

Human-Computer Interaction

Week 8: What is Next? Towards a Fourth Wave HCI?

Chunk 2: Human-Centred AI

COMS30029
aka #HCI_Theory
Oussama Metatla and Dan Bennett
Slides credit: Ben Shneiderman

Week 8: What's Next

Towards a Fourth Wave HCI?

Chunk 2: Human-Centred AI

What is Human-Centred AI (HCAI)

A Framework for HCAI

Metaphors in HCAI

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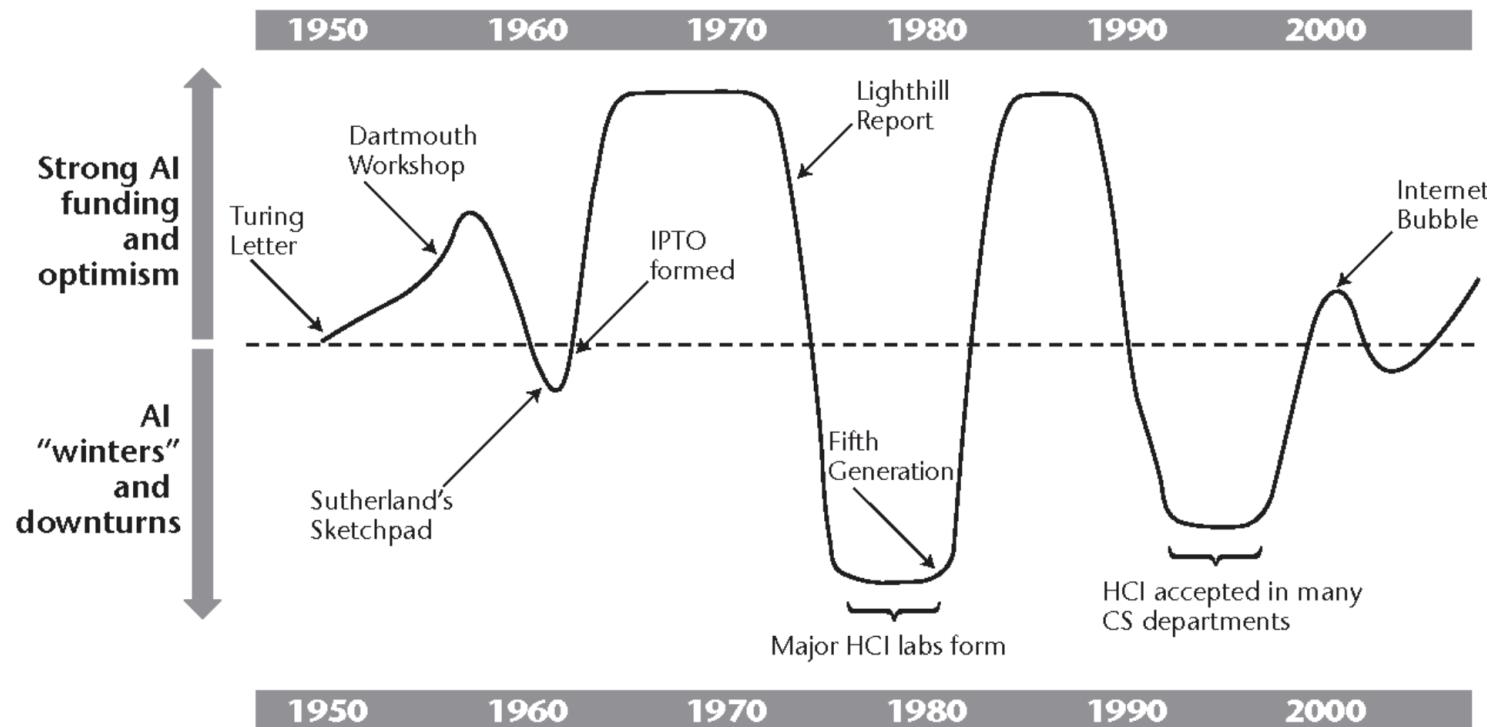
What is Human-Centred AI (HCAI)

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What is Human-Centred AI

AI has been growing over the past ~60 years



What is Human-Centred AI

Human-Centred [Design]

[Computing]

[Artificial Intelligence]

Centering people: What is desirable from a human perspective, considering what people want and need

Using methods that put people at the center of technological development —> beyond feasibility

What is Human-Centred AI

Artificially Intelligent Technology
for the Margins:
A Multidisciplinary Design Agenda

[Call For Participation](#) [Workshop Structure](#)
[Position Papers](#) [Workshop Organizers](#) [Background](#)

[CHI 2021](#) – virtual online workshop

Artificially Intelligent Technology for the Margins: A
Multidisciplinary Design Agenda

7 May 2021



Human–Data Interaction through Design (CHI 2021 Workshop)

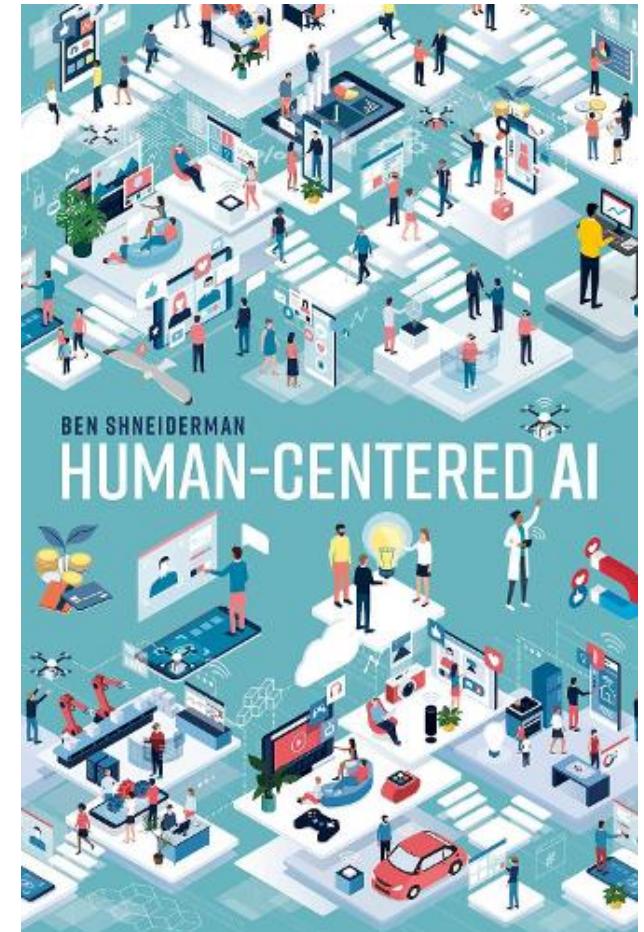
- Blog
 - 2021-05-09 [a manifesto](#)
 - 2021-03-24 [accepted papers](#)
 - 2021-03-01 [additional clarification on accessibility](#)
 - 2021-02-23 [clarification on accessibility](#)
 - 2021-02-22 [application deadline clarification](#)
 - 2020-12-17 [as they happen updates will go here](#)
- Info
 - This is the website for a CHI2021 Workshop, titled *Human–Data Interaction through Design*
 - It will be happening Sunday May 9. **14:00–18:00 BST**

What is Human-Centred AI

Human-centred AI focuses on the **want** and need of people

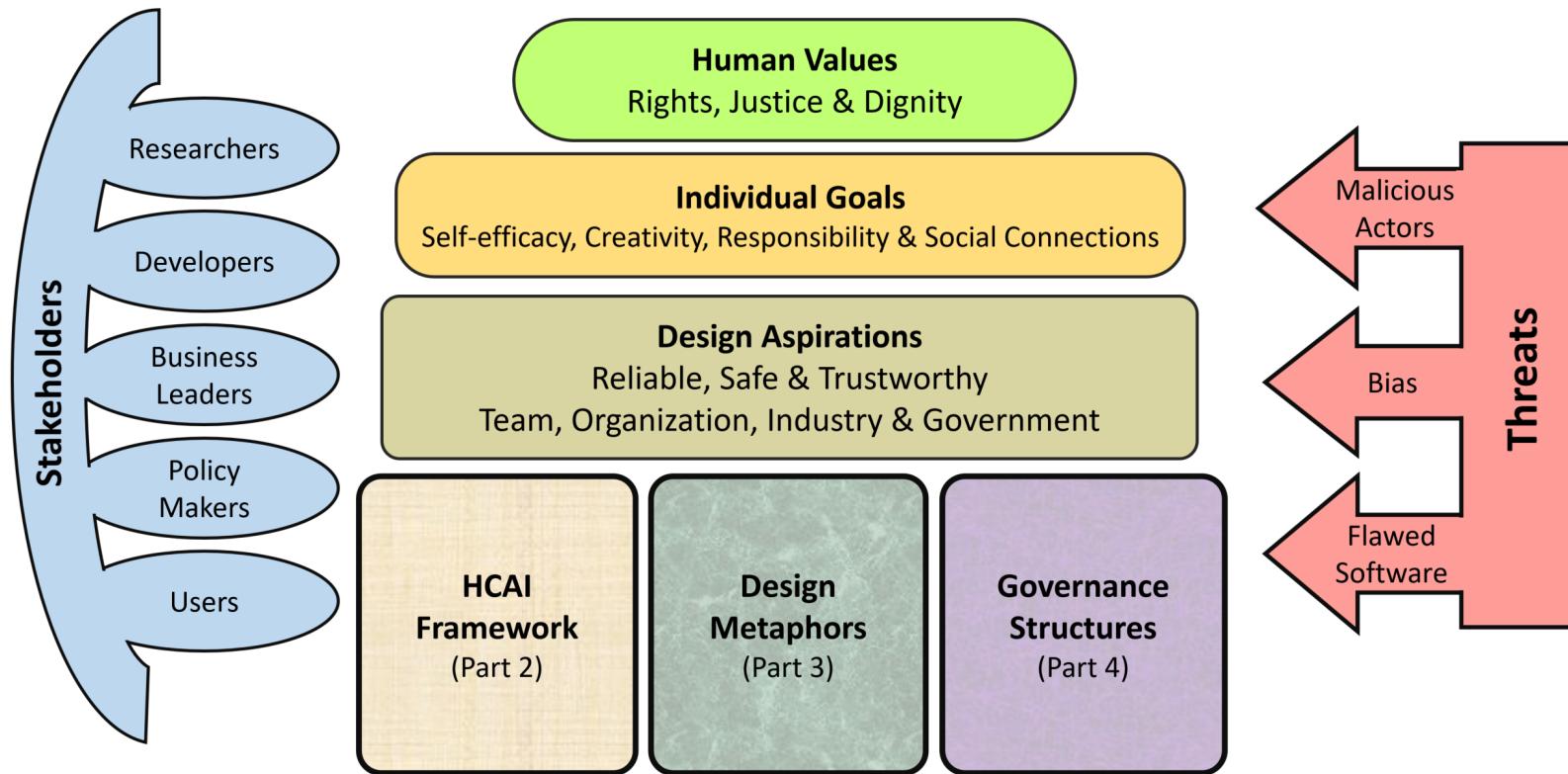
- Amplify
- Augment
- Empower
- Enhance

Not replace...!



What is Human-Centred AI

Human-Centered AI



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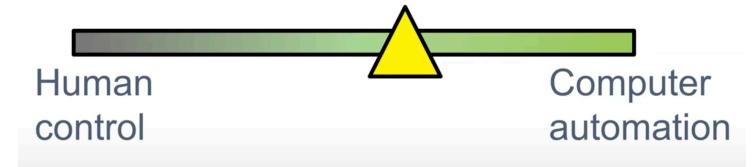
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HCAI Framework

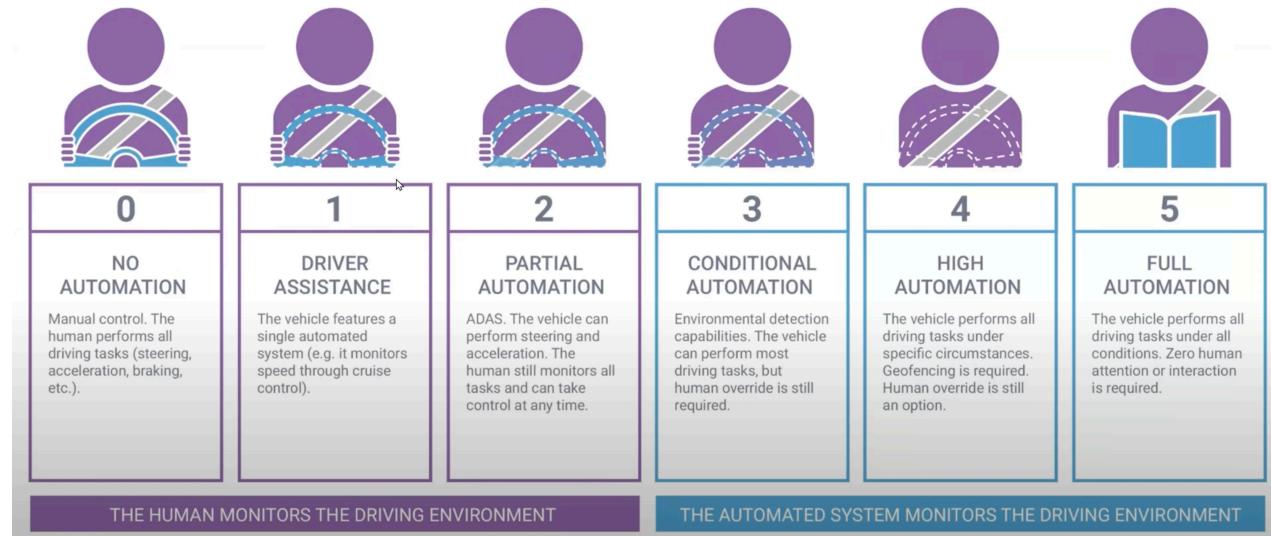
Key notion: **balancing automation & Human control**



More automation = better?

Levels of automation = key metaphor

E.g. 6 level of automation in self driving cars



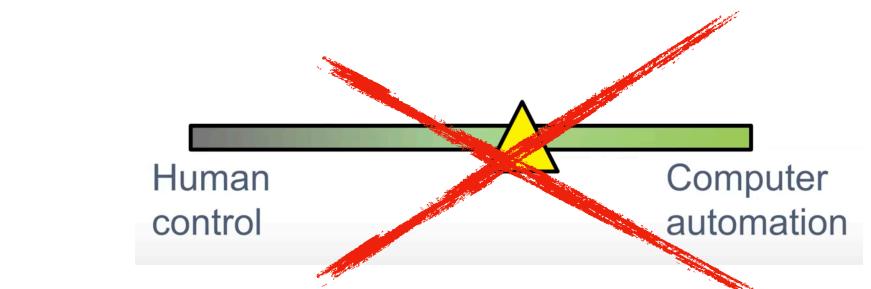
HCAI Framework

Shneiderman's proposition:

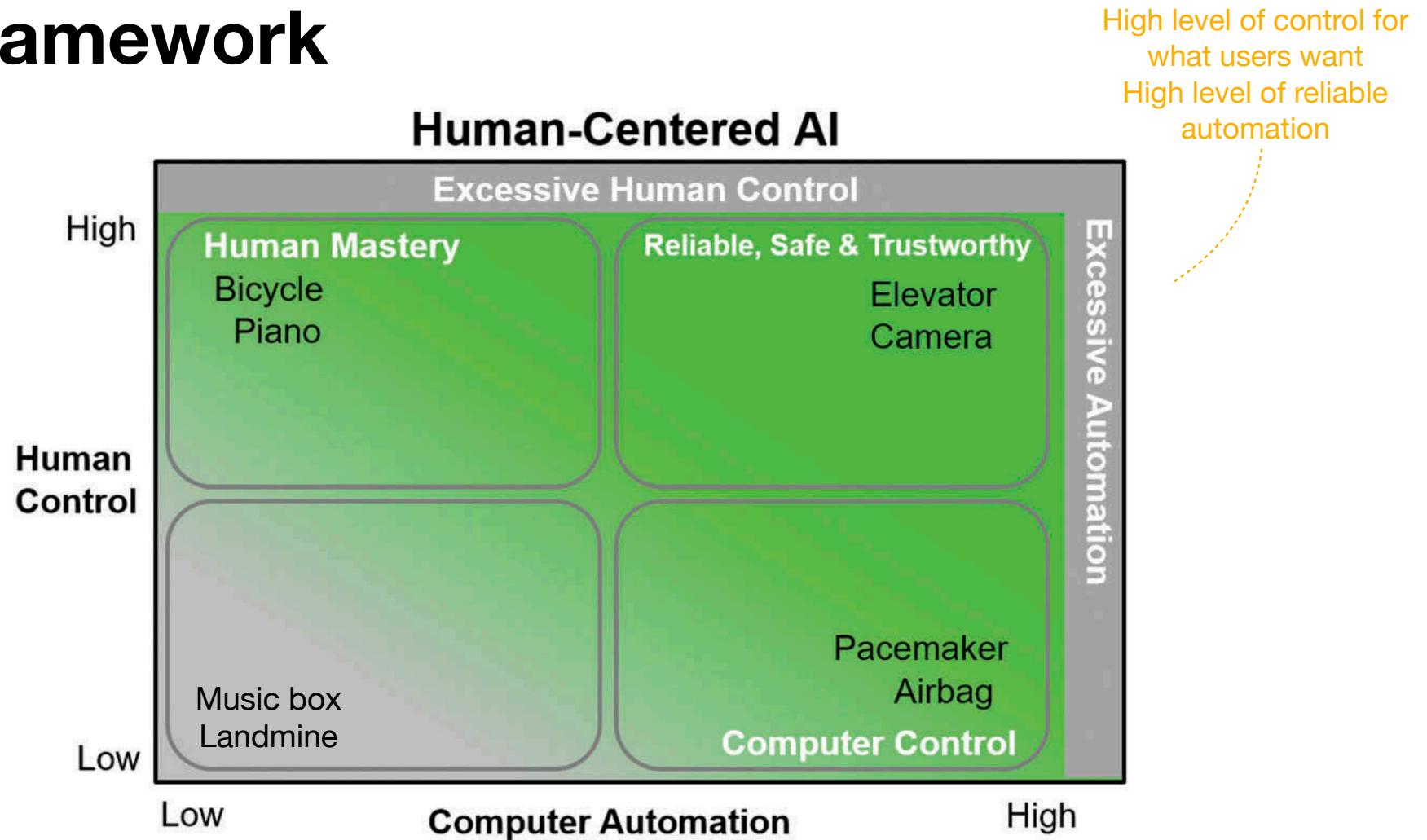
Ensure human control while increasing automation

Is this even possible?

How is this implemented?

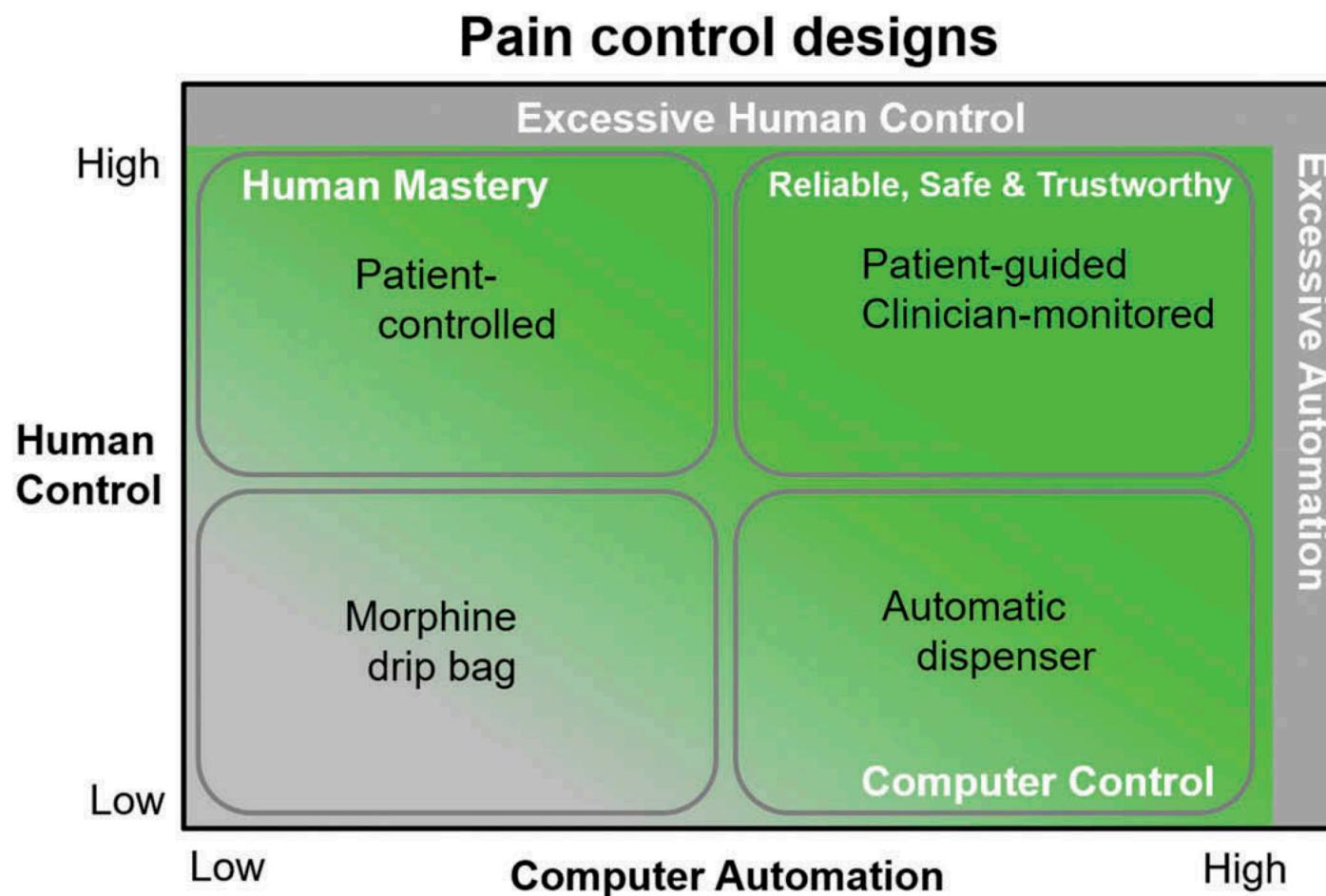


HCAI Framework



Shneiderman, B. (2020). Human-centered artificial intelligence: Reliable, safe & trustworthy. International Journal of Human–Computer Interaction, 36(6), 495-504.

HCAI Framework: Examples



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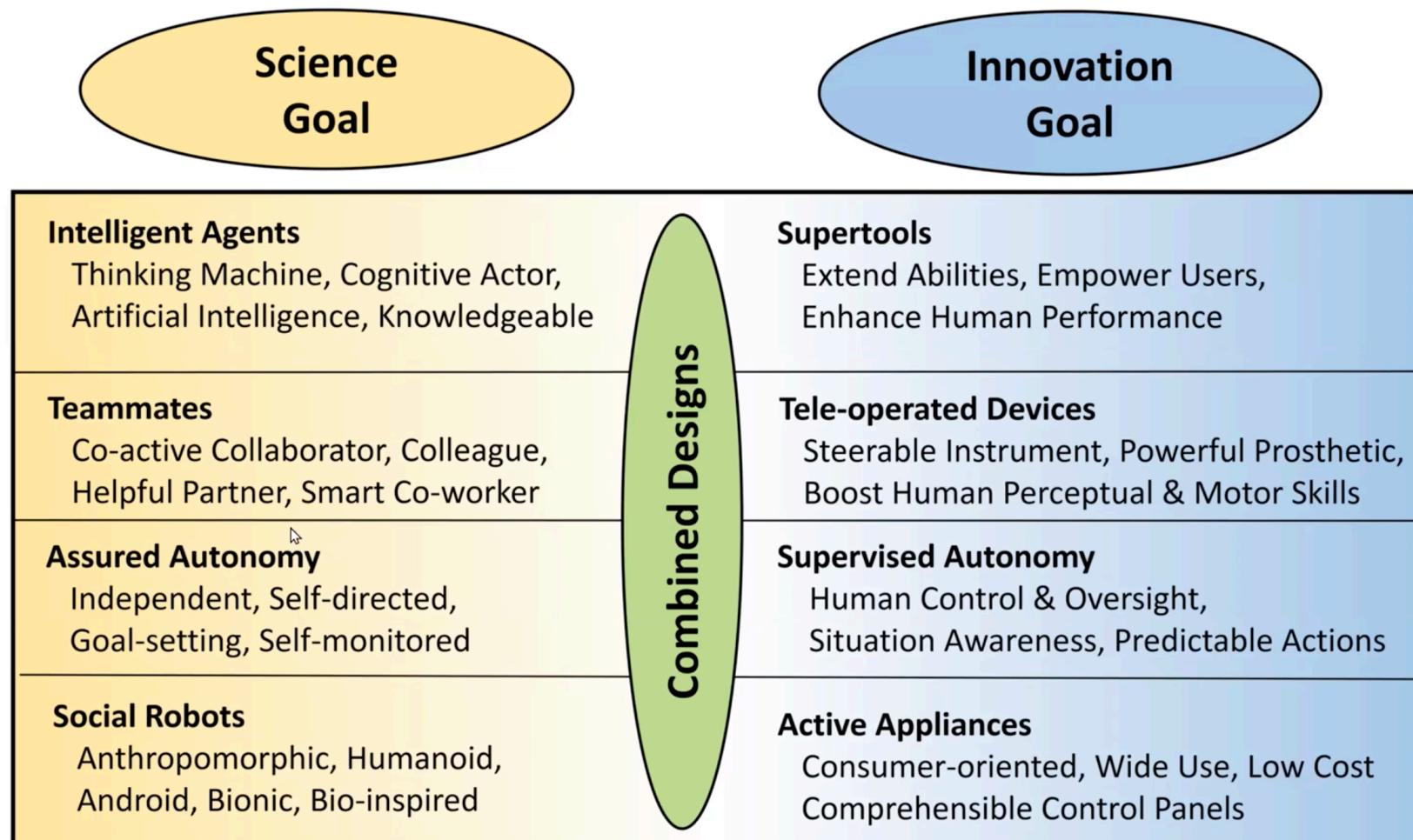
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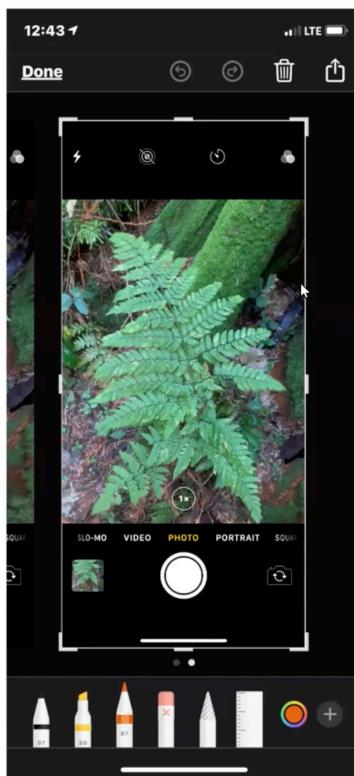
Metaphors in HCAI

Design metaphors in HCAI

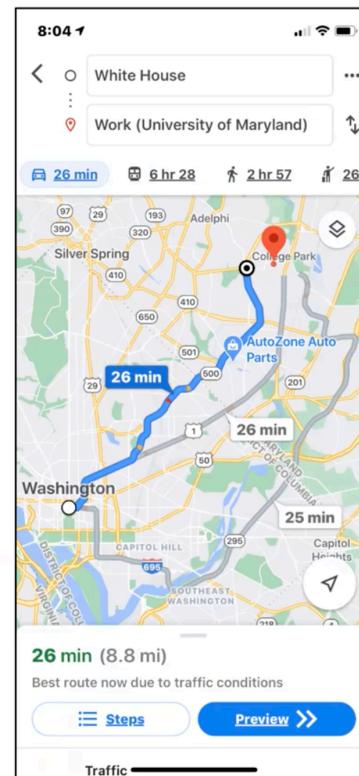


Supertools instead of intelligent agents

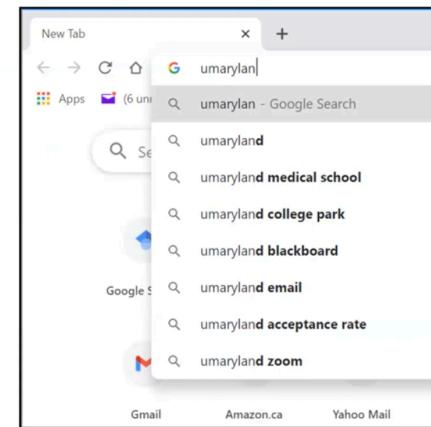
Digital Camera Controls



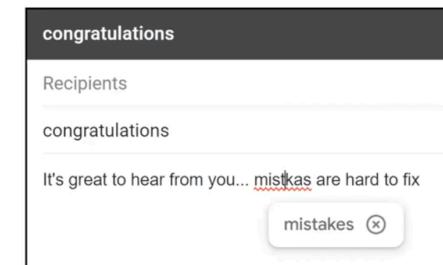
Navigation Choices



Texting Autocompletion



Spelling correction



Active appliances instead of social robots

Coffee maker, Rice cooker, Blender



Cuisinart Grind & Brew Coffee Maker



Panasonic Rice Cooker



Nutri Ninja Blender

Dishwasher, Clothes Washer/Dryer



Miele Dishwasher



General Electric Washer



General Electric Dryer

Tele-operated devices instead of “teammates”

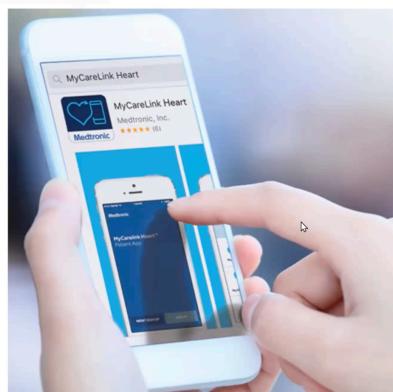
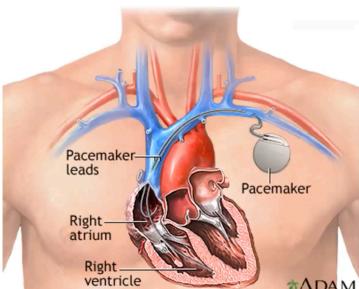


“Robots don’t perform surgery. Your surgeon performs surgery with da Vinci by using instruments that he or she guides via a console.”

<https://www.davincisurgery.com/>



Supervised autonomy instead of “assured”



In Summary

HCAI framework separates the issue of human control from computer automation

Good design = combines high levels of human control with high level of computer automation

Research direction = developing measures of control and autonomy

Ethical issues: responsibility, fairness, explainability, etc.

HCAI a possible drive of a fourth wave HCI: shifts the discussion to more complex and nuanced dimensions of human-AI interaction

#HCI
_Theory