transdisciplinarity is the way to go, especially in crises



TAKEAWAYS

DESIGNING AUTONOMOUS AGENTS

4. Robots are not the solution to all the issues, but they can be pivotal in crises such as the one we are currently living (Covid-19)

5. However, we need to make sure that we design robots responsibly. Deception, mismatch of expectation are often arising. Especially with human-like agents.

6. Responsible design methods are scarce for HRI, but you can tap into the literature of design research



THANKS!!!

MINI BREAK AND DISCUSSION

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Next Tuesday: Project Concept Presentations

July 14, 2020

2 sessions:

- 10:00 – 12:00
- 17:00 – 19:00

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in Crisis*

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