

The SURF logo consists of the word "SURF" in white, uppercase, sans-serif font, enclosed within a black, rounded rectangular shape that has a small circular protrusion on its right side. The background of the slide features a complex network of thin, light blue lines connecting various points, creating a mesh-like pattern that is more prominent on the left side and fades towards the right.

**SURF**

# Impact of AI on teaching and learning

Matthieu Laneuville

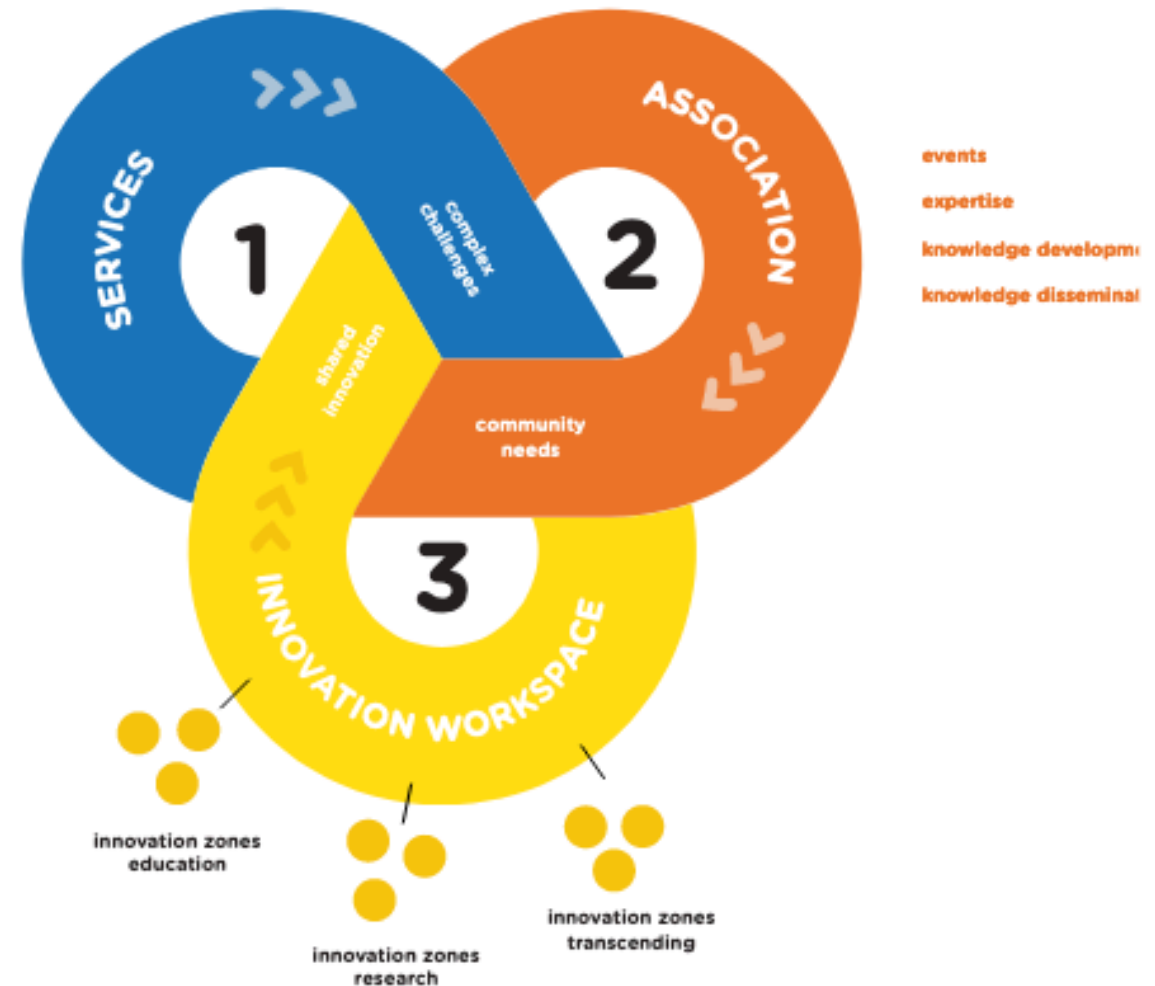
October 19, 2023

# | What is SURF, why am I here?

IT services  
infrastructure  
procurement &  
contract management

**SURF is the collaborative organisation for IT in Dutch education and research.**

We have three roles that reinforce each other and grow together.



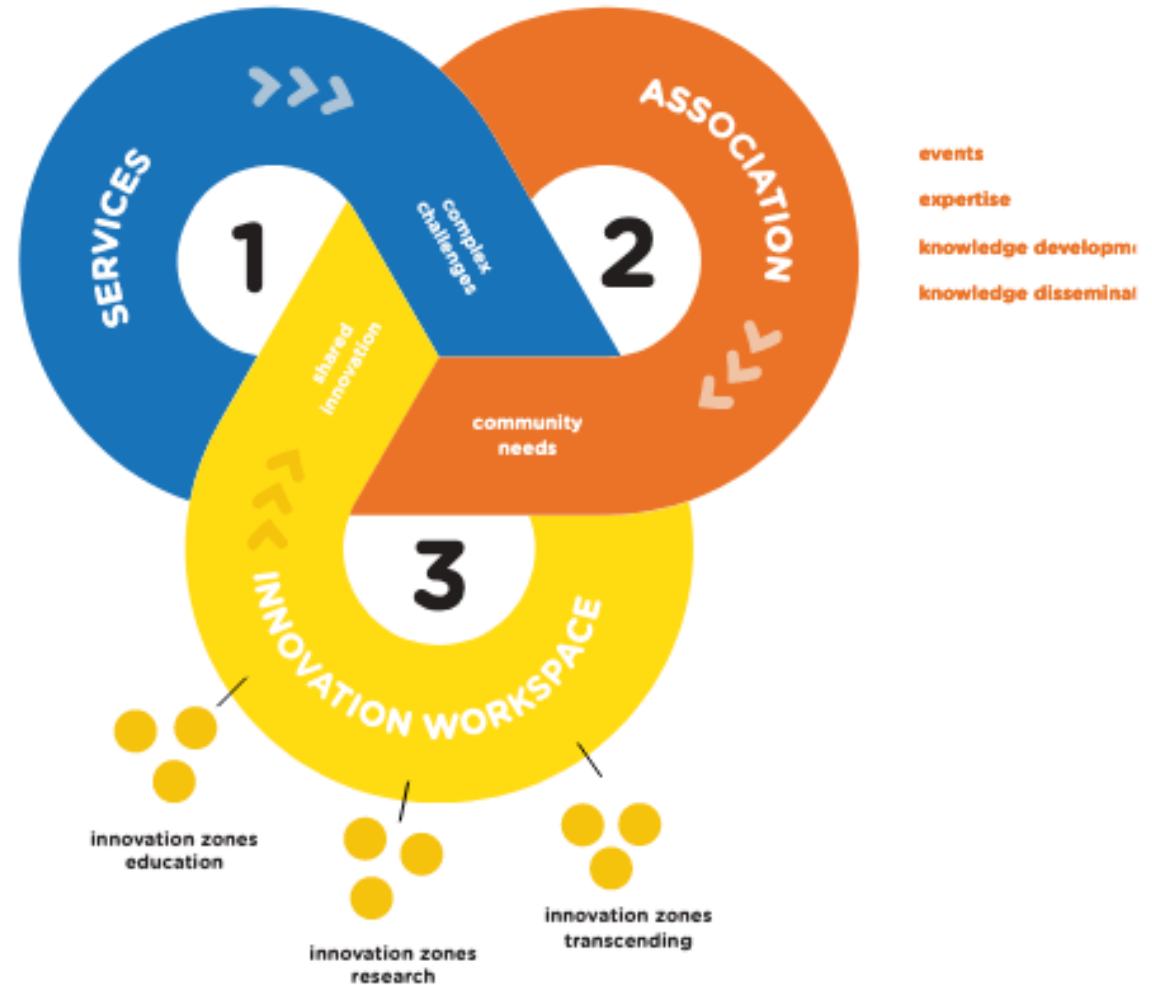
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AI program



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AI in education



Bertine van Deyzen (bertine.vandeyzen@surf.nl)



# | What is AI?

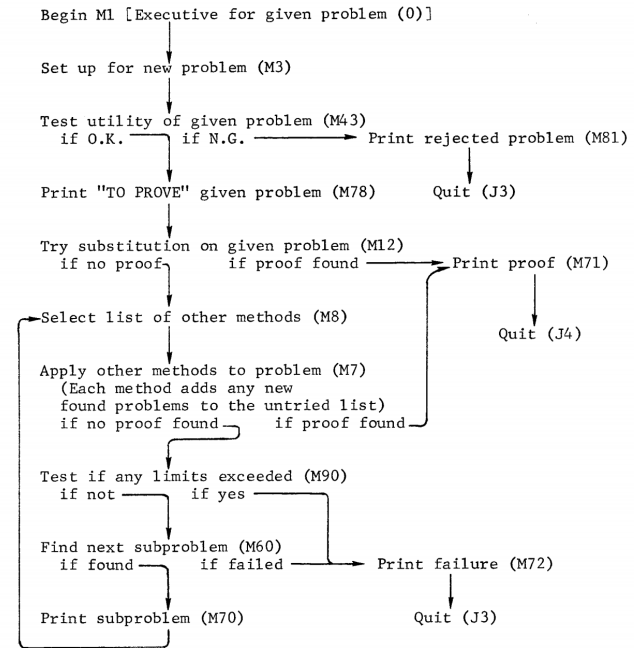
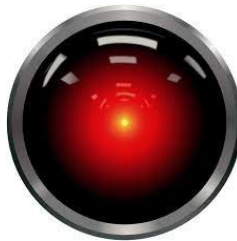
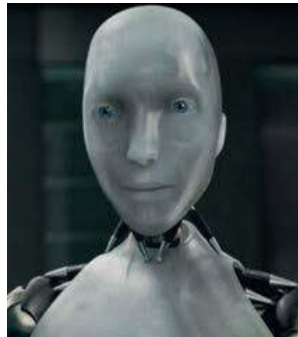


Fig. 1--The Single-Problem Executive

It's a quest for non-human intelligence



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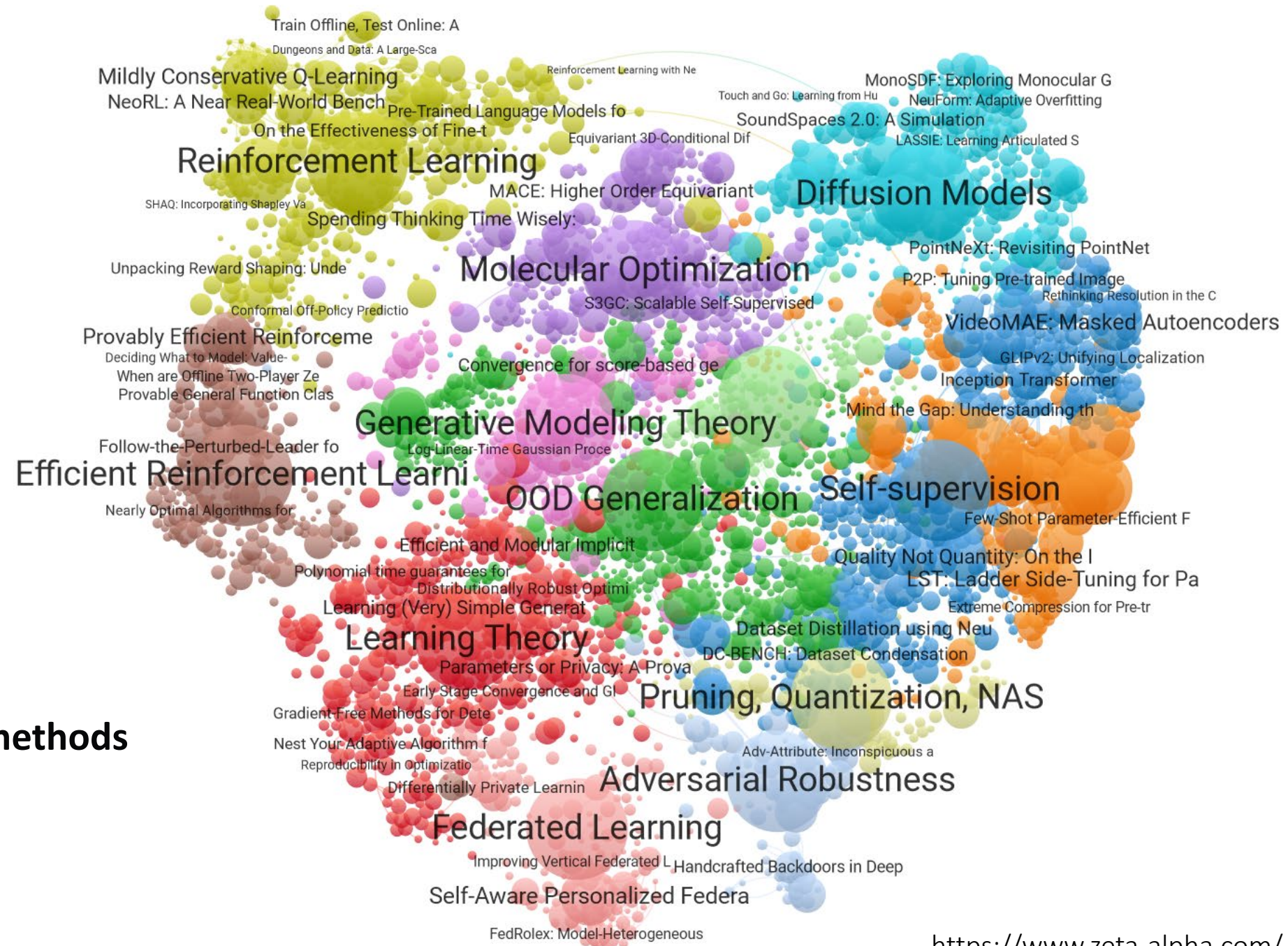
Welcome to
EEEEEE LL IIII ZZZZZZ AAAAA
EE LL II 22 AA AA
EEEE LL II ZZZ AAAAAA
EE LL II 22 AA AA
EEEEEE LLLLLL IIII ZZZZZZ AA AA

Eliza is a mock Rogerian psychotherapist.
The original program was described by Joseph Weizenbaum in 1966.
This implementation by Norbert Landsteiner 2005.

ELIZA: Is something troubling you?
YOU: Men are all alike.
ELIZA: What is the connection, do you suppose?
YOU: They're always bugging us about something or other.
ELIZA: Can you think of a specific example?
YOU: Well, my boyfriend made me come here.
ELIZA: Is it important to you that your boyfriend made you come here?
YOU: He says I'm depressed much of the time.
ELIZA: I am sorry to hear that you are depressed.
YOU: It's true. I am unhappy.
ELIZA: Can you explain what made you unhappy?
YOU:
  
```



# | What is AI?



It's a set of algorithmic methods





# What is AI?

NEWS | 24 October 2019 | Update [26 October 2019](#)

## Millions of black people affected by racial bias in health-care algorithms

Study reveals rampant racism in decision-making software used by US hospitals – and highlights ways to correct it.

Heidi Ledford



Download PDF



Black people with complex medical needs were less likely than equally ill white people to be referred to programmes that provide more personalized care. Credit: Ed Kashi/VII/Redux/eyevine

### ARTIFICIAL INTELLIGENCE

## AI is dreaming up drugs that no one has ever seen. Now we've got to see if they work.

AI automation throughout the drug development pipeline is opening up the possibility of faster, cheaper pharmaceuticals.

By Will Douglas Heaven

February 15, 2023



## UK ditches exam results generated by biased algorithm after student protests

Protesters chanted 'Fuck the algorithm' outside the country's Department for Education

By Jon Porter | [@JonPorty](#) | Aug 17, 2020, 12:16pm EDT



Photo by Lucy North / MI News / NurPhoto via Getty Images

It's a set of concrete products & services that impact everyone's life

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**We need to be mindful about the lens we take when approaching questions and be sharp about the problem we trying to solve with technology.**



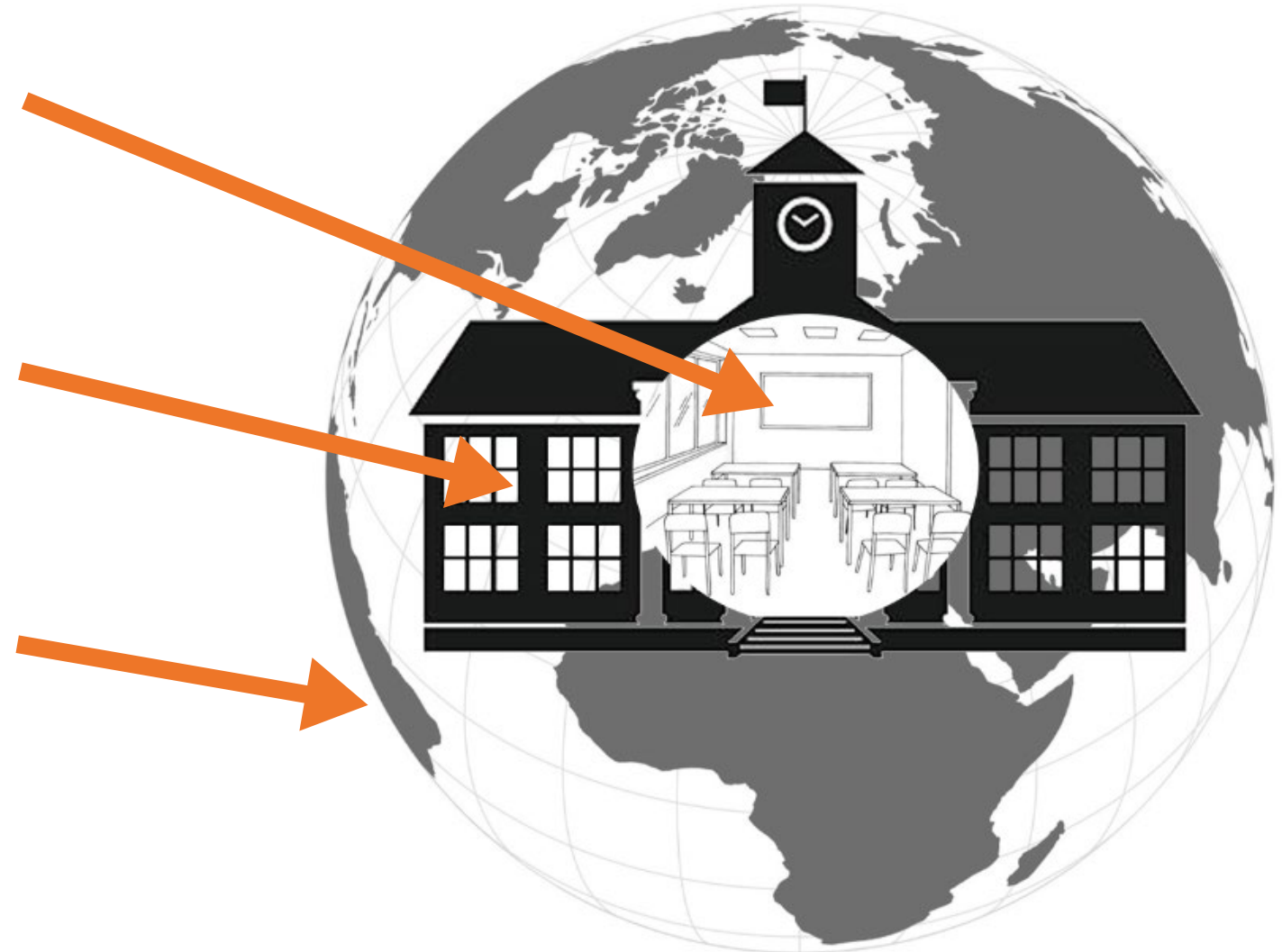


# | AI in education? Three very different contexts

Micro-level (help individuals)

Meso-level (help institutions)

Macro-level (societal push)



# AI in the classroom (micro-level)

leerlevels Groepen Sets Leerdoelen Beheer Account

Home » Beheer » Groepen » V5A (19/20)

## V5A (19/20)

Gebruik de volgende code om leerlingen zich te laten aanmelden voor deze groep: **GAZO-XLLG-MRUY-VVGU**

Gebruik de volgende link om leerlingen zich te laten aanmelden voor deze groep: <https://app.leerlevels.nl/groups/join/GAZO-XLLG-MRUY-VVGU/>

Overzicht	V5 Cirkelbewegingen	V5 H8 (hemelmechanica) - 1	V5 H8 (hemelmechanica) - 2	V5 H8 (hemelmechanica) - 3	V5 H8 (hemelmechanica) - 4	V5 Herhaling mechanica	
Zoek	Foute antwoorden	S10	S14	S12	S13	S09	S11
	2	0	0	1	1	0	0
	2	1	0	1	0	0	0
	2					1	1
	3	1	0	0	2	0	0
	4	0	1	1	1	0	1
	6	1	0	1	2	0	2
	7	1	0	1	3	2	0

Leerlevels

Perusall

Online CDI (J... X

- My Courses and CL...
- Course home
- Settings
- Gradebook
- Student view
- Notifications
- Notes
- Add to my calendar

Readings

Documents

- How to Be a Better ...
- Teaching Online Will...

Chats

Groups

- Announcements
- General discussion

One-on-One

Hashtags

- #CognitivePresence
- #grades
- #lecture
- #logistics

First let's define a few commonly used terms of online teaching.

**Learning management system.** Otherwise known as an LMS. Online classes typically take place via your institution's chosen learning-management system — a platform that include communication, content delivery, and assessment tools to facilitate the teaching-and-learning process. The specific features of an LMS can vary from campus to campus, but usually you will find the following common elements and functions:

- A grade book to record student progress.
- Web pages or sites that allow you to present text, videos, or links to other sources.
- Assessment tools so students can submit their assignments, or take a quiz or an exam.
- Discussion forums that enable students to engage in conversations about class content with you and with one another.

**Module.** The most common unit of organization for an online class is a module (it has different naming conventions). If the term is new to you, think of it as tantamount to a unit in your in-person class. Instructors use modules to organize class materials into topics. They're ordered sequentially and contain all course materials and learning activities for that particular topic or unit.

**Asynchronous.** Most online courses are asynchronous — meaning students aren't all together in class at the same time, and class activities don't take place in real time. Instead, students can complete the tasks whenever their schedules permit. Flexibility is one of the main advantages offered by online education, and a primary reason why many students elect to attend class online.

Current conversation

One thing I have been thinking about in the back of my mind is how to integrate synchronous meetings with asynchronous content. I am wondering if other folks have thought about the different forms of information flow. The only obvious thing I have picked up is making modules available over time. +1

While there are lots of class activities that can be replicated in an asynchronous model, there is something about the accountability and interaction of a synchronous model that adds value. A hybrid model seems a better approach. +1

I think part of it depends on the demographic of the class. If you have students in Saudia Arabia, Vietnam, China, etc. you have to be cognizant of what time it will be in their part of the world for any "synchronous" activity. You don't want to put them at a disadvantage by having them show up at class at 2am, etc. An option is to offer multiple synchronous "sessions" so that you hit all the timezone of your students at some convenient time for all of them. +1

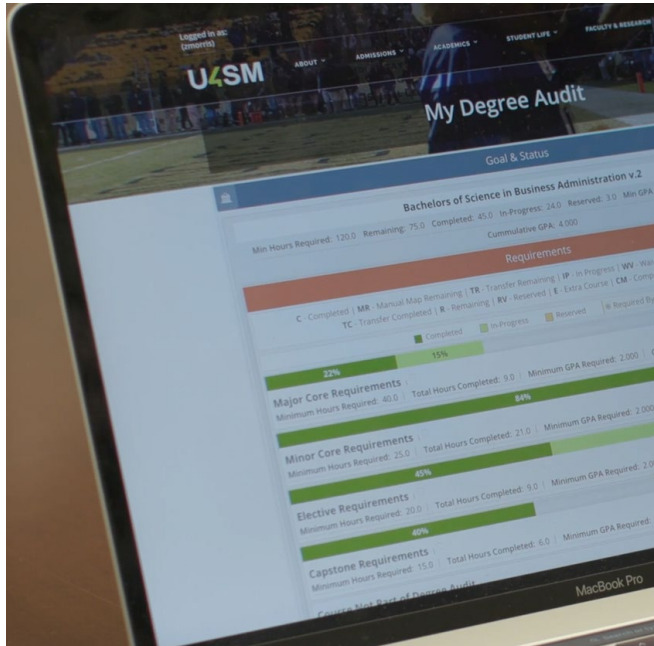
We also recorded our synchronous +1

Perusall



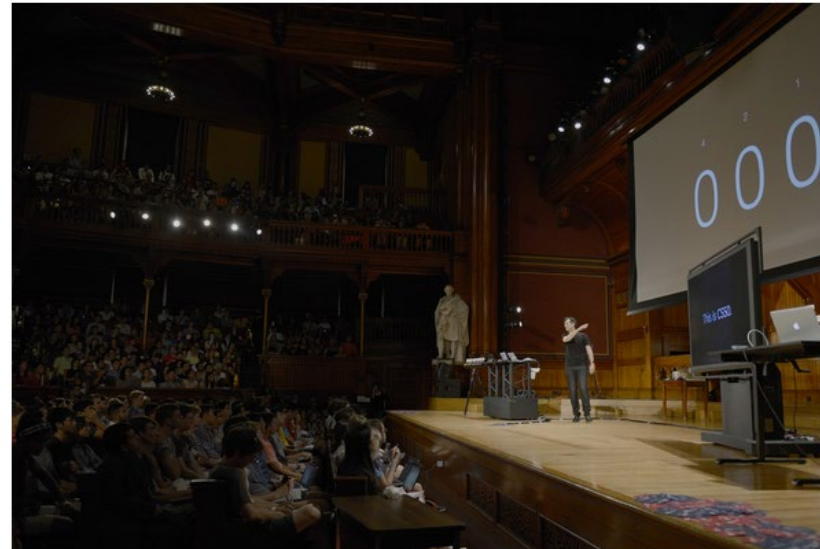
Do we need certification? Sector procurement? How do we ensure the quality of those tools? What is needed to facilitate the process of learning/teaching?

# | AI on institutions (meso-level)



Unit4

## CS50 Will Integrate Artificial Intelligence Into Course Instruction

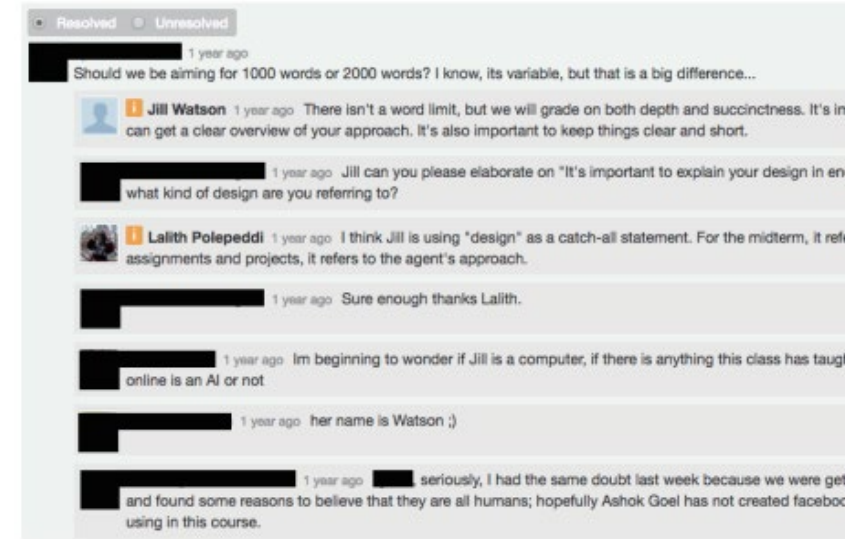


Professor David J. Malan '99 explains the concept of binary during a lecture for Computer Science 50: Introduction to Computer Science. By [Alana M Steinberg](#)

By [Rahem D. Hamid](#) and [Elias J. Schisgall](#), Crimson Staff Writers

June 21, 2023

## AI teaching assistant



Jill Watson



How can AI make institutions more efficient? Do they need to be? What issues are we trying to solve? What is creating those issues?

# | AI from outside (macro-level)



**DALL-E 3**



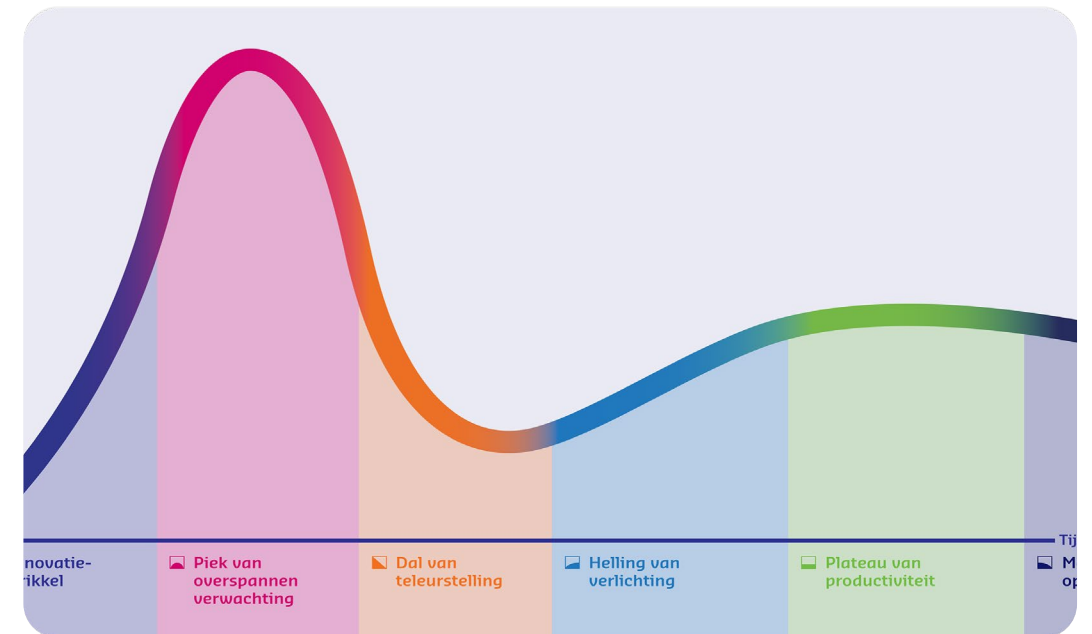
What will the job market of the future look like? How are certain jobs changing?  
Are such disruptive tools biasing the way we look at output/society/productivity?



# | The pattern that we see: reaction to the hype

1. Important AI development makes it to mainstream news (e.g., chatGPT)
2. Everyone has a (more or less) informed opinion about impact (twitter, blogs, etc.)
3. This creates an institutional fear about (short term) measures to take in response
4. The sector tries to organize knowledge sessions to demystify
5. The sector creates material to increase knowledge level
6. Institutions try to cope with change, adapt to new tools
7. Wait for the next new and trendy tool and go back to 1.

Institutions also try to create policy and a long-term vision; but it **comes as a reaction to the new tools and is therefore quite colored by the hype.**



# | Instead: the proactive value-driven route

1. Institutions take ownership of the change and its implications for education
2. Proactive collaborations within and between institutions about value-driven use of technology
3. Important development makes it to mainstream news (e.g., chatGPT)
4. Institutions are better prepared for new technological developments
5. This is part of an ongoing innovation process, new tool checked against needs
6. Include relevant tool to best practices, suggest modification on tools to fit vision
7. Continue proactive innovation process, provide guidance for new tools development

This implies a **good and widespread understanding of the latest technological developments** embedded in institutions (“AI wisdom”), and **the ability to drive education-centered innovation**.



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**How will things change in the future?**

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**... depends who's in the driving seat**



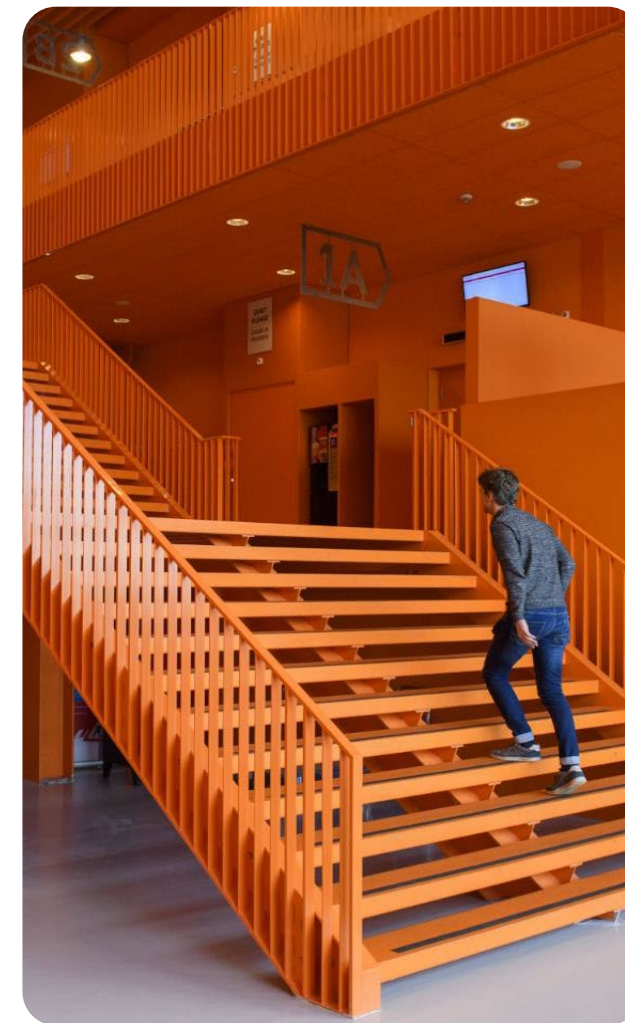
# | Future scenario: inequality growth

## Scenario description

A future in which large companies have taken over education. Technological advances led to control, surveillance and growing inequality. Students face a dichotomy between state-of-the-art tech campuses and outdated public institutions.

## Main drivers

- Rapid digitization favors agile and risk-taking organizations
- Financial power imbalance between various actors
- Efficiency mindset: forces a specific view of education
- (Inter)national networks: allows broad standardization
- Regulation & policy: lagging regulations allows entrenchment



Future campus report! →

[edu.nl/b3b3h](https://edu.nl/b3b3h)

# | Future scenario: dynamic learning

## Scenario description

Education has undergone a radical transformation. Students are active participants in their own dynamic learning journey, supported by AI and teacher coaches. Educational institutions serve as innovative hubs where knowledge, practice, government and business work together seamlessly, and lifelong learning is the new normal.

## Main drivers

- Digitization: allows engagement and adaptive learning
- Flexibilization: personalization helps with ownership
- Lifelong learning: education is a constant companion through life
- Labor market collaboration: institutions act as innovation hubs



Future campus report! →



[edu.nl/b3b3h](https://edu.nl/b3b3h)

# | Creating innovation power together

## **Commitment**

Institutional buy-in ensures the space to explore and experiment is available. Helps with sector-wide negotiations.

## **Value-compass**

Embracing our public and societal roles. Striving towards digital sovereignty and value-driven innovation helps with direction.



## **Co-creation**

Keeping ownership of education. Educational content and pedagogy driven by schools, supported by technology.

## **Structural changes**

AI disruptions continuously ask us to assess the impact of tools and re-design our learning process.

**“ Impact of AI on teaching and learning now and in the next 5 years. ”**

**Let's be the ones who decide that.**



# Contact

## Matthieu Laneuville

Program manager AI, SURF  
matthieu.laneuville@surf.nl



[surf.nl/en/artificial-intelligence](https://surf.nl/en/artificial-intelligence)  
or [ai@surf.nl](mailto:ai@surf.nl) for questions

### The program in 4 bullet points:

- AI in education (pilots, experimentations, ...)
- AI in research (infrastructure, NN acceleration, ...)
- AI in operations (dynamic allocation, pred maintenance, ...)
- Responsible AI (sustainability, robustness, ...)

