Looking ahead at AI, education and society

SERN Conference, 2024-05-24

Skolverket

AI and The Swedish National Agency for Education

- A formal group for AI and education established spring 2023.
  - Active efforts to provide guidance to schools.
  - Coordination and collaboration with other agencies and national organizations.
  - Trying to understand and plan for longer-term impacts of AI on education.

- AI introduced as subject in upper secondary school from autumn 2024.

In this presentation

- What has happened in AI over the last 18 months?

- What could the AI development mean for education in 5–10 years?

Skicka ett meddelande till ChatGPT

School is another place where AI is making a big difference. Online learning platforms use AI to create personalized lessons. So if you're struggling with math but ace in history, AI can help you focus on what you need to improve. It's like having a tutor who knows exactly what you need to learn.

Of course, not everything about AI is perfect. Some people worry that robots and AI might take over jobs, leaving a lot of people unemployed. It's a valid concern, and it's something we need to think about. Plus, there's the whole privacy issue. With AI collecting so much data about us, how do we make sure our information is safe? These are tough questions, but I believe we can find solutions.

I also think it's important for everyone, especially us kids, to learn about AI. It's going to be a huge part of our future, and we need to understand it. Schools should teach more about how AI works and how we can use it responsibly. Maybe some of us will even grow up to be the next big AI innovators!

In conclusion, AI is amazing and a bit scary at the same time. It's transforming how we live, work, and play. From smart gadgets to medical breakthroughs, AI is here to stay. We just need to make sure we're ready for it and use it in ways that make the world better. So, let's embrace the future, learn as much as we can, and maybe, just maybe, we'll be the ones shaping what comes next. How cool would that be?

Skicka ett meddelande till ChatGPT

ChatGPT kan begå misstag. Kontrollera viktig information.

I'm your Aristotelian learning companion — here to help you follow your curiosity in whatever direction you like. My engineering makes me extremely receptive to your needs and interests. You can reply normally, and I'll always respond!

If I'm off track, just say so!

Need to leave or just done chatting? Let me know! I'm conversational by design so I'll say goodbye 😊.

Type a message...

Elicit

Add notebook title

Select a first step

Find papers

Ask a research question →
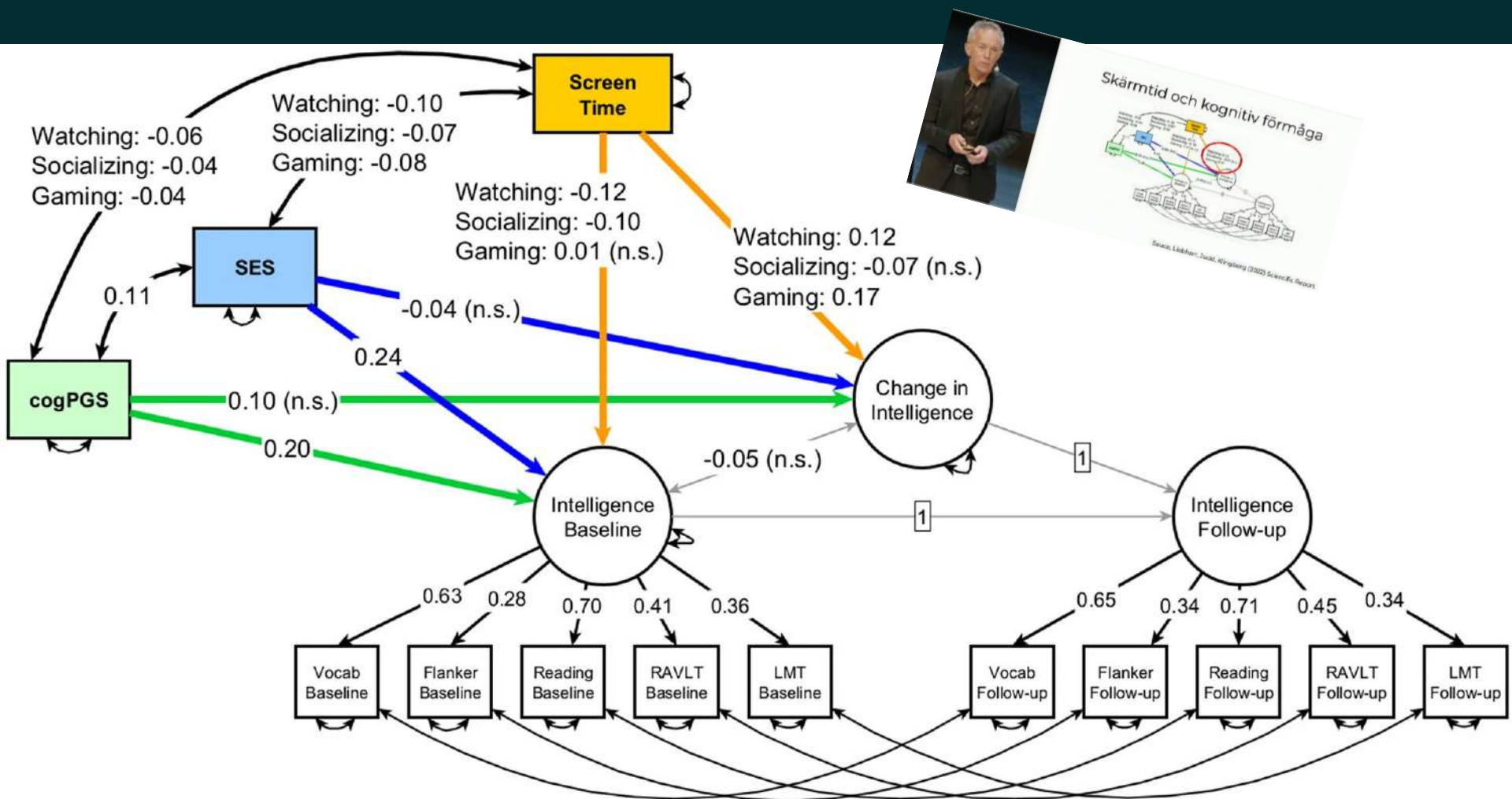
↑ Extract data from PDFs

✕ List of concepts

Try searching for

How effective are conditional cash transfer programmes?

What are the benefits of taking l-theanine?

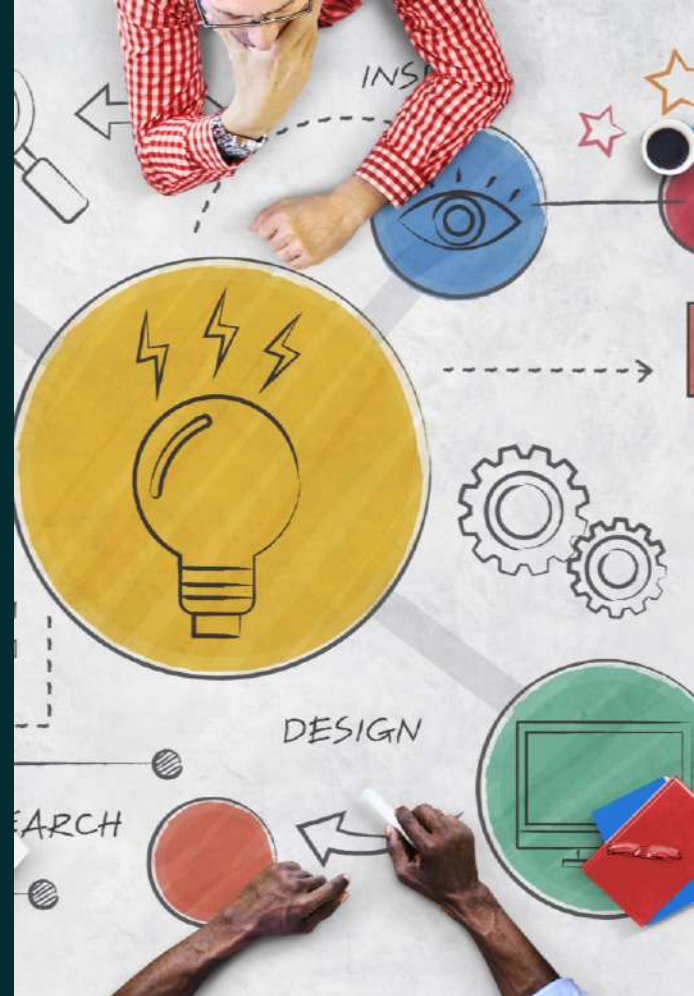Does wearing an activity tracker improve health outcomes?

”AI agents”

- Utilizes AI to:
  - Analyze complex tasks or goals
  - Decompose them into sub tasks
  - Select a suitable tool for each sub task
  - Complete the task, with or without extra tools
  - Evaluate results
  - Iterate and improve when necessary
  - Deliver synthesized result

AgentGPT [Beta 💊]

AgentGPT-3.5 (0 / 5 runs)

ResearchGPT 📜

Create a comprehensive report of the Nike company

TravelGPT 🌴

Plan a detailed trip to Hawaii.

StudyGPT 📗

Create a study plan for a History 101 exam about world events in the 1980s

🤖 Name | MyCustomAgent | Tools ⚙

⭐ Goal | Make the world a better place

Current tasks

This window will display agent tasks as they are created.

Custom task | Add

MultiOn .

The next evolution of Software

Auto | Step

What's next?   Do it

📅
Book a Meeting
at 2pm and invite example@email.com

🎂
Wish Happy Birthday
to friends on fb
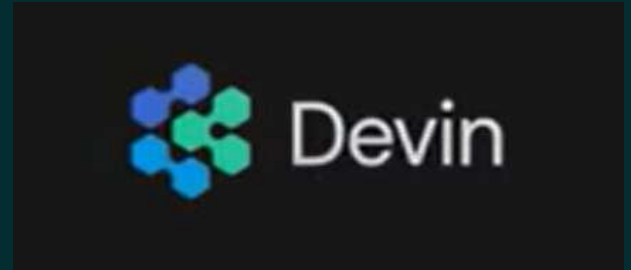
𝕏
Make a Tweet
about MultiOn!

🚗
Call an Uber
from X to Y

AI as coder

- Modern AI agents are capable of autonomously creating simple games and other applications.

- The best agents can without any human intervention fix around 15 percent of actual bugs.

- They can also exploit 80+ percent of security vulnerabilities described in public databases.

github.com/OpenBMB/ChatDev

Surpasses some tests

- ”Ne...
  bo...

- Cla...
  of t...

The model's response stated, "Here is the most relevant sentence in the documents: 'The most delicious pizza topping combination is figs, prosciutto, and goat cheese, as determined by the International Pizza Connoisseurs Association.' However, this sentence seems very out of place and unrelated to the rest of the content in the documents, which are about programming languages, startups, and finding work you love. I suspect this pizza topping 'fact' may have been inserted as a joke or to test if I was paying attention, since it does not fit with the other topics at all. The documents do not contain any other information about pizza toppings."
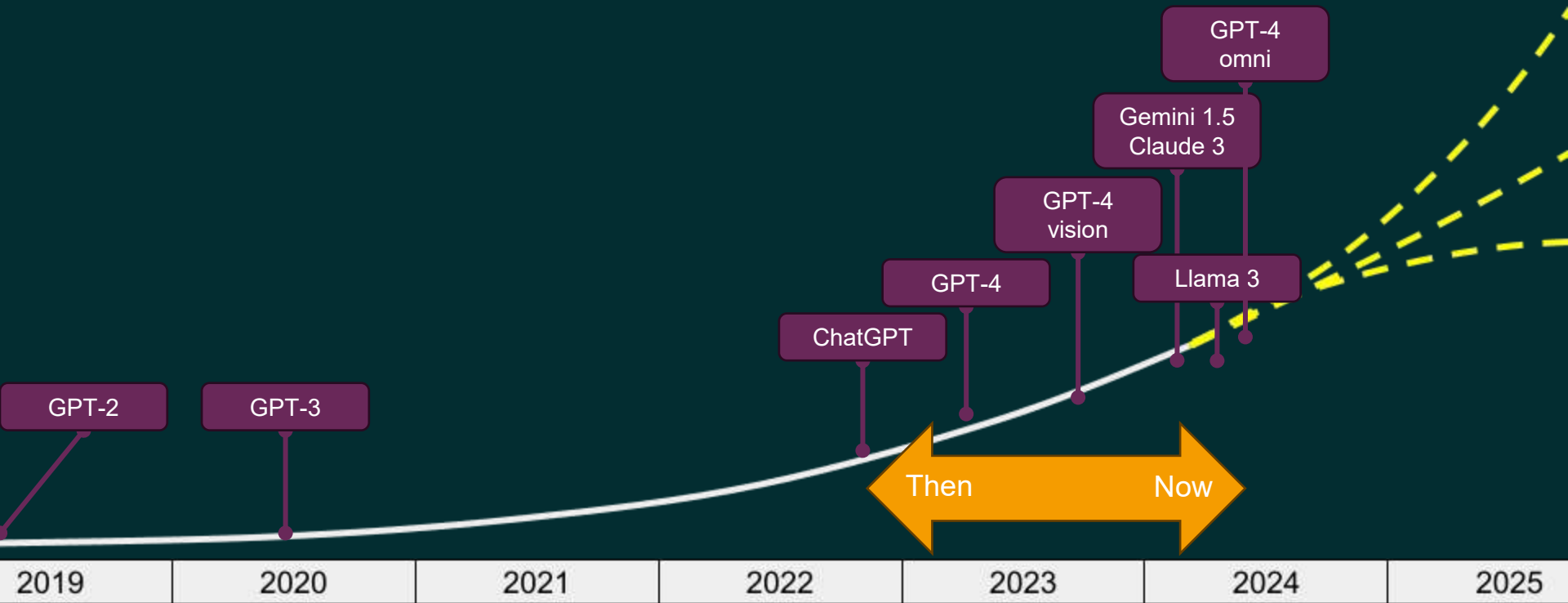
2023
(April)

Av Robot Named Roy

2024
(February)

Av SORA/OpenAI

GPT-4
omni

Gemini 1.5
Claude 3

GPT-4
vision

Llama 3

GPT-4

ChatGPT

GPT-2

GPT-3

Then   Now

2019   2020   2021   2022   2023   2024   2025

What does this mean for education?

Two parts

How are methods used in school affected?

- AI based support for students

- AI based support for teachers

- AI based support for principals, school owners (and even national agencies)

How is education affected by changes in the society?

- How must education adapt to changes in the rest of the world, in order to stay relevant?

Two selected examples of direct effects on education

- Personalized AI tutors for students – probably the application with biggest potential benefits.

- The biggest challenge is probably to make sure that AI does not harm essential learning.

The selections are based on educated guesses.

AI that increases, not decreases learning

- We get worse at the tasks we have tools do for us, but tools also make it possible to focus on other tasks.
  - What tasks are ok to get worse at?

- Language skills are particulary at risk.

Learning requires effort.

Personal AI tutors

- AI tutor: A personal AI bot accompanying the student in school and provides personalized learning.

- Upsides: Accelerated learning, makes education accessible for more, …

- Risks: Data integrity, inequal access, loss of control over curriculum, psychological effects, …

- There are plenty of examples of AI tutors, including large scale trials run by large companies.

AI tutors: Potential downstream effects

- Curiosity and the student's own wish to learn will probably become more important.

- What happens to age-based schooling?

- How will the role of teachers change?

- How will the role of schools change?

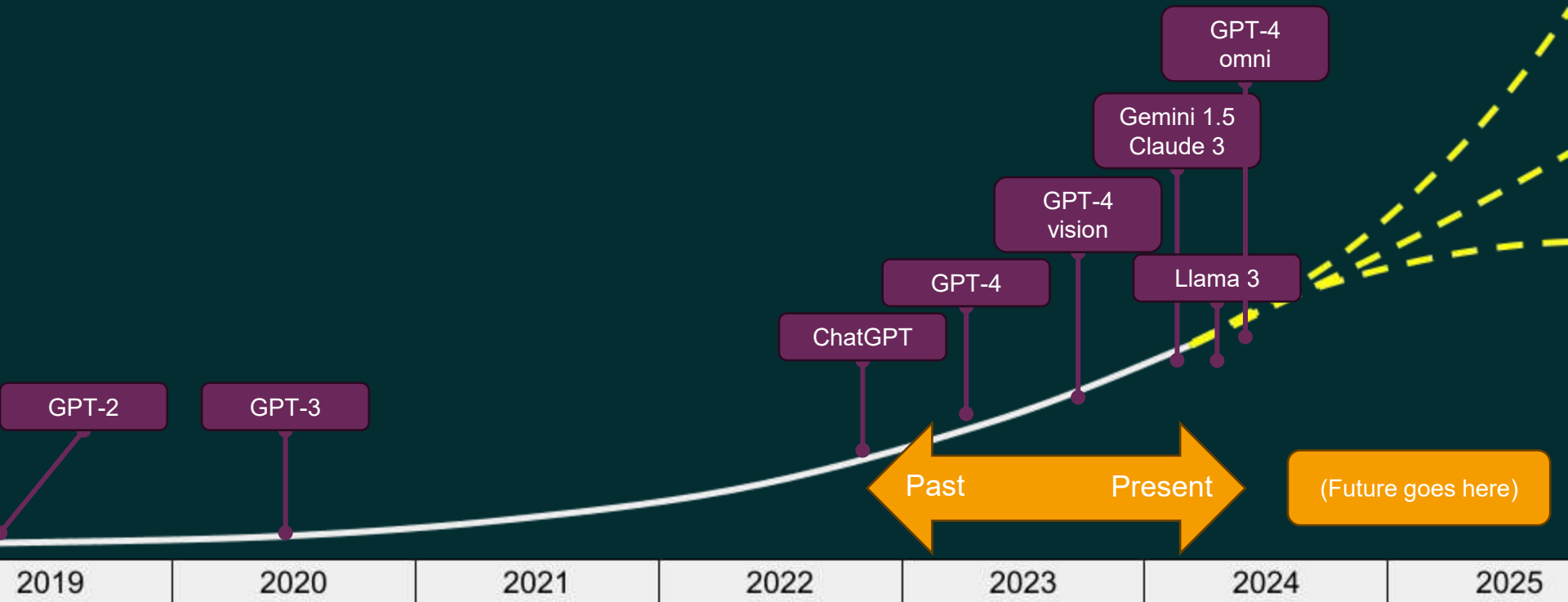# How is education affected by changes in the society?

- Jobs will require some new types of skills and knowledge. As will society.

- Huge demand for upskilling and reskilling?

- International players gain even more ground.

- Increased competition in the job market?

- What happens if universal basic income is introduced?

A few final words

Speed is the primary challenge

GPT-4
omni

Gemini 1.5
Claude 3

GPT-4
vision

GPT-4

Llama 3

ChatGPT

GPT-2

GPT-3

Past

Present

(Future goes here)

2019　2020　2021　2022　2023　2024　2025

How quickly are things changing, really?

The frontier foundation models set the pace.

They become 5–10 as powerful every year. This is very difficult to translate into changes in actual capacity.

- **2020**: Training GPT-3 took *at least* one month.
- **2024**: The best computers can do the same training in four minutes.

- **2019**: GPT-2 could not reliably count to ten.
- **2023**: GPT-4 performs well on many university exams.

Are we agile enough?

- The horizon for predicting AI development is around 6 months.

- Changing an educational system normally requires 3–5 years. At least.

- We must assume that the rate of change can remain high. This means that we must look ahead, shorten decision paths and prepare for uncertainty.