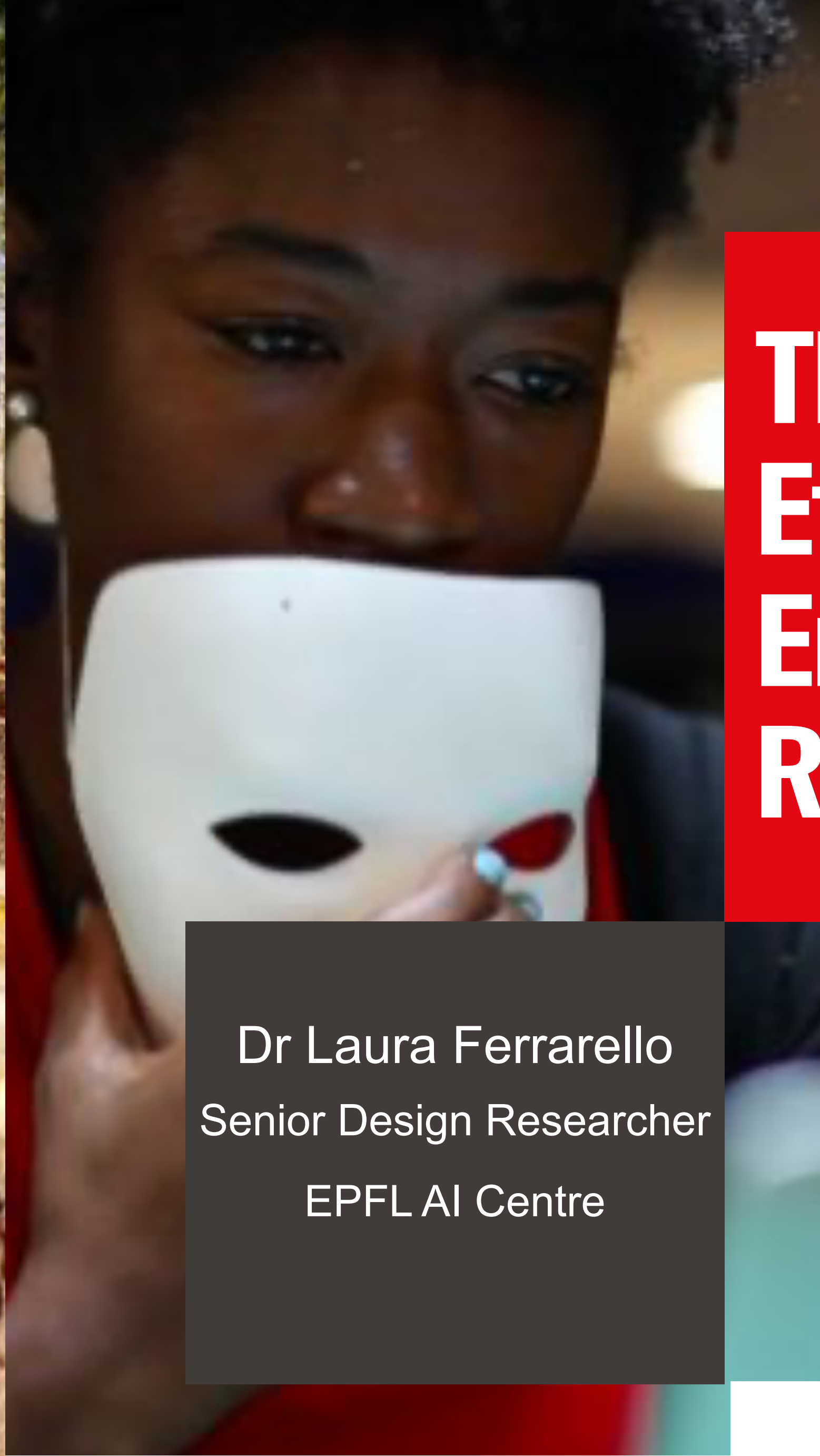




The Practice of Ethics in Engineering Research

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EPFL My research & I

- What decisions I have taken in my research?
- What decisions could I have taken in my research?
- What decisions I wished to take my research?





The social impact of technological advancement, industrial manufacturing and the misuse of natural resources have led engineers, architects and scientists to **reflect** on their responsibilities in shaping ethical challenges, and whether they have the knowledge and experience to act upon them.

Could we think of ethical issues as opportunities to challenge social assumptions, increase awareness, and develop new attitudes and procedures in our work?

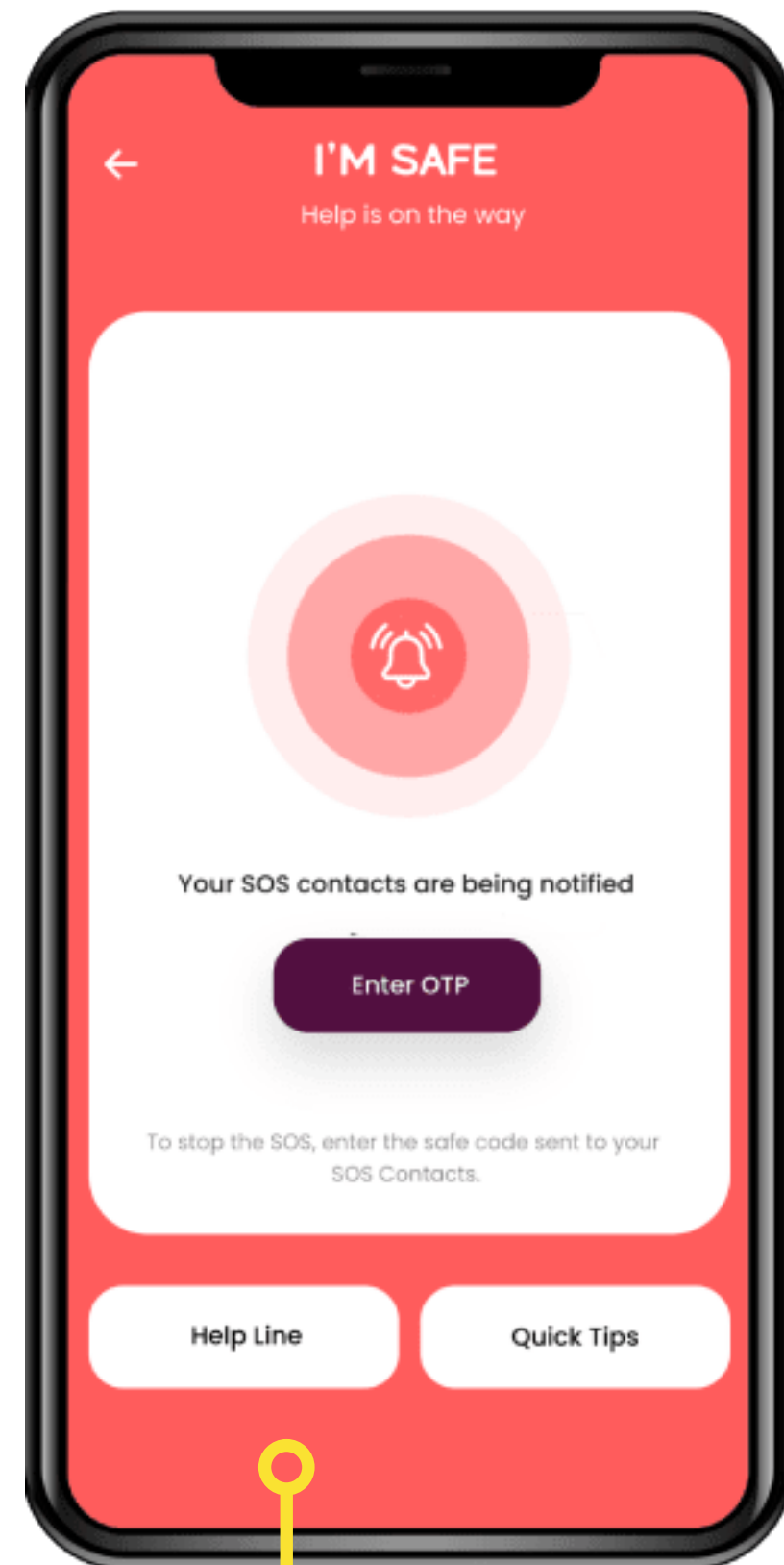
How can research take an active role in constructing a future where society as a whole takes active responsibility towards the issues we face?

Scientific Research and Society

- How can scientific research be a strategy to address, prevent or mitigate social challenges?
- By addressing complexity and harnessing human agency, can scientific research make positive impact on social systems?



Accessible Health Systems



Safer mobility



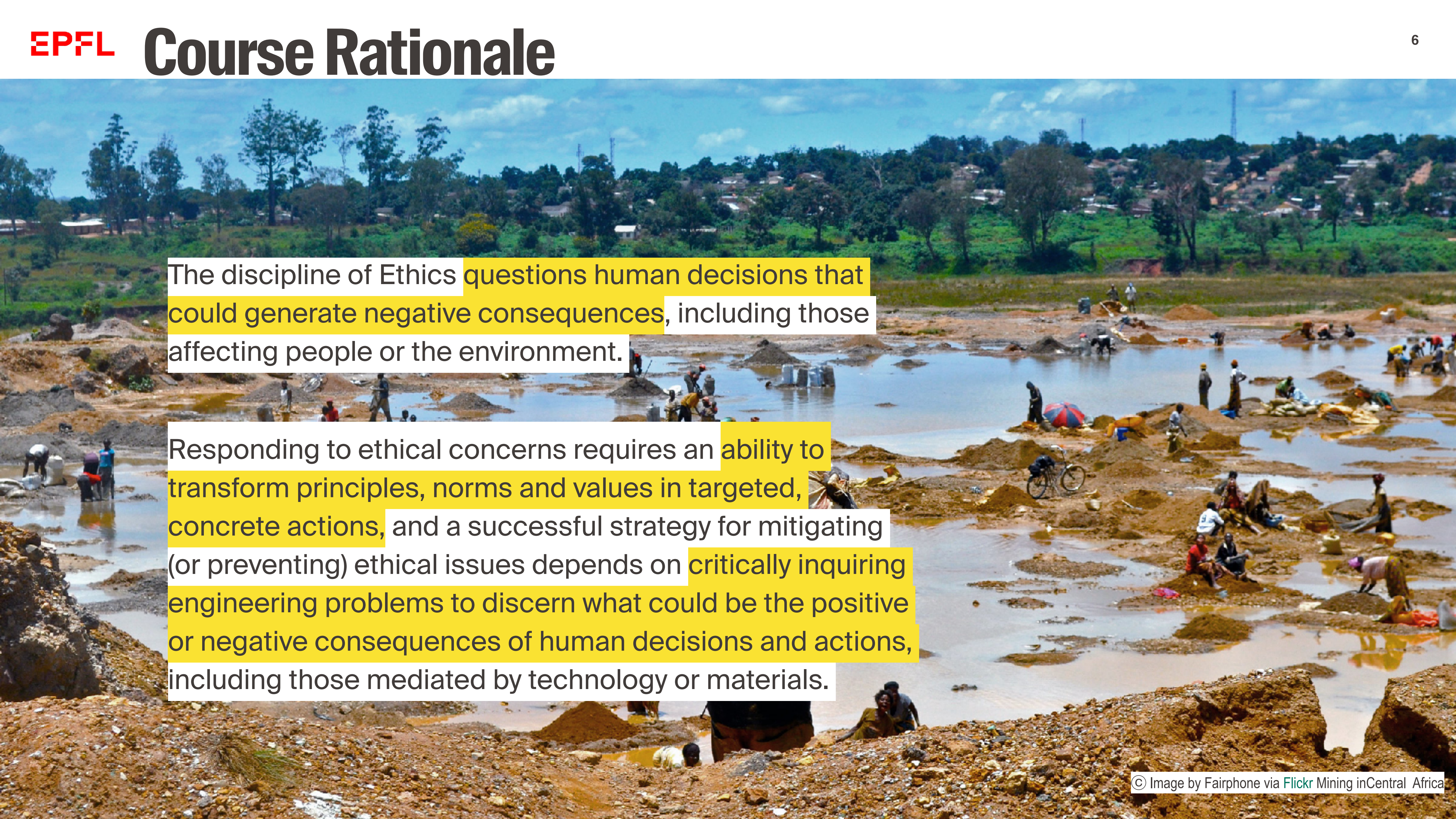
Enhanced education



Interactive supply chain



Sustainable materials

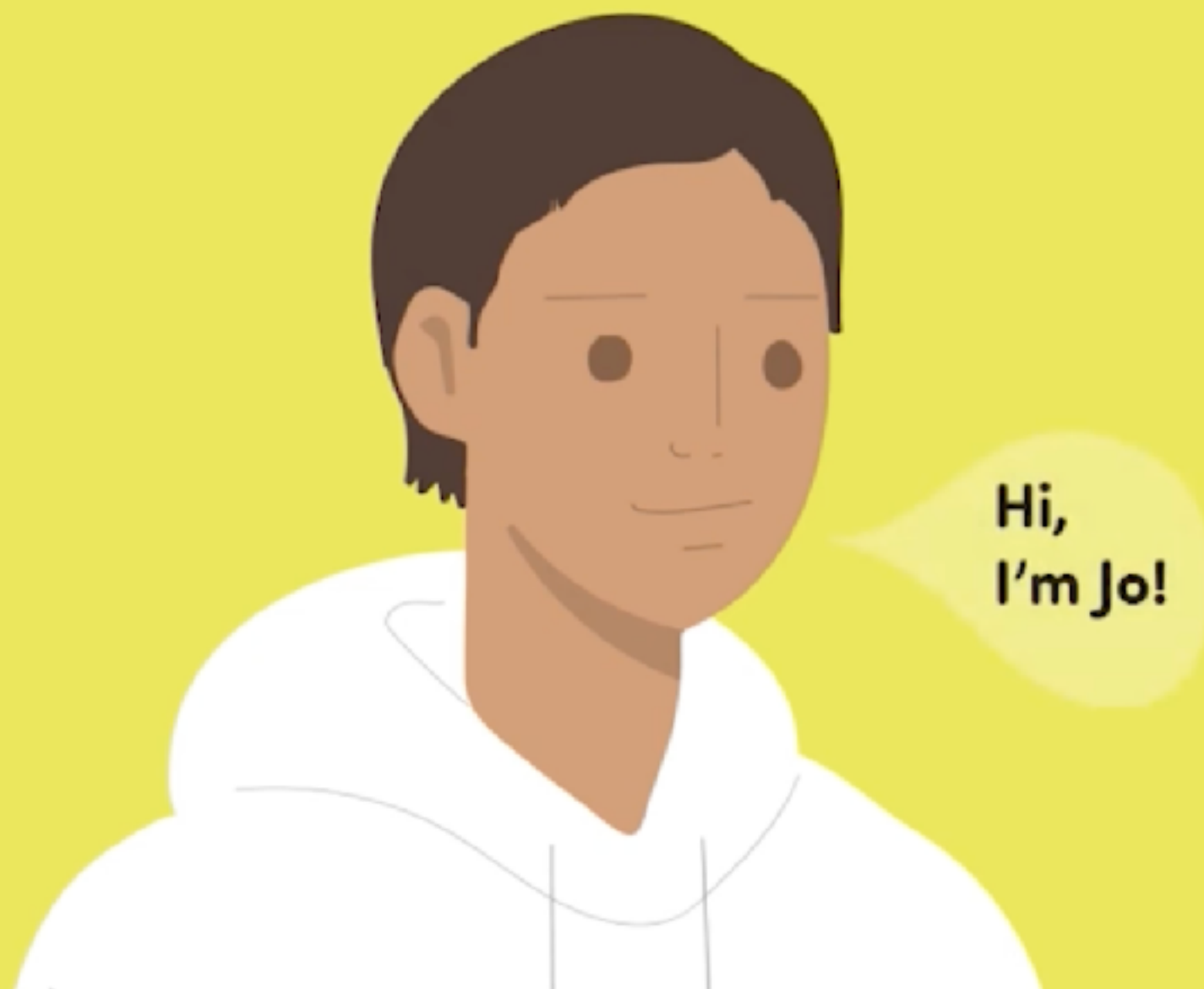


The discipline of Ethics questions human decisions that could generate negative consequences, including those affecting people or the environment.

Responding to ethical concerns requires an ability to transform principles, norms and values in targeted, concrete actions, and a successful strategy for mitigating (or preventing) ethical issues depends on critically inquiring engineering problems to discern what could be the positive or negative consequences of human decisions and actions, including those mediated by technology or materials.

This course examines the **human role, responsibility and agency in responding to ethical issues** by analysing the system of engineering and scientific research and practice.

Wicked problem mapping is used as a method to **understand cause-effect relations** defining ethical challenges, **to redefine these an opportunity to innovate.**



Hi, I'm an algorithm categorising the information in the images you post on social networks.





A space aiming to:

- stimulate discussion
- provide a framework to tackle ethical challenges
- guide decision-making
- use system thinking to understand ethical challenges
- engage with risks and failure in research.
- raise awareness on personal decision-making and its impact on people and the environment
- exchange knowledge and experiences
- ask questions.
- listen and reflect on other ideas

What this course is not about



A course:

- on ethics theory & philosophy
- supporting to EPFL ethics policies and regulations
- directed to one directional conversations
- not respecting ideas different from the way we think.
- providing measurable factors.

- Ethics:
- System thinking:
- Narratives:
- Wicked problem:
- Reflection:
- Dialogue:
- Agency:

- *Ethics*: a process of critical enquiry guided by questions and influences by values that stimulates reflections about the consequences of our decisions and actions towards society and the environment.
- *System thinking*: an approach used to analyse ethical dilemmas through casual relations drawing positive and negative feedback loops.
- *Narratives*: a method for articulating thinking and positioning a challenge in its wider context. A narrative offers a more rounded and holistic understanding of a problem for identifying possible actions and interventions.
- *Wicked problem*. A complex problem that is difficult to define for its interconnected nature.
- *Reflection*. A critical way of thinking stimulated by a dialogue with the personal self, or with peers, which increases self-awareness of a situation.
- *Dialogue*. A reflective type of communicating that is aimed at getting a more critical understanding of a subject, or a situation, to address a problem.
- *Agency*. The ability to act and express voice in a context to achieve goals.

We will use our personal and professional experiences of research, and work in general, to discuss how some of the challenges we face in our everyday job can be addressed and become opportunities.

We will present the challenges we think we might face, or examples of past experiences, to discuss opportunities of interventions by using system thinking.

Ethics is complex; there is no expectation that you will generate solutions, but it is key to develop a mindset that sees this complexity as an opportunity to prevent/mitigate risks and possible failures generating ethical challenges.

Such an attitude is our agency towards ethics

What ethical issues do you see, or can foresee, in your work?

How can these be interpreted as an opportunity to challenge yourself and your approach to research?

The Practice of Ethics in Engineering Research & Profession

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Thursday, September 26th

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laura.ferrarello

7:55 PM

joined #discussions.

👋 Hello, team!

Let's use this channel for...

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We will use Slack to capture our reflections and share them with our community.

At the end of every sessions, you need to take 10 minutes to reflect on the day's conversation based on the Why, Who, What, Where, How framework

<https://thepacticeof-nhn5696.slack.com/archives/C07P8DHQ Nen>

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Shift + Return to add a new line

■ Week 1

13.15 –13.50

Introduction (1): Course' objectives and goals

13.50–14.00

Break

14.00–14.50

Workshop: *Why, Who, What, Where, How.*

14.50- 15.00

Personal reflections

■ Week 2

13.15 –13.45

Introduction (2): Value systems and their influence on our decisions

13.45–14.00

Break

14.00–14.50

Student-led presentations 10min+10min + discussion and Q&A.

14.50- 15.00

Personal reflections

■ *Week 3*

13.15 - 14.00

Students-led presentations
10min+10min and Q&A.

14.00 - 14.15

Break

14.15-14.50

Student-led presentations 10min+10min

14.50- 15.00

Personal reflections

■ *Week 4*

13.15 - 14.00

Students-led presentations 10min+10min
and Q&A.

14.00 - 14.15

Break

14.15-14.50

Student-led presentations 10min+10min and
Q&A.

14.50- 15.00

Personal reflections

■ *Week 5*

13.15 –15.00

Panel Discussion: “Challenges on Using AI Tools for Photography”

- Professor Sabine Susstrunk, Director of the Image and Visual Representation Lab
- Clément Jaton, Founder of Legal Stuff
- Professor Milo Keller, Head of the Photography Department at ÉCAL

■ *Week 6*

13.15 – 13.45

Presentation: “Mapping and framing ethical challenges through wicked problem maps”

13.45 –14.00

Break

14.15-14.50

Student-led presentations 10min+10min and Q&A.

14.50- 15.00

Personal reflections

■ *Week 7*

13.15 – 14.15

Workshop: “Mapping and framing ethical challenges through wicked problem maps”

14.15–14.30

Break

14.30–14.50

Presentation

14.50 - 15.00

Personal reflections

■ *Week 8*

13.15 – 14.15

Workshop: Mapping and framing ethical challenges through wicked problem maps

14.15–14.30

Break

14.30–14.50

Presentation

14.50 - 15.00

Personal reflections

■ *Week 9*

13.15 – 14.15

Workshop: “Identify areas of interventions for mitigating preventing ethical challenges through wicked problem maps”

13.45 –14.00

Break

14.30–14.50

Presentation

14.50- 15.00

Personal reflections

■ *Week 10*

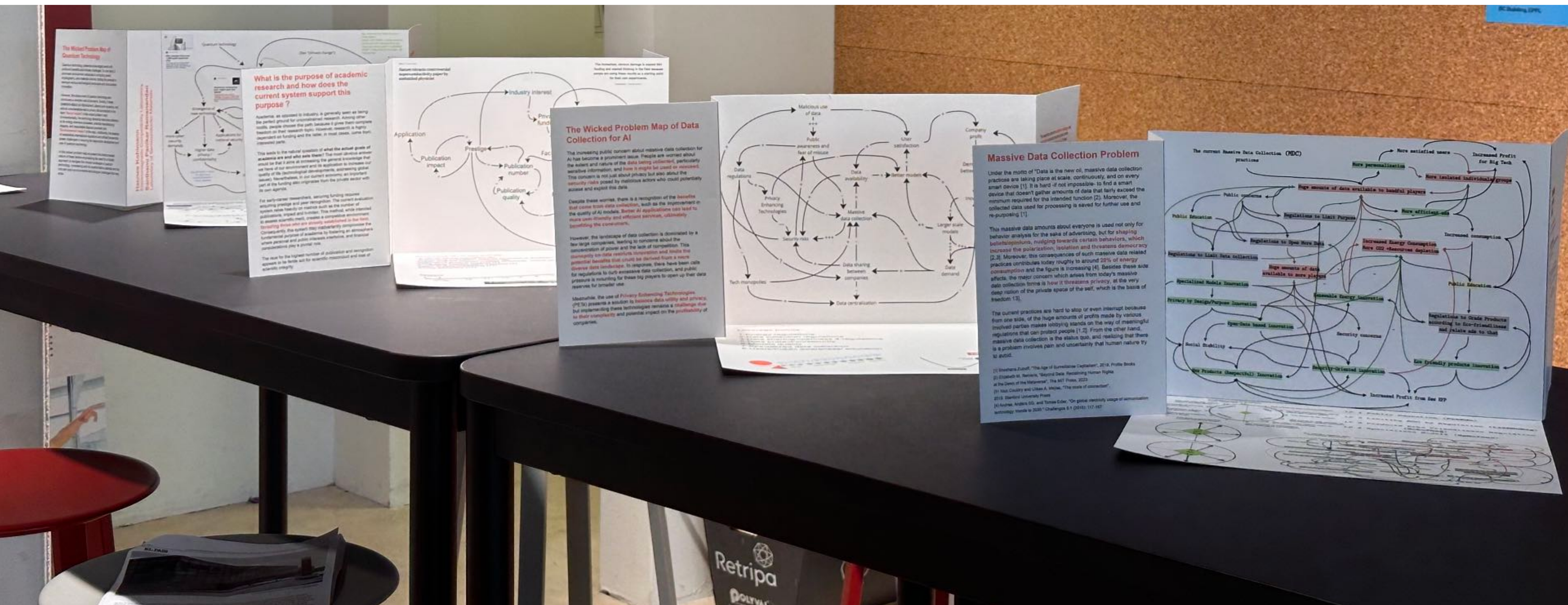
13.15 –15.00

Poster presentation and final remarks on the course experience

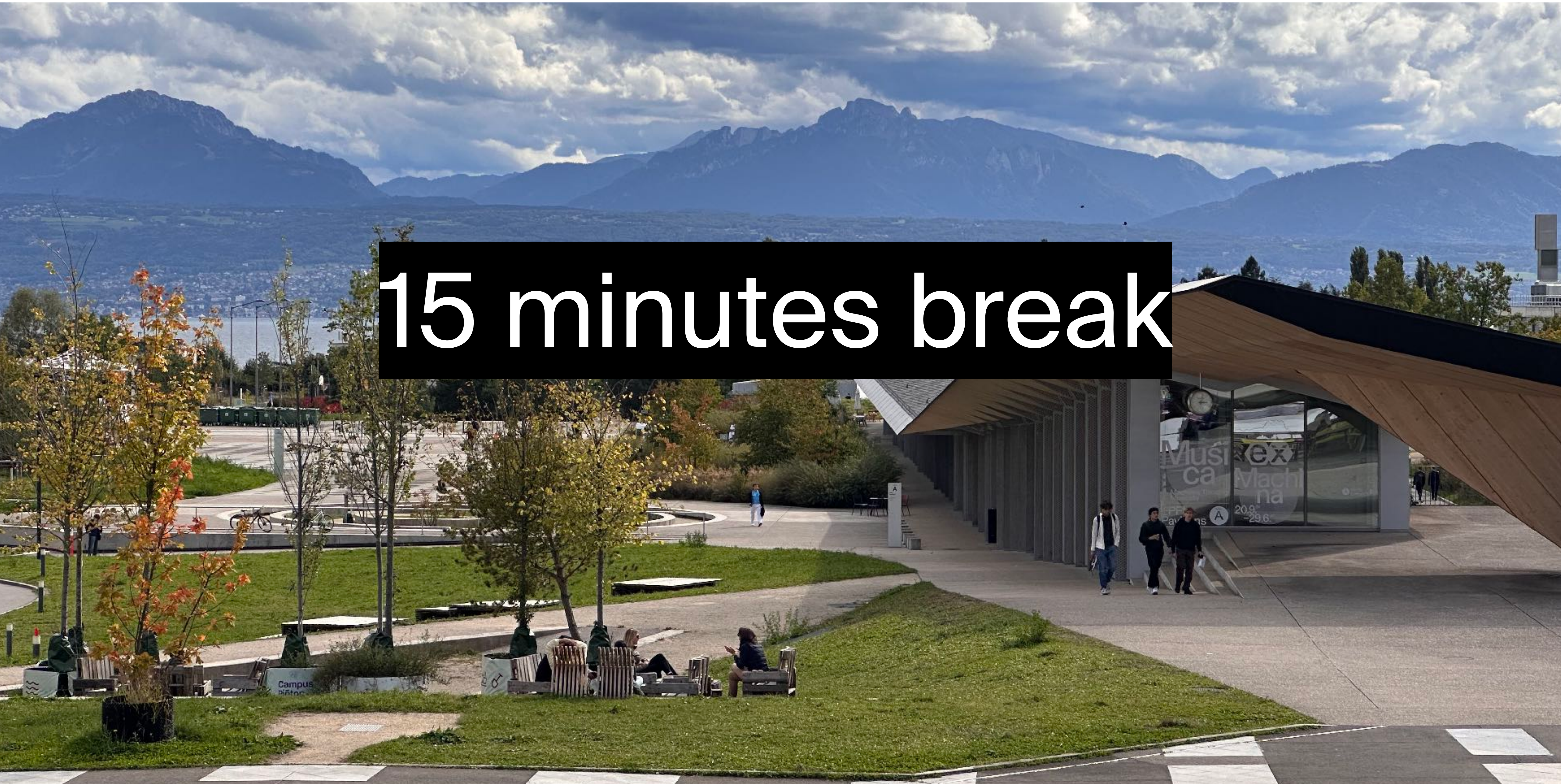
- Demonstrate ability to identify and critically analyse ethical challenges.
- Demonstrate ability to identify factors and events (human behaviour, industrial or manufacturing procedures, attitude, culture, values) that trigger ethical issues affecting people and the planet.
- Evidence knowledge of ethics as a wicked problem system.
- Demonstrate ability to assess the influence of stakeholders in defining solutions to ethical challenges.
- Evidence of thinking innovative solutions through the potential unintended consequences of human actions in engineering research and profession.

On the final day, each group presents to the cohort a poster including:

- The wicked problem map
- A brief description of the map, articulating the analysis of the positive and negative feedback. This description includes how/why the relation of these feedback is an ethical challenge and the greatest impact made on people and/or the planet.
- A categorisation of the feedback, i.e., whether generated by human behaviour, industrial or manufacturing procedures, attitude, culture or values.
- A rough timeline of action indicating the actions to be taken to prevent an ethical challenge
- A list of leverage points illustrating how these can generate opportunities for innovation.
- A brief description of approach created to develop a solution emerging from the wicked problem map and the leverage points.



15 minutes break



- *Why* do we care of ethics in our research and/or discipline?
- *Who* are the stakeholders that should be accounted and engaged to understand and address ethical dilemmas in our research/discipline?
- *What* are the ethical challenges that need discussion in our discipline/research?
- *Where* do we need ethical thinking and actions in our research/discipline?
- *How* do we act (as a person, or collectivity) to address the ethical challenges in our research/discipline?

EPFL Who presents when?

- *Week 2*

Name 1

Name 2

- *Week 3*

Name 1

Name 2

Name 3

Name 4

- *Week 4*

Name 1

Name 2

Name 3

Name 4

- *Week 6*

Name 1

Name 2

What to present: drafting the ethical system of your research

- Why do you care? What is your motivation for researching your topic?
- Who do you think benefits (and/or will benefit) from your research, directly and indirectly? Who are your stakeholders?
- What could be described as an ethical challenge in your research?
- Where does this ethical challenge manifest?
- Which of your personal/professional/disciplinary values influence your research, and how?
- What action do you think you can take to tackle the ethical challenge of your research?