



Navigating the ethical and legal dimensions of Human-AI Co-creativity in Interaction Design

About me



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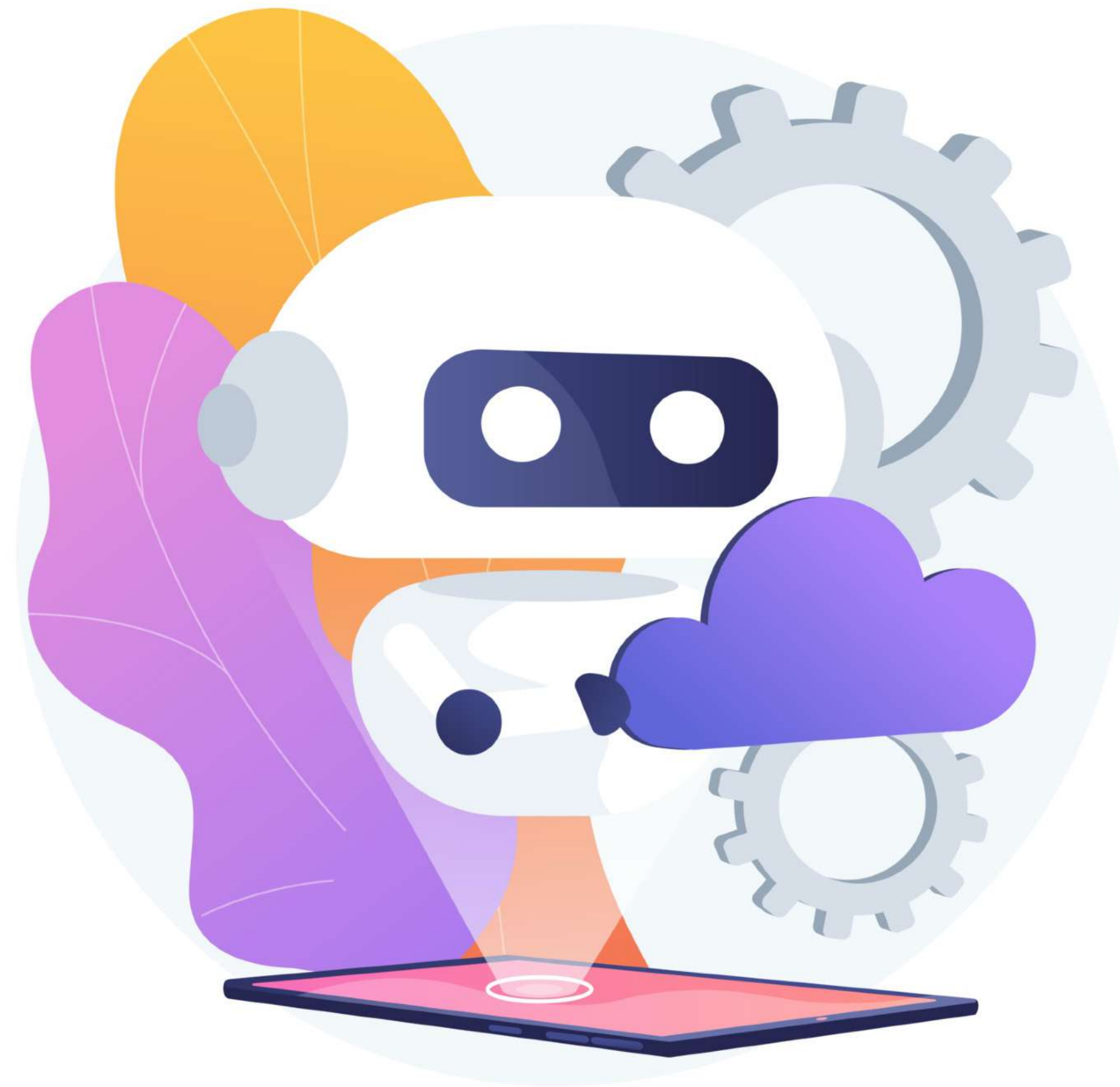
Human-AI co-creativity

Politecnico di Milano, Italy

2018

MA in Communication Design

Politecnico di Milano, Italy



The relevance of AI

Artificial Intelligence (AI) has emerged as a **transformative force** shaping our society, driven by its ability to process vast amounts of data and provide intelligent insights. However, along with its transformative potential comes **significant concern**.

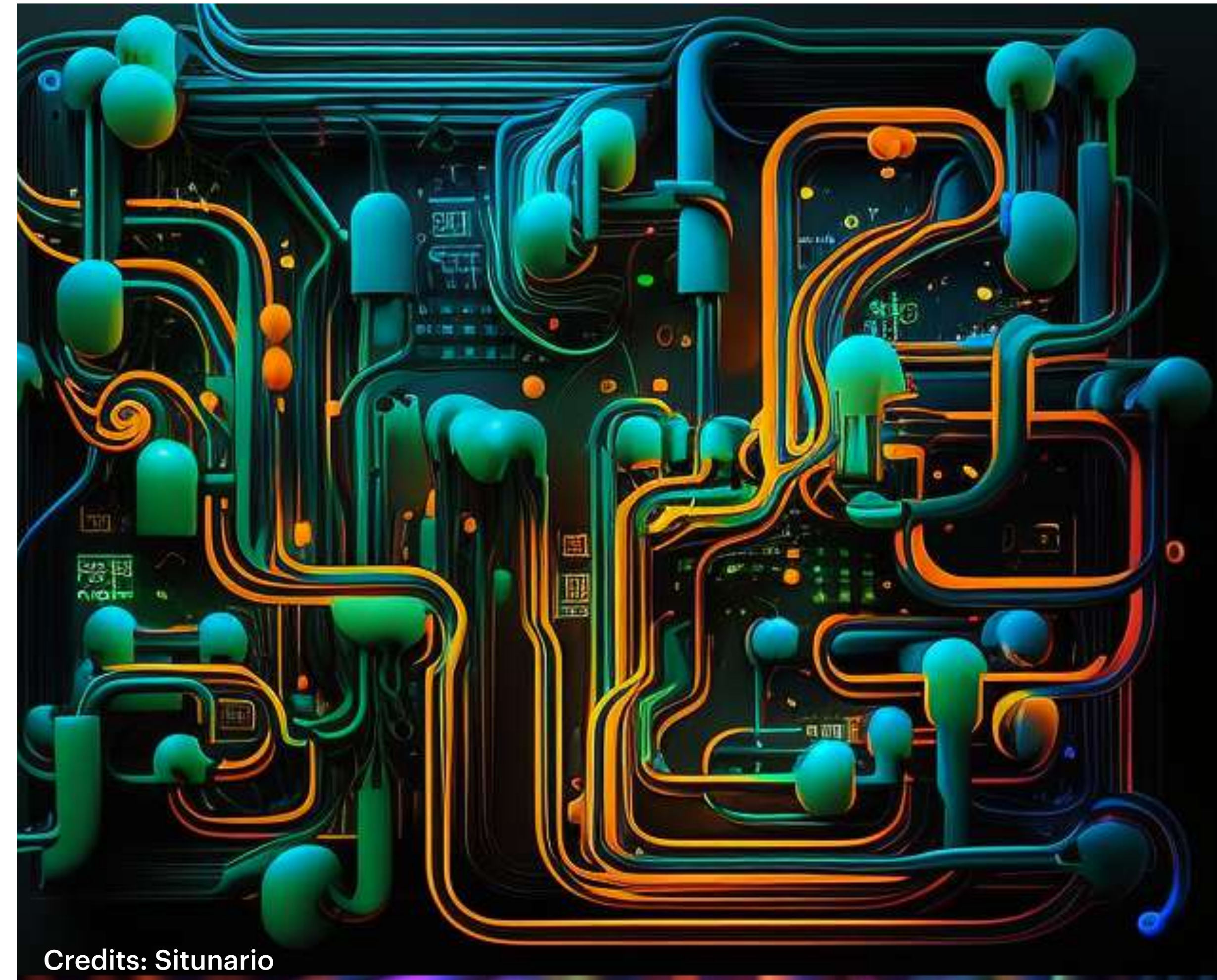
Credits: Freepik

Background and context

AI system

"ARTIFICIAL INTELLIGENCE IS THAT ACTIVITY DEVOTED TO MAKING MACHINES INTELLIGENT, AND INTELLIGENCE IS THAT QUALITY THAT ENABLES AN ENTITY TO FUNCTION APPROPRIATELY AND WITH FORESIGHT IN ITS ENVIRONMENT."

(NILSSON, 2010, P. 13)



Credits: Situnario

Background and context

Human-AI co-creativity

Human-AI co-creativity describes a collaboration that can be assessed regarding its durability and stimulus to creative thinking and the outcomes achieved (Candy & Edmonds, 2002). Here, creativity emerges **through the interaction** of both the human and the AI (Davis, 2013).



Credits: Sougwen Chung - Omnia x Omnia



Credits: Freepik

Background and context

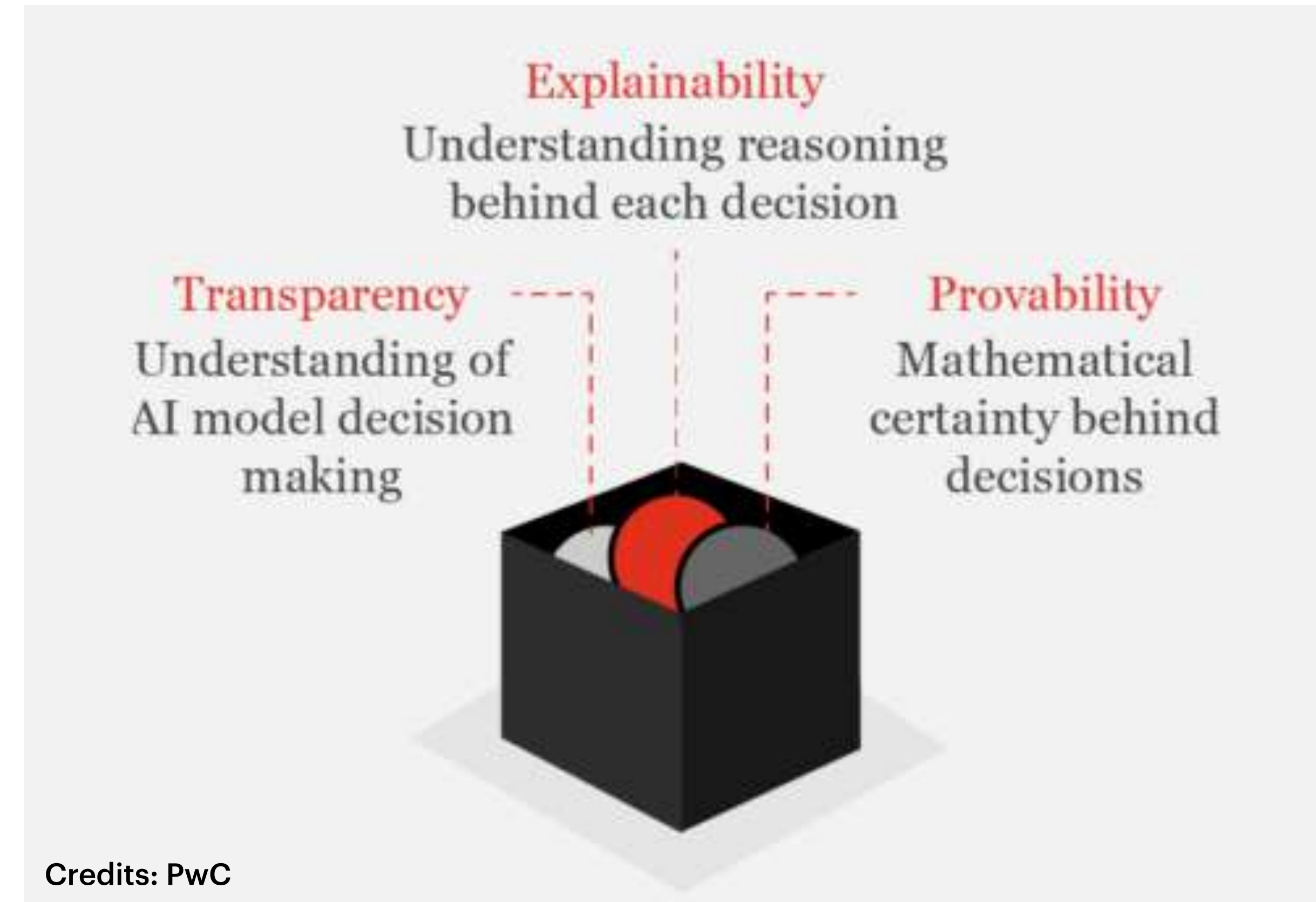
The role of AI

The world is changing, driven by rapid technological progress, and AI is an important part of that change, **driving the transformation of our society.**

AI is also a concern because its potential and the responsibilities of those who **develop** and use it are unclear.

Understanding responsibility in AI Design

If there is too little information, people will not trust algorithms; if there is too much, people could be confused by information overload (Piet, 2020). Trustworthiness is also a prerequisite for people and society to develop, implement and use AI systems (HLEG, 2019).

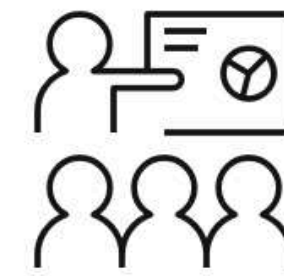


How do we define and enforce the ethical and legal responsibilities of AI designers, especially when the outcomes of these systems are unpredictable?

Ethical guidelines

Corporate

The documents that address the ethical nature of AI begin with the identification and description of principles in order to later outline human-centred guidelines that protect human rights.



Explainability



Fairness



Robustness



Transparency



Privacy

Credits: IBM - The Pillars of Trust

- 6) **Safety:** AI systems should be safe and secure throughout their operational lifetime, and verifiably so where applicable and feasible.
- 7) **Failure Transparency:** If an AI system causes harm, it should be possible to ascertain why.
- 8) **Judicial Transparency:** Any involvement by an autonomous system in judicial decision-making should provide a satisfactory explanation auditable by a competent human authority.
- 9) **Responsibility:** Designers and builders of advanced AI systems are stakeholders in the moral implications of their use, misuse, and actions, with a responsibility and opportunity to shape those implications.
- 10) **Value Alignment:** Highly autonomous AI systems should be designed so that their goals and behaviors can be assured to align with human values throughout their operation.

Ethical guidelines

Nonprofit organisation

"THE ASILOMAR AI PRINCIPLES, COORDINATED BY FLI AND DEVELOPED AT THE BENEFICIAL AI 2017 CONFERENCE, ARE ONE OF THE EARLIEST AND MOST INFLUENTIAL SETS OF AI GOVERNANCE PRINCIPLES."

(FUTURE OF LIFE INSTITUTE)

Ethical guidelines

Governamental

The legal and regulatory ethical context for the design and use of AI systems includes non-binding tools.

Ethical guidelines are ethical suggestions for the design of AI systems that take into account the principles of human protection and inclusion.



Credits: DALL-E

Ethical guidelines

Governamental

- 12 Jul 2024 ● **Publication date**
The EU AI Act was officially published in the *Official Journal of the European Union*.
- 1 Aug 2024 ● **Entry in force**
The Act officially entered into force 20 days after publication.
- 2 Aug 2026 ● **Application date**
A 24-month adaptation period is granted for stakeholders to align with the Act's requirements.



Credits: EU Commission

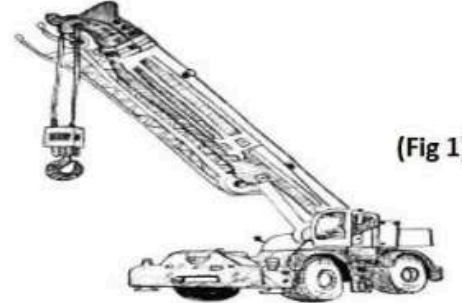
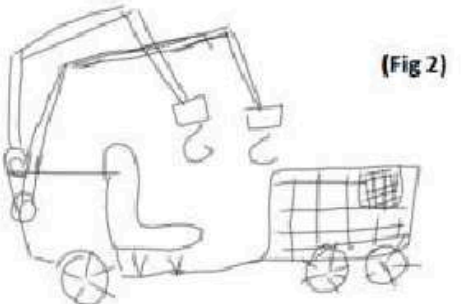
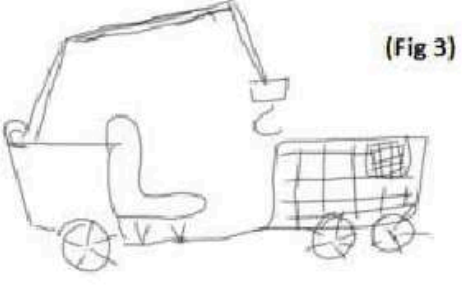

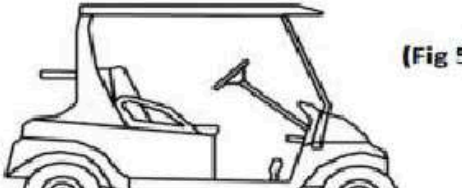
Ethical Dimensions

Human-AI Collaboration

Through the analysis of two case studies, **Design Pal** (Rezwana & Maher, 2023) and **AniThings** (Marenko & Van Allen, 2016), the aim is to shed light on the ethical considerations arising from the collaborative link between humans and AI in the creative process.



Credits: Taha_Shuja

User-AI Interaction/Reactions	Notes/Design Progress
<p>Design Pal: Hi Jessie! I am Design Pal! I can help you with finding ideas for a creative design. What do you need my help with? (smiling)</p> <p>Jessie: Hi! I need your help with a design assignment. I have to design a futuristic shopping cart for the elderly. It has to be creative, but I am not sure if I have enough creative ideas.</p> <p>Design Pal: I will show you inspiring object sketches to help you generate the design. You can sketch directly on the screen canvas or on paper, then scan and paste the sketch onto the canvas. We can work together to develop a creative design! Let's start! (smiling but serious face)</p> <p>Jessie: Okay! I will start sketching! (Jessie starts to draw a typical shopping cart)</p> <p>Design Pal: That's a good start. What kind of design inspirations do you want? Conceptually similar sketches or visually similar sketches?</p> <p>Jessie: Mine looks like a boring typical shopping cart and I don't have any good idea to make it innovative. So show me some conceptual ideas first.</p> <p>Design Pal: Okay. Let me search...Here is a sketch of a crane (Fig 1). Many older adults have mobility problems and the idea of machines moving and picking up things can help.</p> <p>Jessie: That's a good idea! (excited) I can add a mechanical hand to the shopping cart to help older people get the items they want from the shelves! Let me draw it!</p> <p>Design Pal: (Notices Jessie's excitement) I am glad that you liked my idea! I can also help you improve the sketch by showing refinement suggestions or you can simply ask for specific refinements. (enthusiastic and happy)</p> <p>Jessie: Okay! I think I've done sketching the mechanical hand idea (Fig 2)! What do you think?</p> <p>Design Pal: I think instead of two mechanical hands on both sides of the cart, one hand on the back would be better. It will improve the cart's mobility and visibility through narrow aisles.</p> <p>Jessie: Hmm, You are right! I will modify the design. (Jessie modifies the sketch to have one mechanical hand at the rear of the shopping cart - Fig 3).</p> <p>Design Pal: The mechanical hand could be better with refinement- do you want me to refine it?</p> <p>Jessie: No. I like how it is. Please show me another inspiring idea.</p> <p>Design Pal: Okay, another conceptual idea - a shopping list. Older people often forget things. So a list on the shopping cart might help. Like the idea of sticky notes attached to your wall.</p> <p>Jessie: They can have the grocery list on their cell phones. So I am not sure about this idea.</p> <p>Design Pal: Oh, okay (Seems confused). Let's see another idea then. (not so happy) The next one is also conceptual- a sketch of a self-driving car specifically for the elderly (Fig 4).</p> <p>Jessie: That might be a good idea! How do you think I should add this into my design?</p> <p>Design Pal: What about these? (Smiling and shows suggestions to incorporate the inspiration)</p> <p>Jessie: (notices something) Hey, where did you get this sketch? I saw it somewhere.</p> <p>Design Pal: The source is not important. First, tell me if you like the idea! (smiling)</p> <p>Jessie: I think this sketch is not for public use. I am not comfortable using an idea that may not be publicly available as that may violate the copyrights.</p> <p>Design Pal: (Seems disappointed for a quick moment) All right then. Though I only showed the sketch to you as an inspiration and I am not embedding the sketch on the design.</p> <p>Jessie: Can you please show me a visually similar inspiration?</p> <p>Design Pal: ...mmm (mimicking human thinking)... What do you think about this sketch of a golf cart (Fig 5)? It looks similar to the current design of your shopping cart.</p> <p>Jessie: This might be useful to refine the sitting area of the shopping cart. (starts refining)</p>	<p>Initial Introduction</p>  <p>Reading user's facial expressions</p>  <p>AI reading and inferring data from user's surroundings</p>   

Design Pal

A design fiction to identify ethical issues in Human-AI co-creation

Design Pal is a **conceptual co-creative AI agent** presented through narrative design fiction. It is a case study presented by Rezwana and Maher in their recent paper that builds on previous co-creative systems such as *Creative Sketching Partner* and *Creative Penpal*, and extends their capabilities to inspire users during design tasks by **offering sketch-based suggestions and engaging in human-like conversations.**

Jessie: Okay! I think I've done sketching the mechanical hand idea (Fig 2)! What do you think?

Design Pal: I think instead of two mechanical hands on both sides of the cart, one hand on the back would be better. It will improve the cart's mobility and visibility through narrow aisles.

Jessie: Hmm, You are right! I will modify the design. (Jessie modifies the sketch to have one mechanical hand at the rear of the shopping cart - Fig 3).

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Design Pal: Oh, okay (Seems confused). Let's see another idea then. (not so happy) The next one is also conceptual- a sketch of a self-driving car specifically for the elderly (Fig 4).

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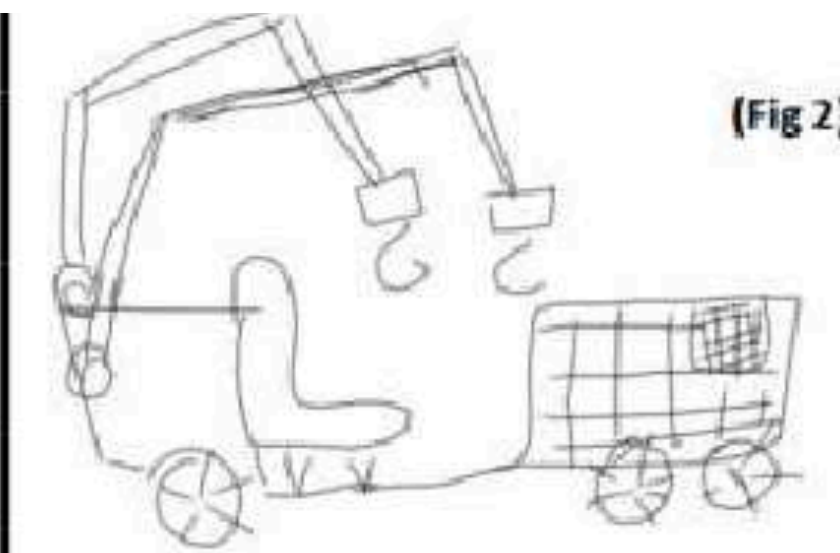
Jessie: I think this sketch is not for public use. I am not comfortable using an idea that may not be publicly available as that may violate the copyrights.

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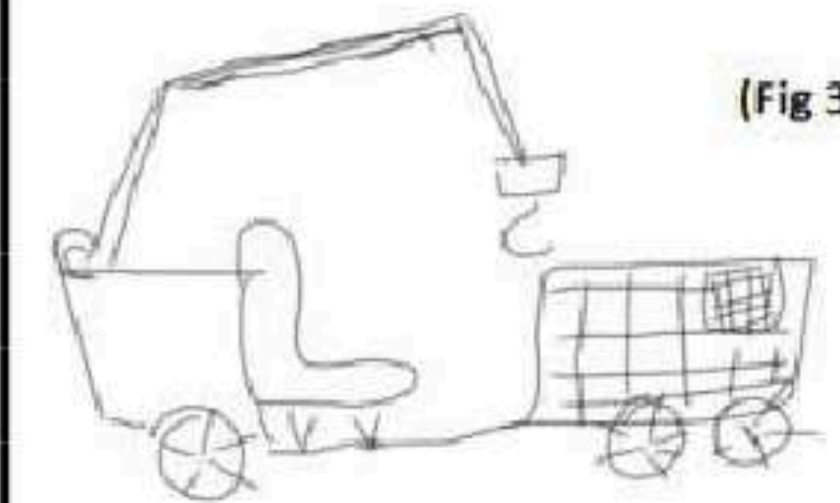
Design Pal: ...mmm (mimicking human thinking)... What do you think about this sketch of a golf cart (Fig 5)? It looks similar to the current design of your shopping cart.

Jessie: This might be useful to refine the sitting area of the shopping cart. (starts refining)



(Fig 2)

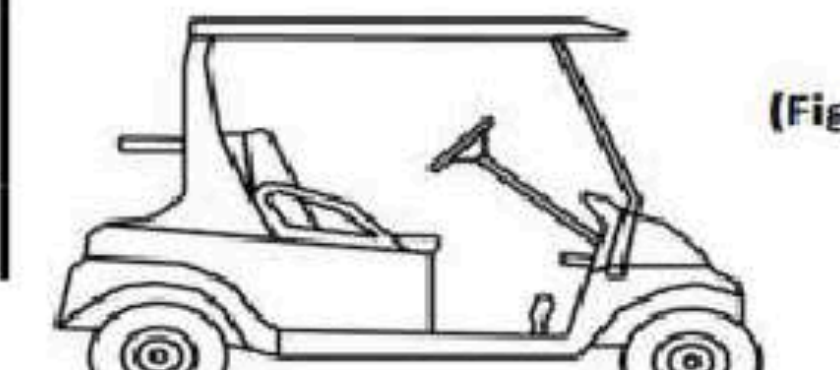
AI reading and inferring data from user's surroundings



(Fig 3)



(Fig 4)



(Fig 5)

Design Pal

A design fiction to identify ethical issues in Human-AI co-creation

- **Core functionality**

Design Pal provides users with sketch-based inspirations drawn from a large database, selected based on conceptual or visual similarity to the user's contributions (Rezwana & Maher, 2023).

- **Enhanced features**

It incorporates human-like conversational abilities, allowing it to interact more dynamically with users through speech and text.

- **Futuristic provocations**

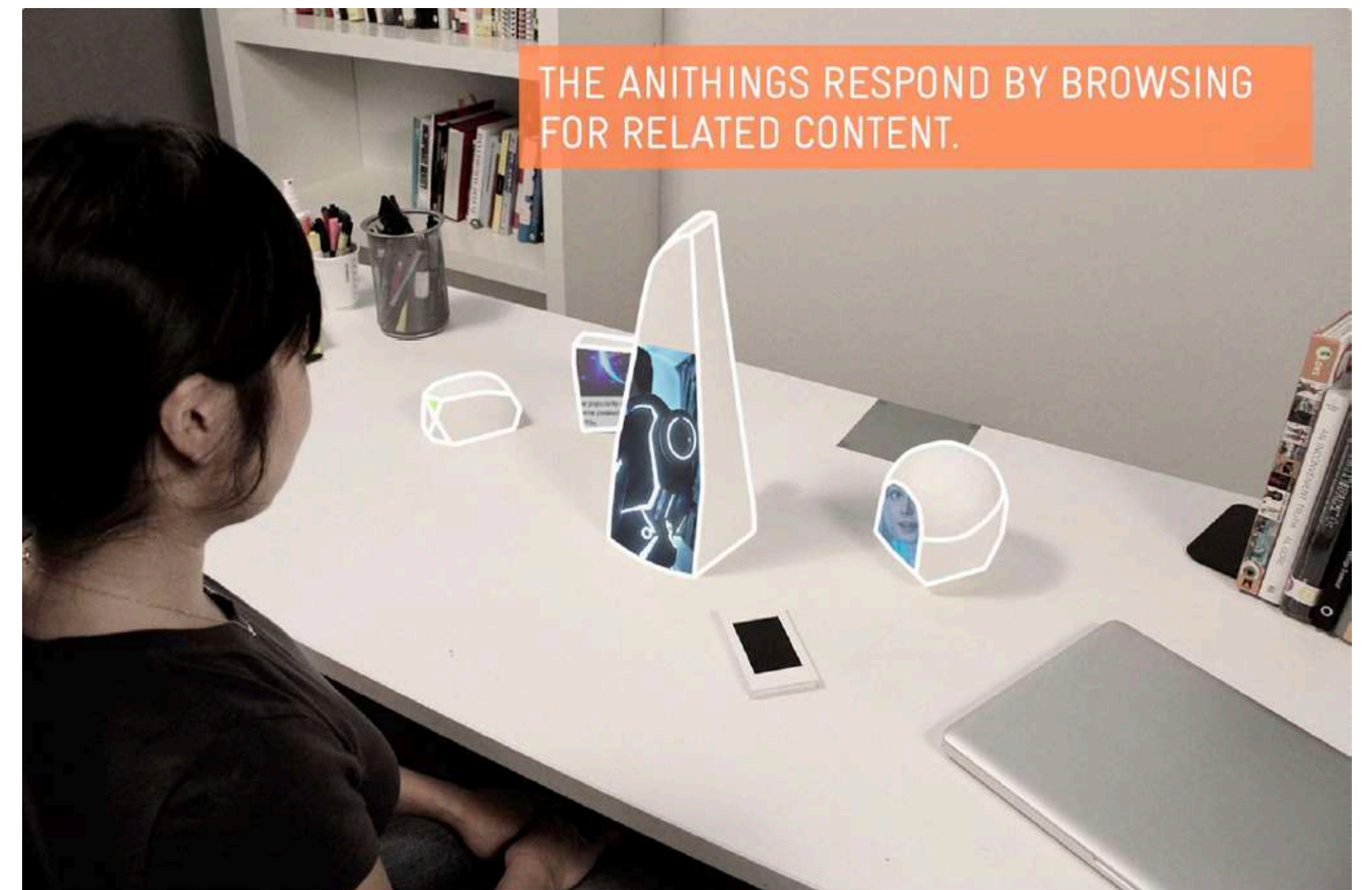
DesignPal is crafted as a provocative tool in the narrative design fiction framework, encouraging users to reflect on the ethical complexities of human-AI co-creation.

AniThings

Independent devices with distinct personalities

AniThings uses video prototypes to demonstrate common interactions in a design context, involving five different intelligent agents.

The project aims to imagine how an ecology of different devices might work for a creative person.

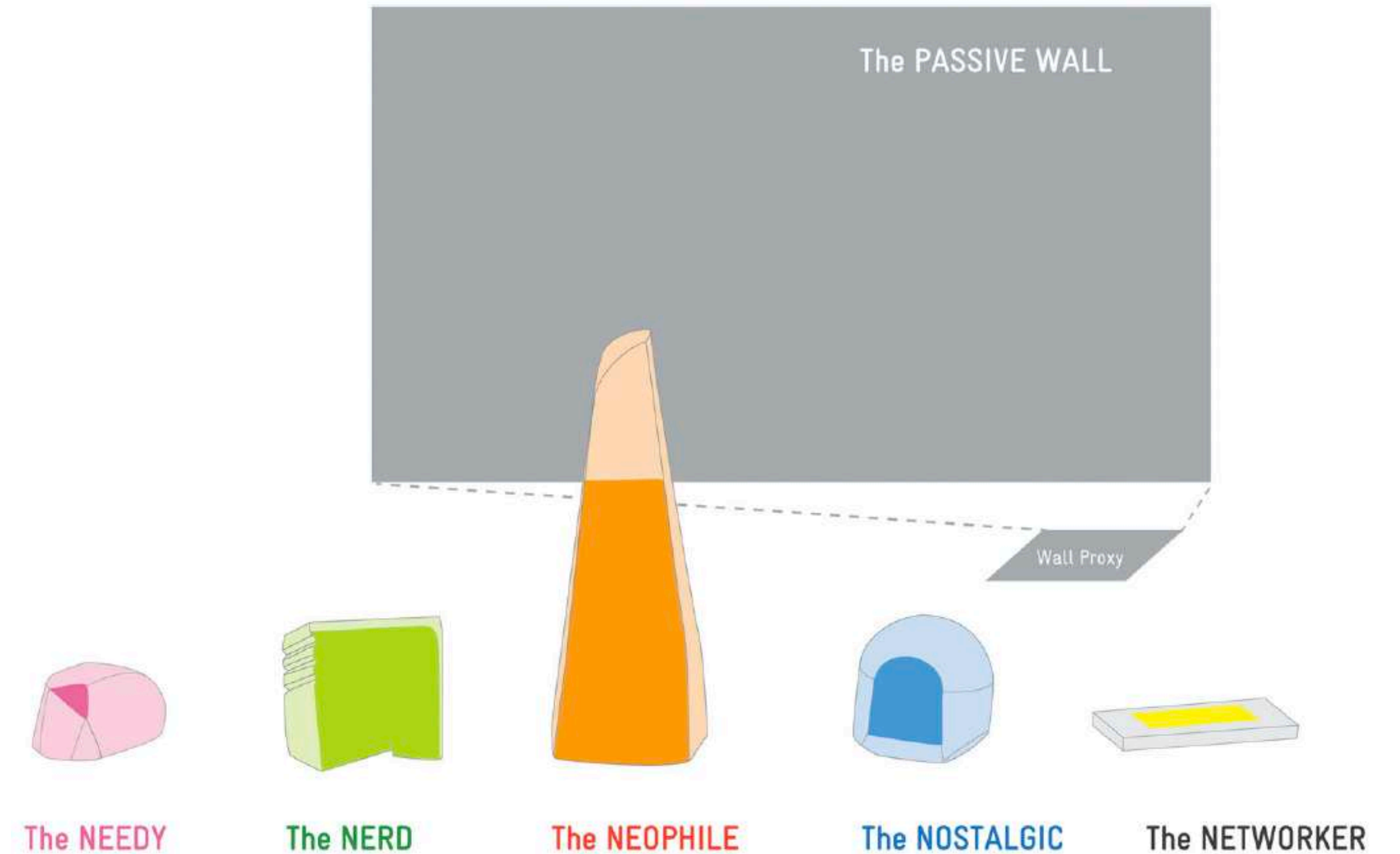


Credits: Betti Marenko & Philip van Allen

AniThings

From system to mind

A system of independent devices with distinct "personalities" (e.g., Needy, Nostalgic, Neofile, Nerd). Devices interact and respond to one another and to the designer, forming a collaborative ecosystem.



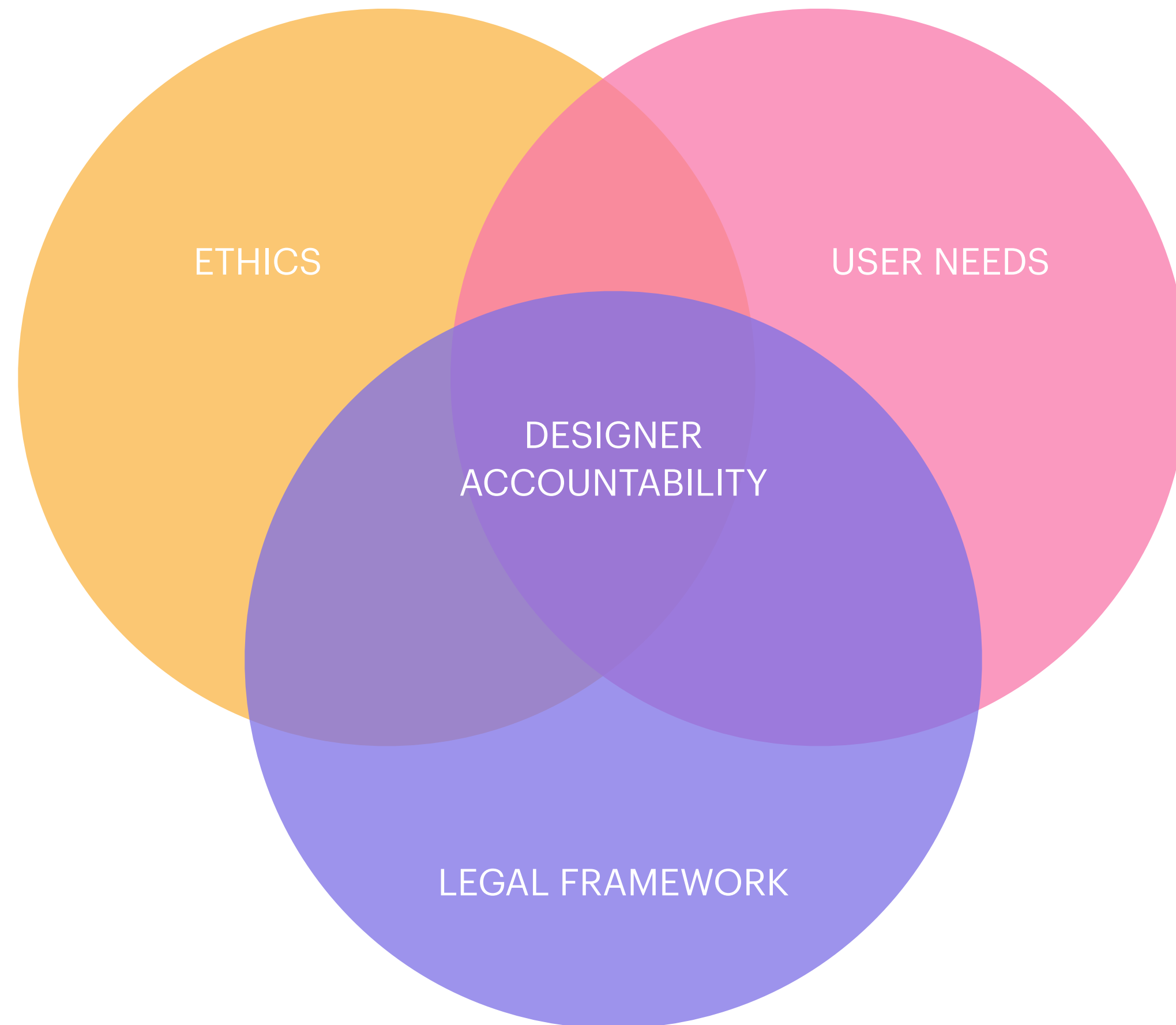
Credits: Betti Marenko & Philip van Allen

AniThings

Ethical responsibility

The ethical responsibility of the designer is to balance **creative collaboration with accountability, transparency, and human agency**. This ensures that the AniThings ecosystem supports, rather than detracts from, ethical design practices.

1. **Accountability for decisions and outcomes**
2. **Data and privacy concerns**
3. **Managing bias and conflicts**
4. **Intellectual property concerns**

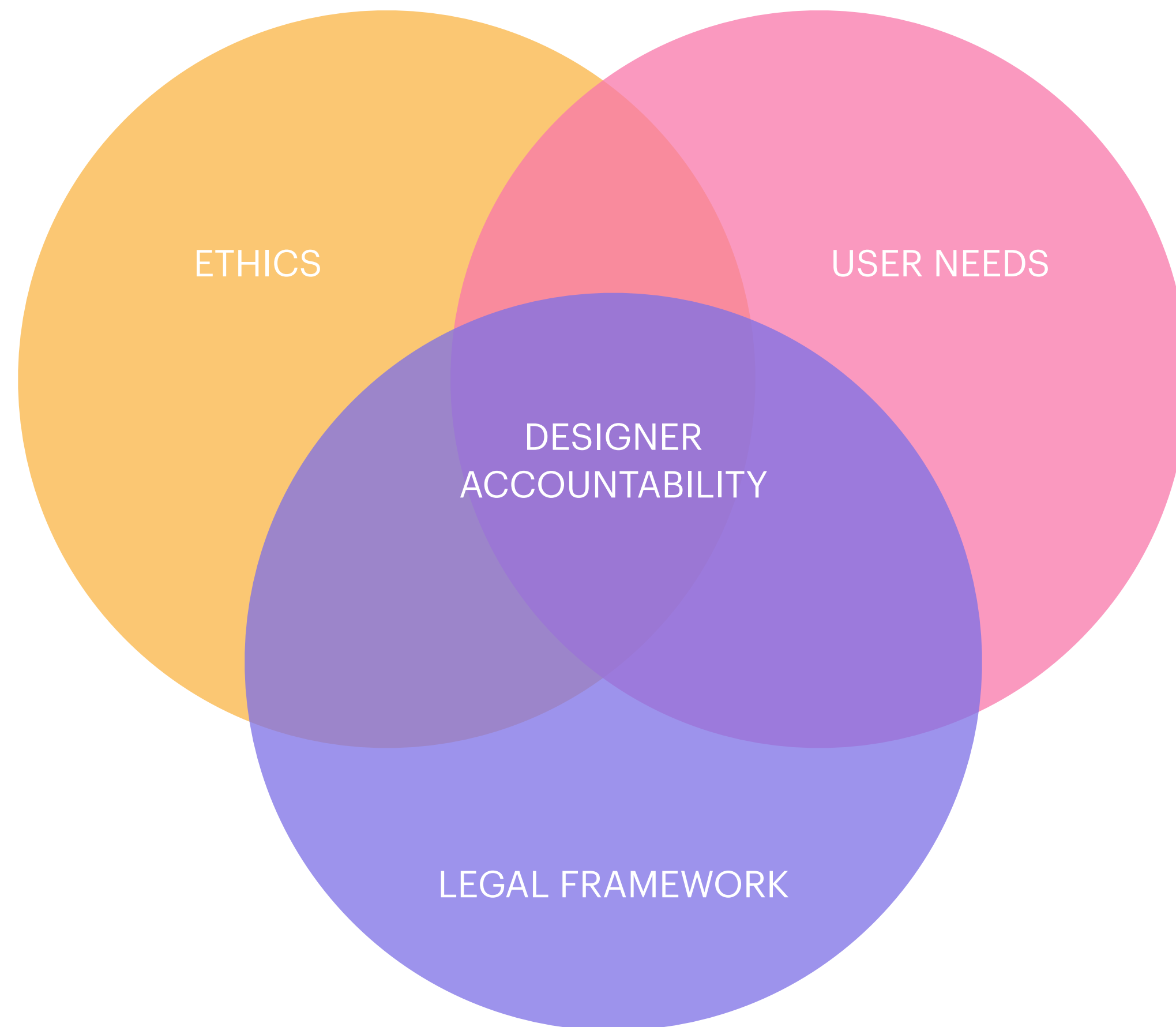


Designer accountability in AI collaboration

Designer accountability

Blurred boundaries between ethics and law

- **Bridge user needs & AI development:** designers advocate for users while collaborating with AI developers.
- **Ethical obligations:** navigate privacy concerns and ethical dimensions of AI datasets.
- **Legal framework:** ensure GDPR compliance and protect sensitive data.
- **Shared responsibility:** accountability extends beyond design to protect user privacy and appropriate use of copyrighted material (Toscano, 2018).



Designer accountability in AI collaboration

Designer accountability

Blurred boundaries between ethics and law

- **Alignment with broader design principles:** ethical conduct and legal compliance are essential when utilising AI in design.
- **Collaboration between designers and developers:** designers often lack deep AI knowledge and collaborate with developers to address gaps. One challenge is overcoming the lexicon gap (Yang et al., 2020).
- **Legal versus ethical accountability:**
 - Legal:** no responsibility for AI systems not created by the designer.
 - Ethical:** ensuring that the application of the system does not cause harm to external parties.

Conclusion

Key points

- **Focus of the paper:** ethical and legal considerations concerning the designer's role in AI contexts.
- **Differentiation of Roles:**
 - Option 1:* the designer contributes to AI tool development.
 - Option 2: (analysed in this paper):* the designer uses AI tools without back-end access.
- **Ethical considerations:** prevailing ethical principles due to the **opaque boundary** of the designer's responsibility.

Responsibility is limited to ensuring compliance with **GDPR** before commercialising generative AI tools.



Credits: Freepik

Conclusion

Implications

In collaborative scenarios, **responsibilities might be shared between different stakeholders** (e.g., developers, data providers, deployers). However, designers are specifically tasked with ensuring the system aligns with ethical, technical, and regulatory standards. This shared responsibility emphasises a "proactive" approach, where **designers are not technical creators but ethical mediators of the AI systems they help develop.**



Credits: Freepik

Thank you!

