The UN Sustainable Goals and How AI, IoT, Biotech, Robotics & Nanotech can Help

Prof. Anderson Rocha
Institute of Computing, Unicamp
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Unicamp Professor for almost 15 years
Expert in **Artificial Intelligence** and **Complex Data** (22+ years)
Research in both theoretical and applied aspects of Artificial Intelligence

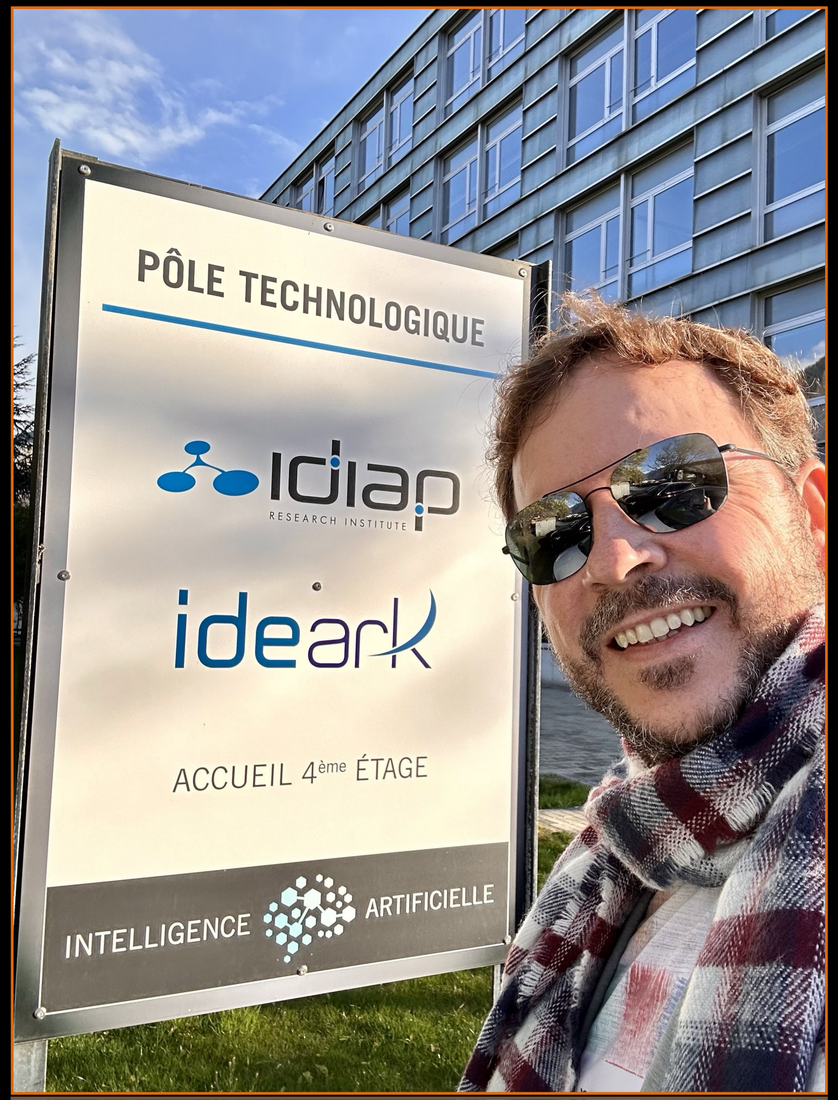
Reasoning for Complex Data (**Recod.ai**) Lab. Coordinator
> Recod.ai counts with 260+ collaborators
> One of the largest and most productive in LATAM

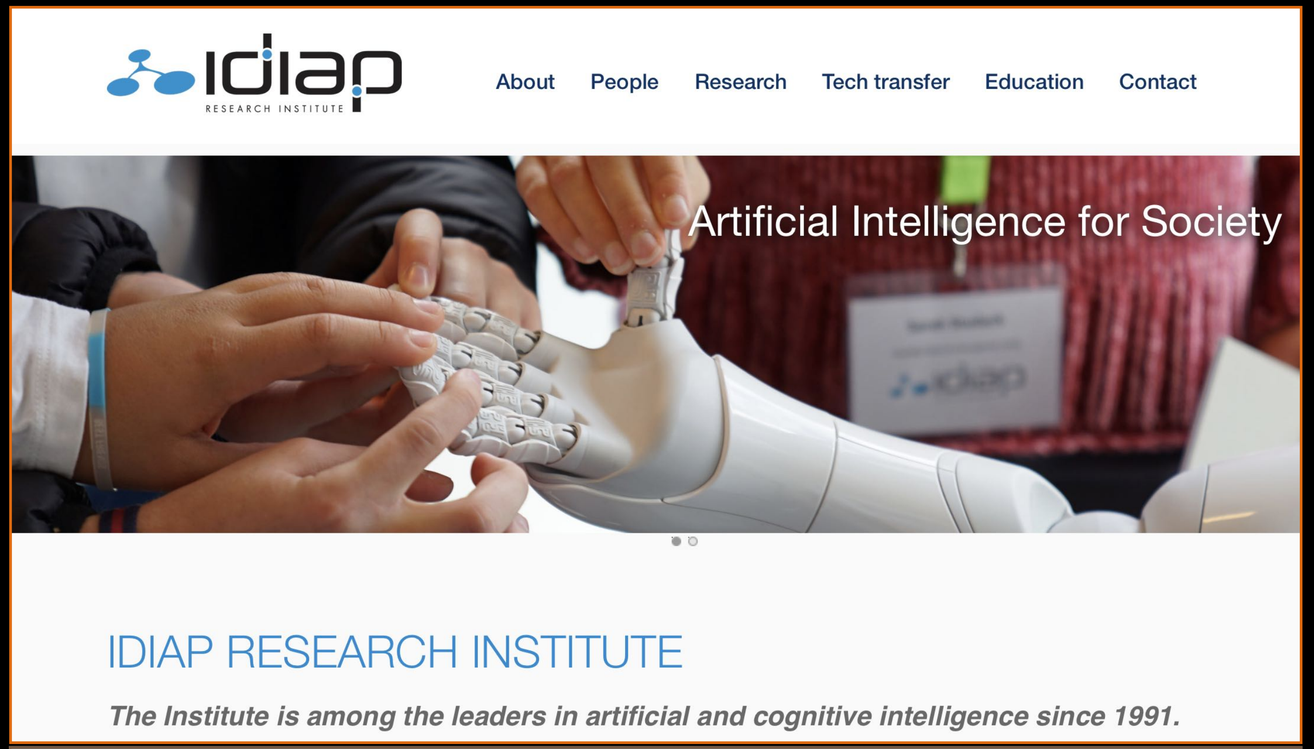
Microsoft, Google e Tan-Chin Tuan Foundation **Fellow**

Listed among the **TOP-2% Scientists** worldwide (According to Stanford/PlosOne Study)

Visiting Professor to multiple institutions over the years

Prof. Anderson Rocha





The Point of no Return, **A. Rocha**, 2023

recod.ai
reasoning for complex data

What's AI?

What we do?

What challenges us?

Where are we headed to?

https://medicalxpress.com/news/2019-11-brain-consciousness.html

The Point of no Return, **A. Rocha**, 2023

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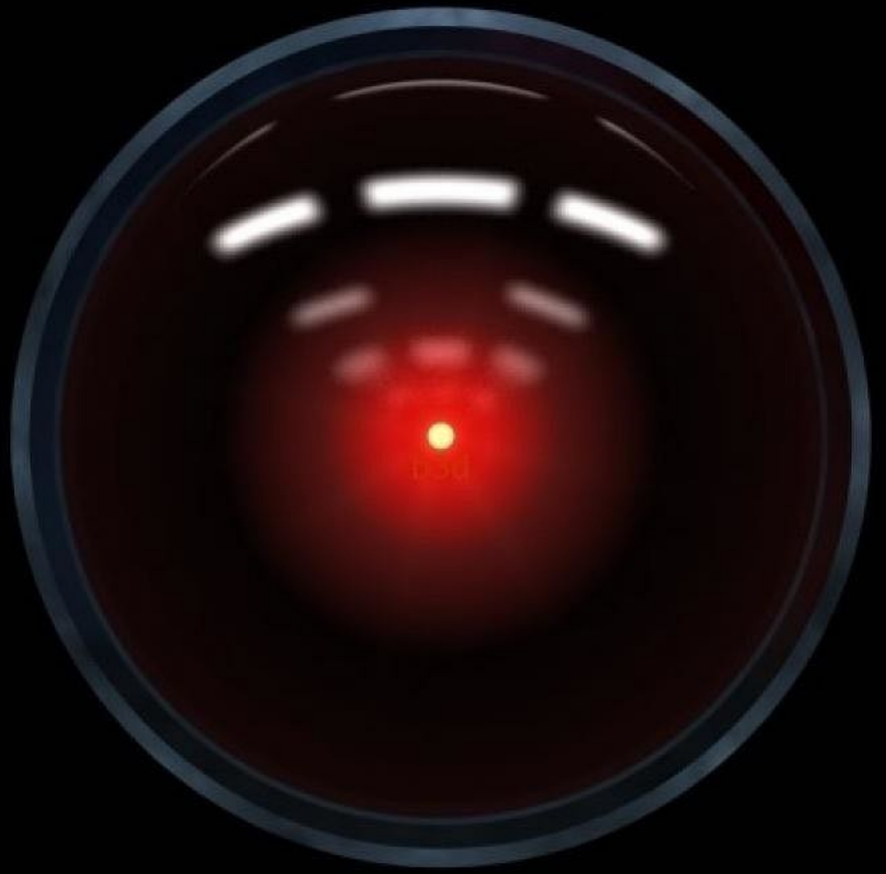
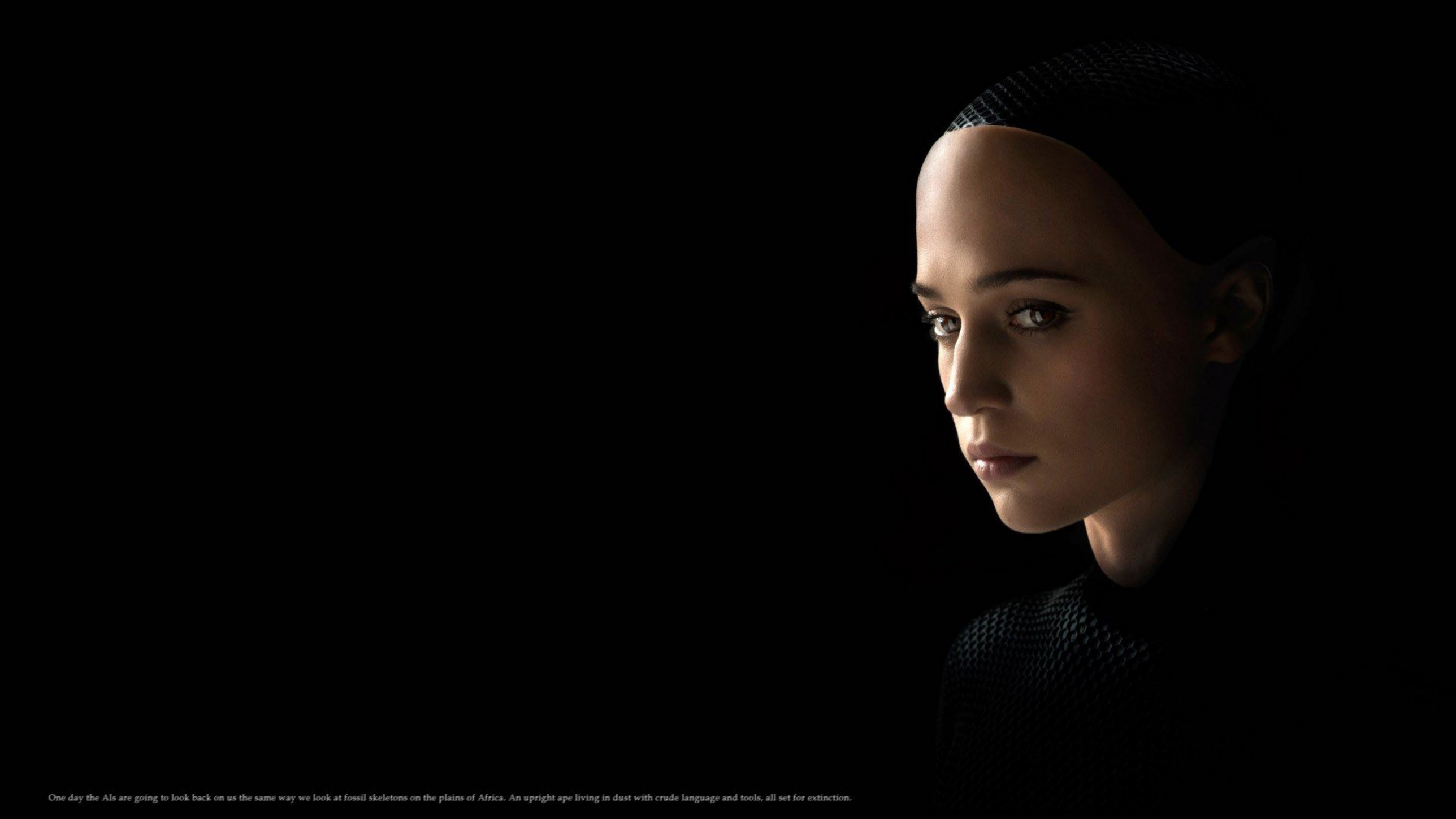
Everyone is talking about
this little thing…





One day the AIs are going to look back on us the same way we look at fossil skeletons on the plains of Africa. An upright ape living in dust with crude language and tools, all set for extinction.

Any sufficiently advanced technology is indistinguishable from magic.

— Arthur C. Clarke —

AZ QUOTES

Cancer Screening

Vaccine Research

Protein Folding & Medications

Fighting
World Hunger

Fighting
Climate Change

Fighting
Poverty & Inequality

Wildlife Conservation

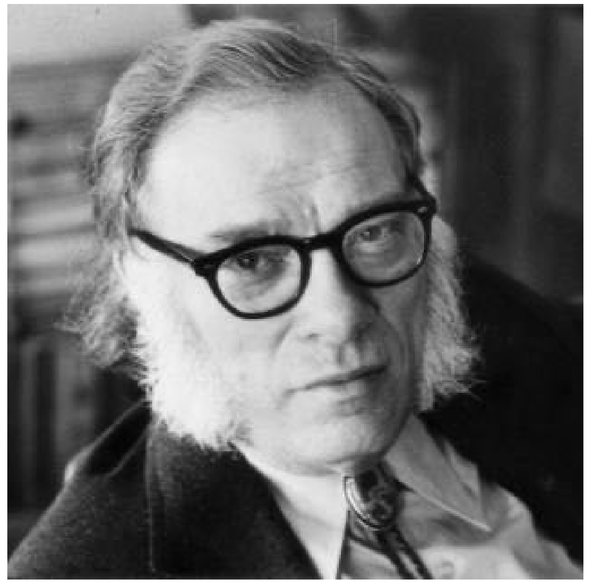
VIVA BEM

Promoting
Health and Wellbeing

Save the Bees

“It is change, continuing **change**, inevitable change, that is the **dominant factor** in society today. No sensible decision can be made any longer without taking into account not only the world as it is, but the **world as it will be**. ”

Isaac Asimov | 1920 - 1992




EVERYTHING
EVERYWHERE
ALL AT ONCE
天馬行空
ORANGE FIZZ

Fourth Industrial Revolution

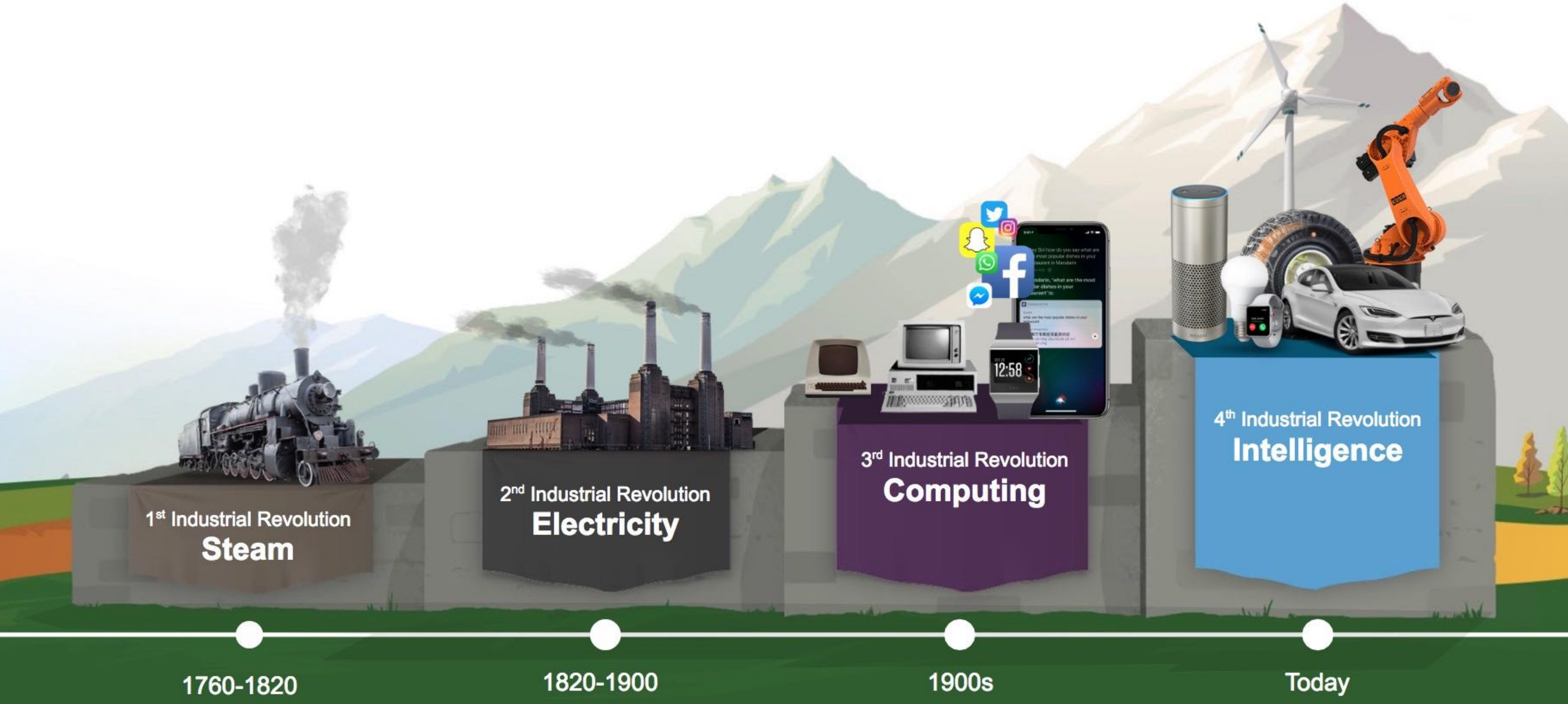
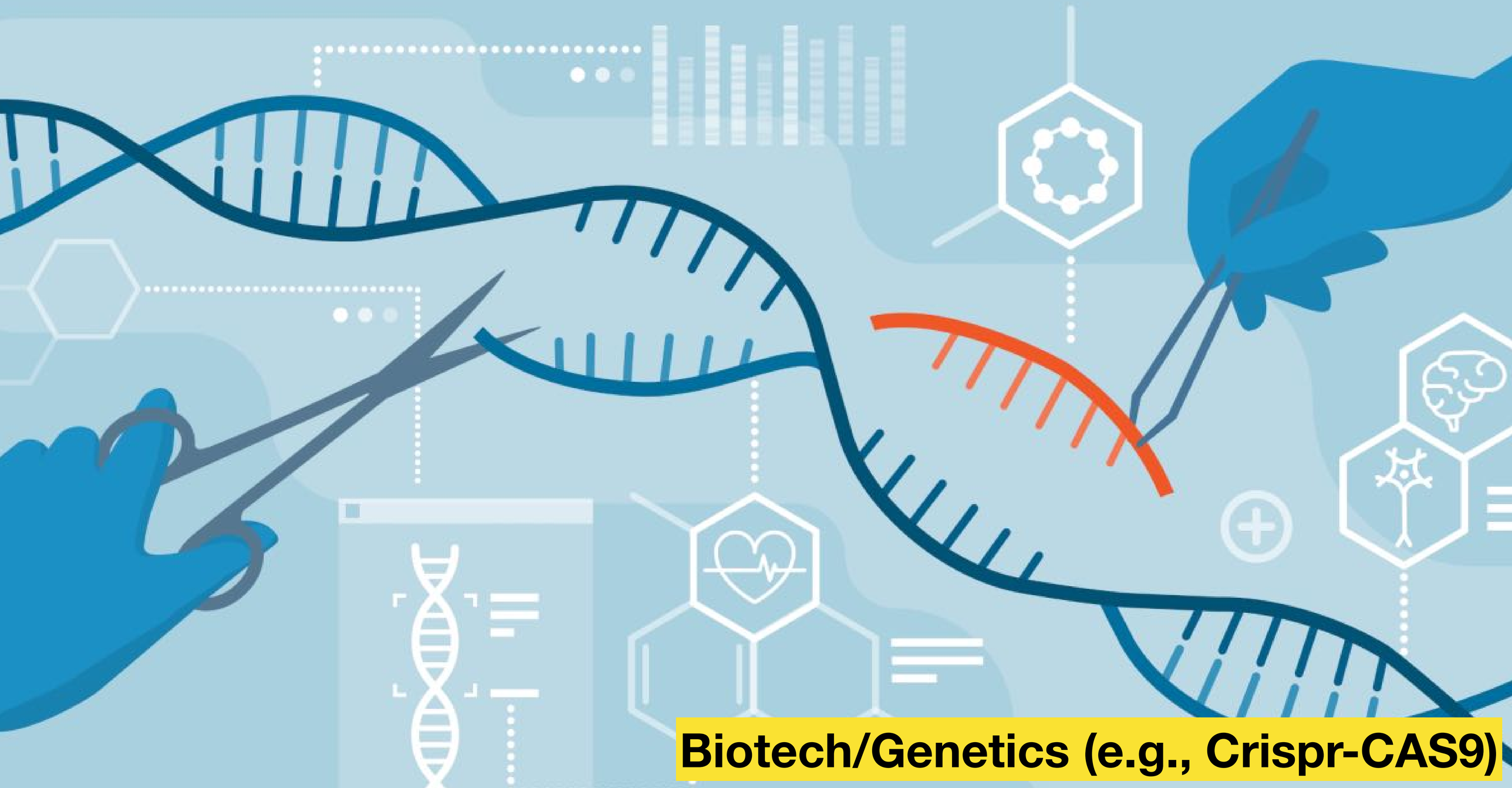


Image from https://medium.com/salesforce-ux/human-rights-in-the-fourth-industrial-revolution-industrys-role-and-responsibilities-7aa07fbe255d


Image from https://rakuten.today/blog/5g-network-reliability-lightreading.html
Convergence
Revolution

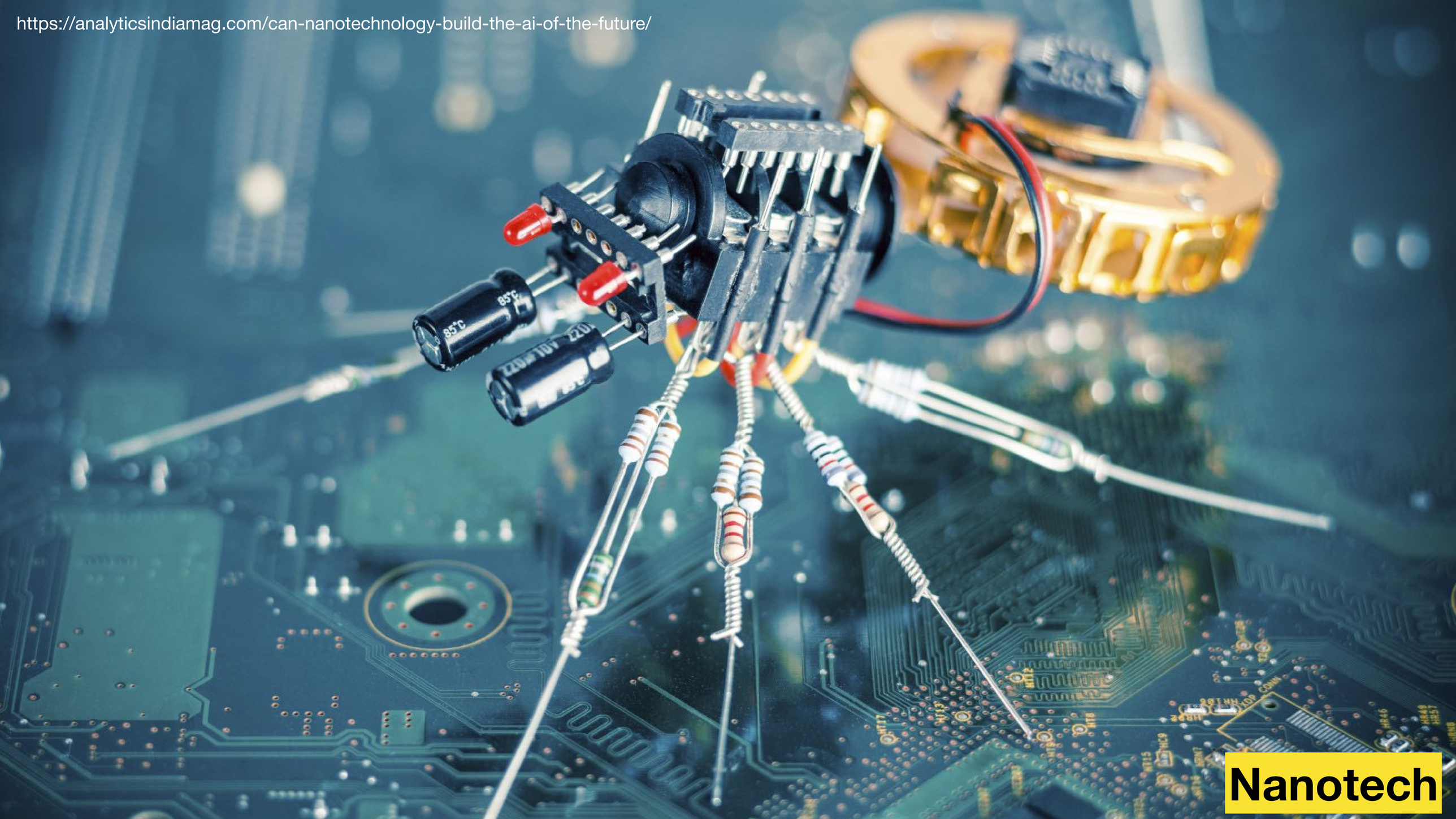

Image from https://successatschool.org/advicedetails/1194/interview-cyberspace-communications-specialist
Convergence Revolution: GNR+IoT+AI

https://www.the-scientist.com/news-opinion/crispr-gene-editing-prompts-chaos-in-dna-of-human-embryos-67668

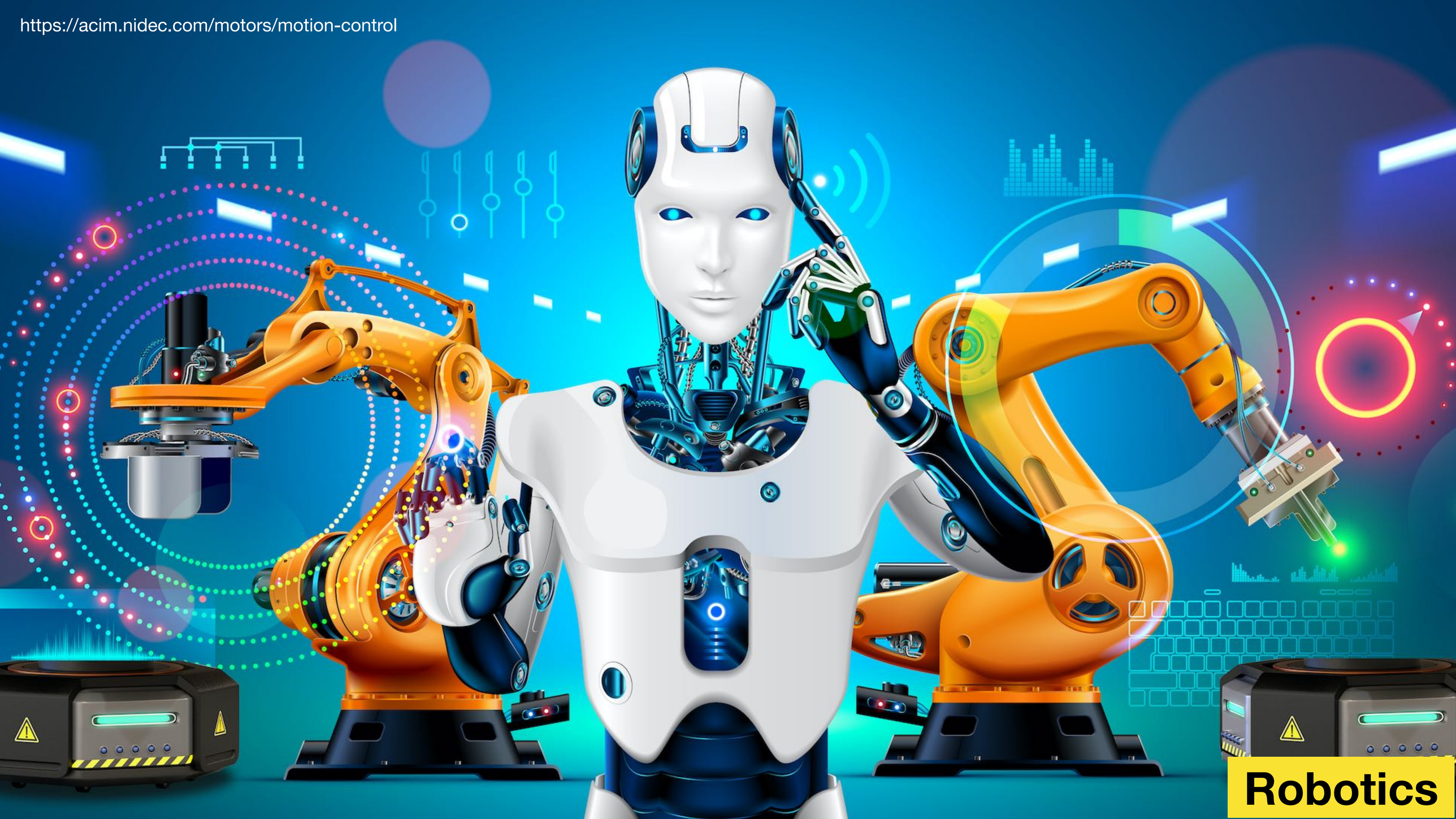


Biotech/Genetics (e.g., Crispr-CAS9)

https://analyticsindiamag.com/can-nanotechnology-build-the-ai-of-the-future/



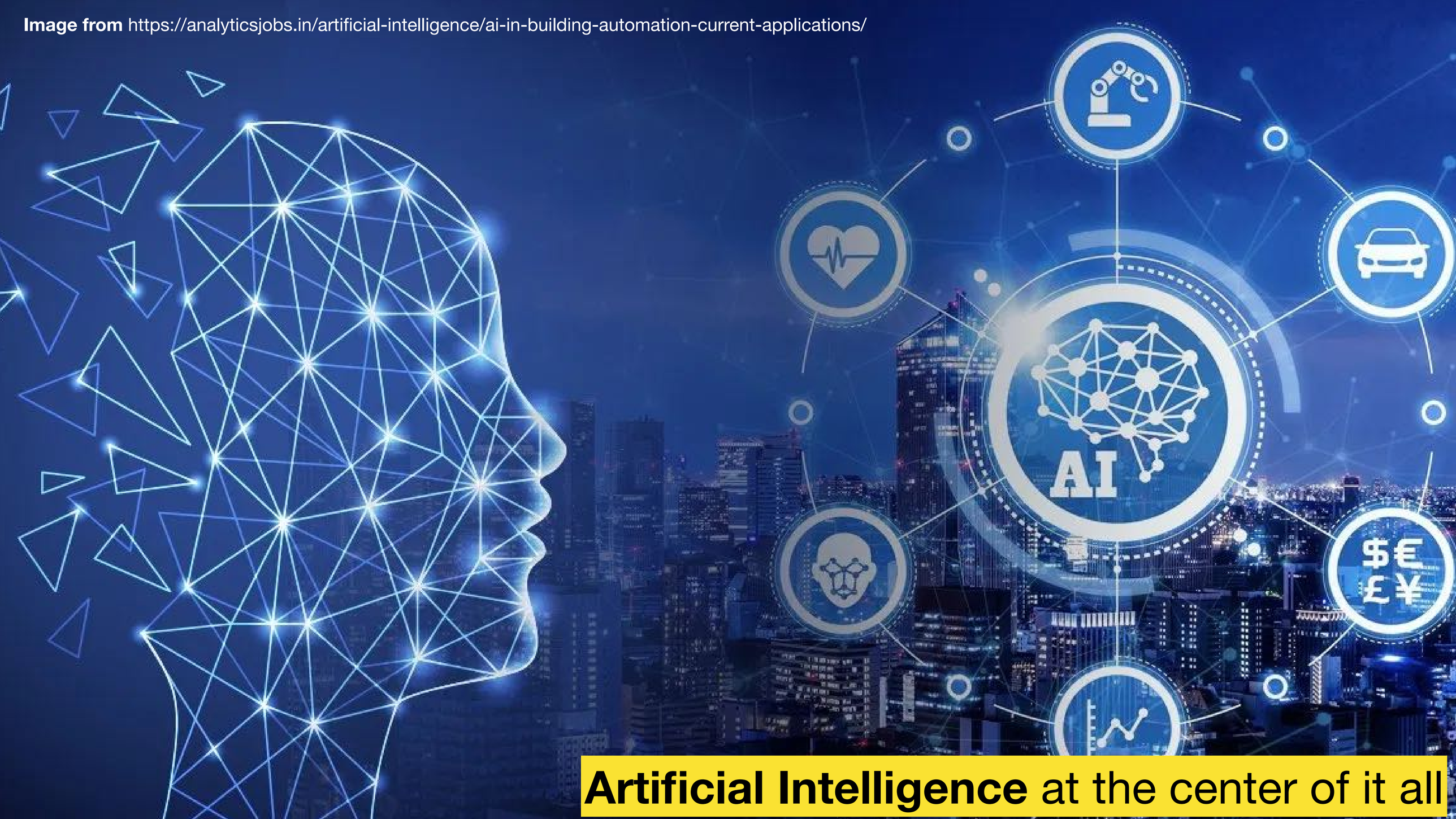
https://acim.nidec.com/motors/motion-control



Robotics


http://www.lannerinc.com/tw/news-and-events-tw/eagle-lanner-tech-blog?start=28
IOT
innovative technologies
Internet of Things (IoT)

Image from https://analyticsjobs.in/artificial-intelligence/ai-in-building-automation-current-applications/



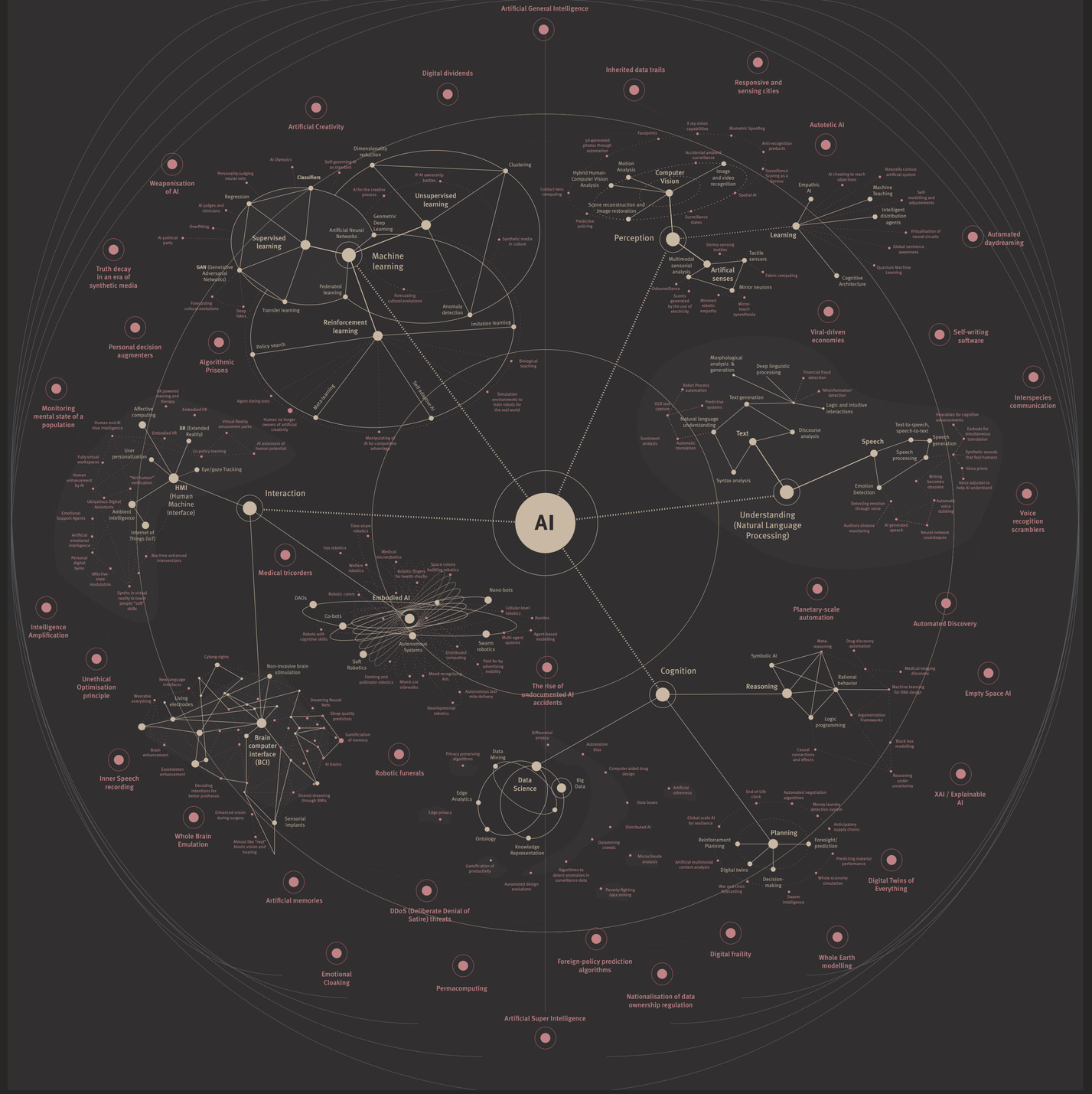
Artificial Intelligence at the center of it all

Artificial Intelligence

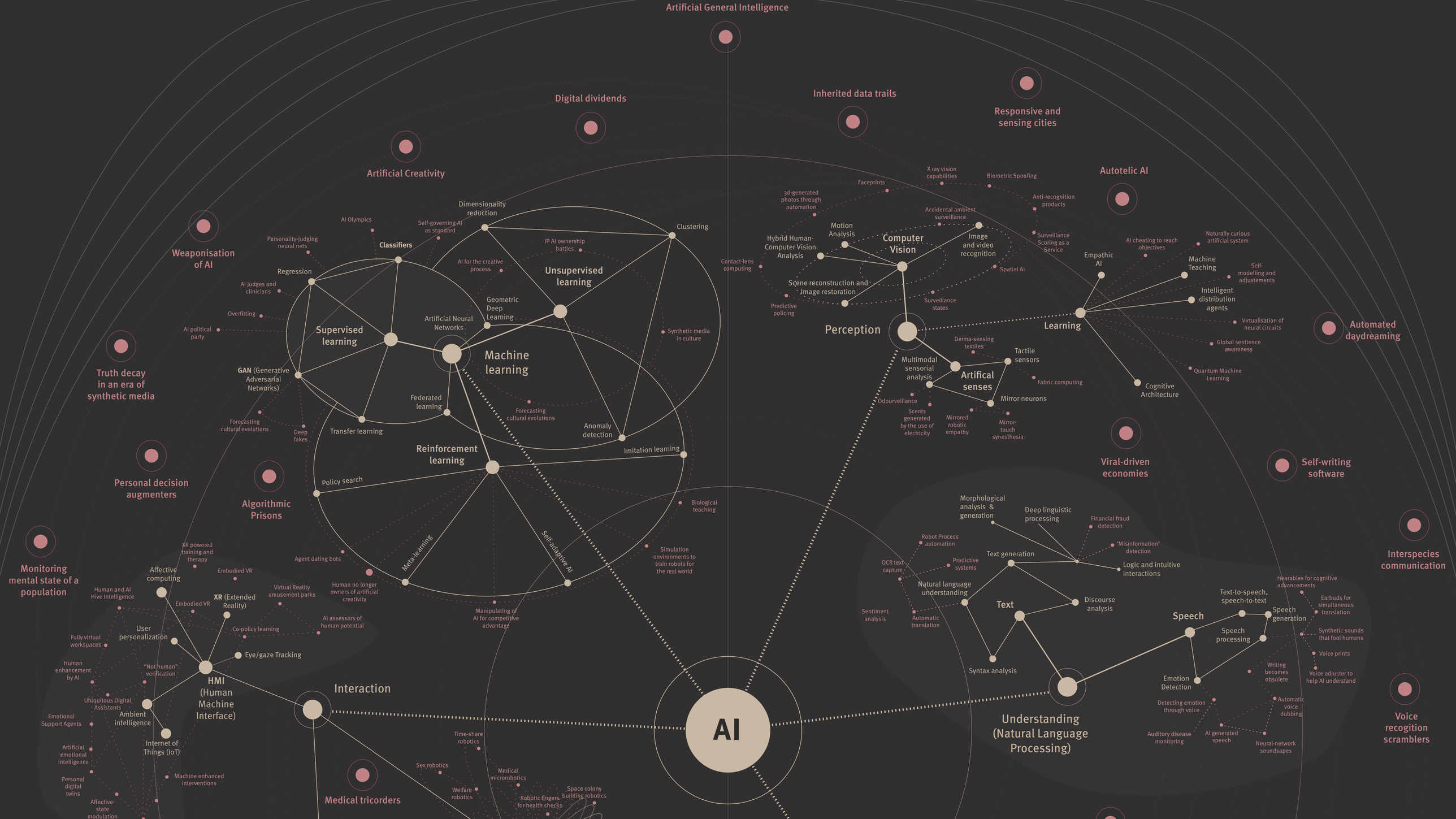
> Ability of a system to correctly interpret external data, learn from given problems and use these learned capabilities to achieve specific objectives and tasks through flexible adaptation.

Kaplan & Haenlein, 2018

wall.alphacoders.com/big.php?i=550096



Automated Futures
Imperial College, London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Naturally curious artificial system
Self-modelling and adjustements
AI cheating to reach objectives
Virtualisation of neural circuits
Global sentience awareness
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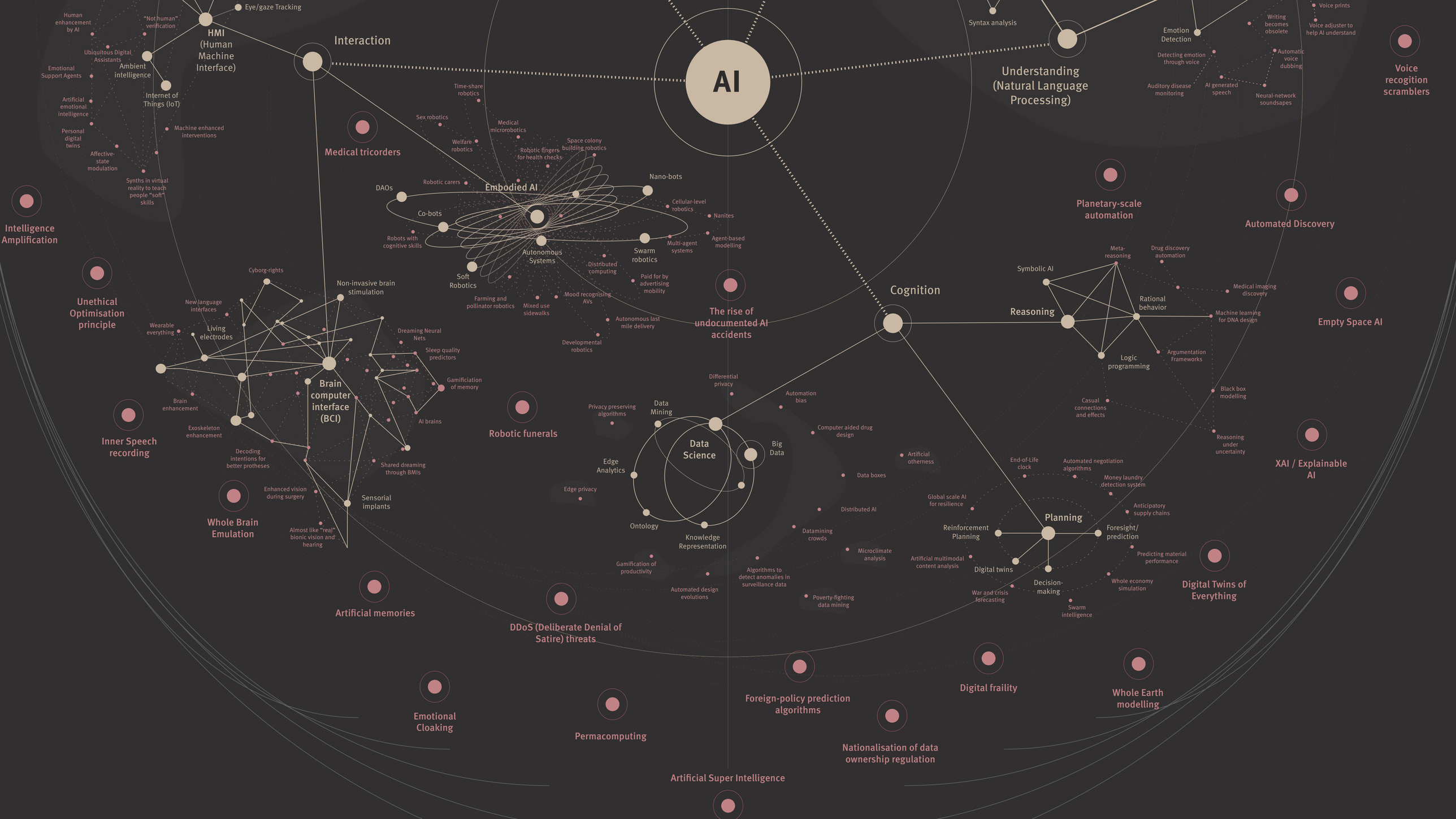
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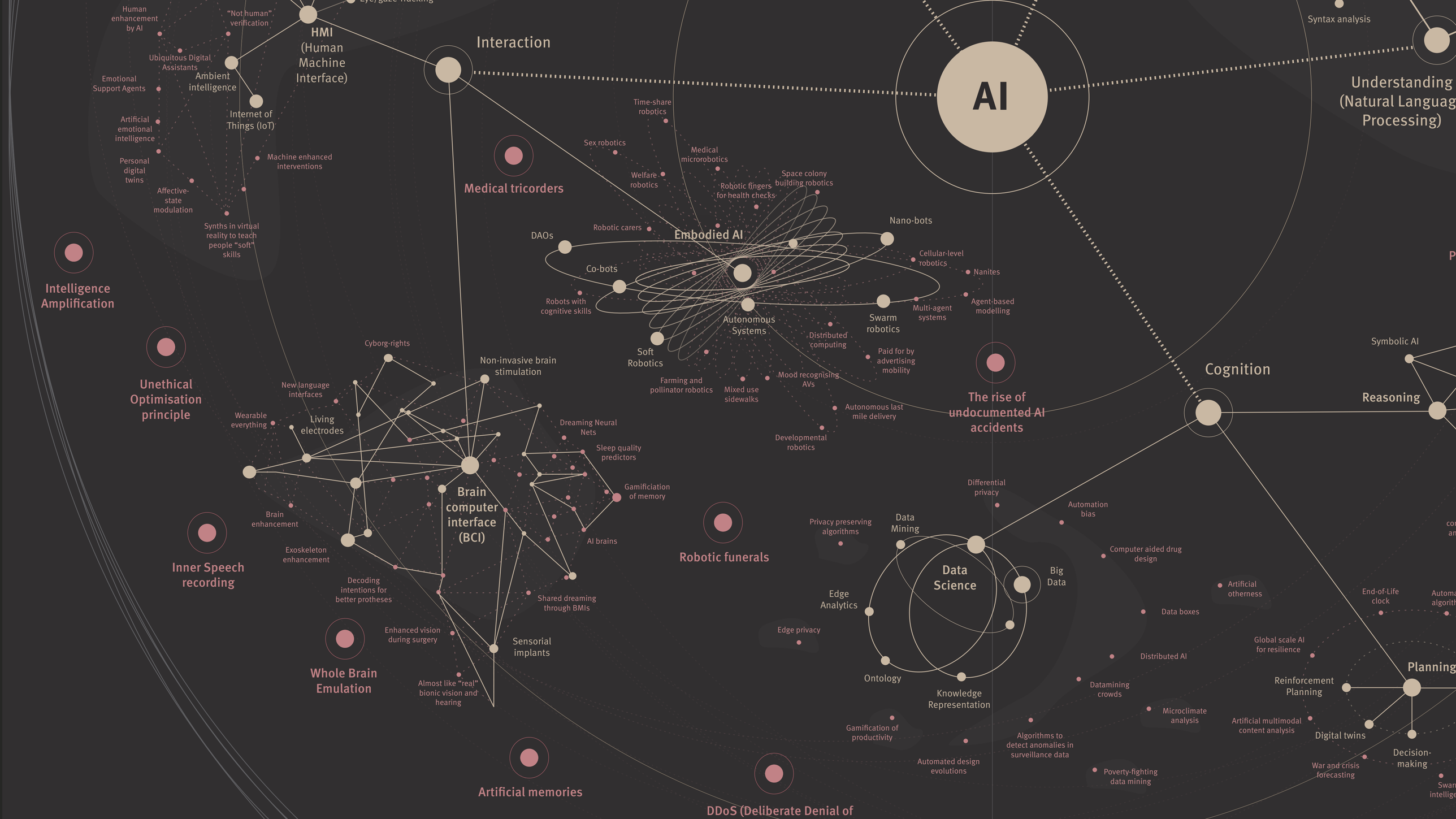
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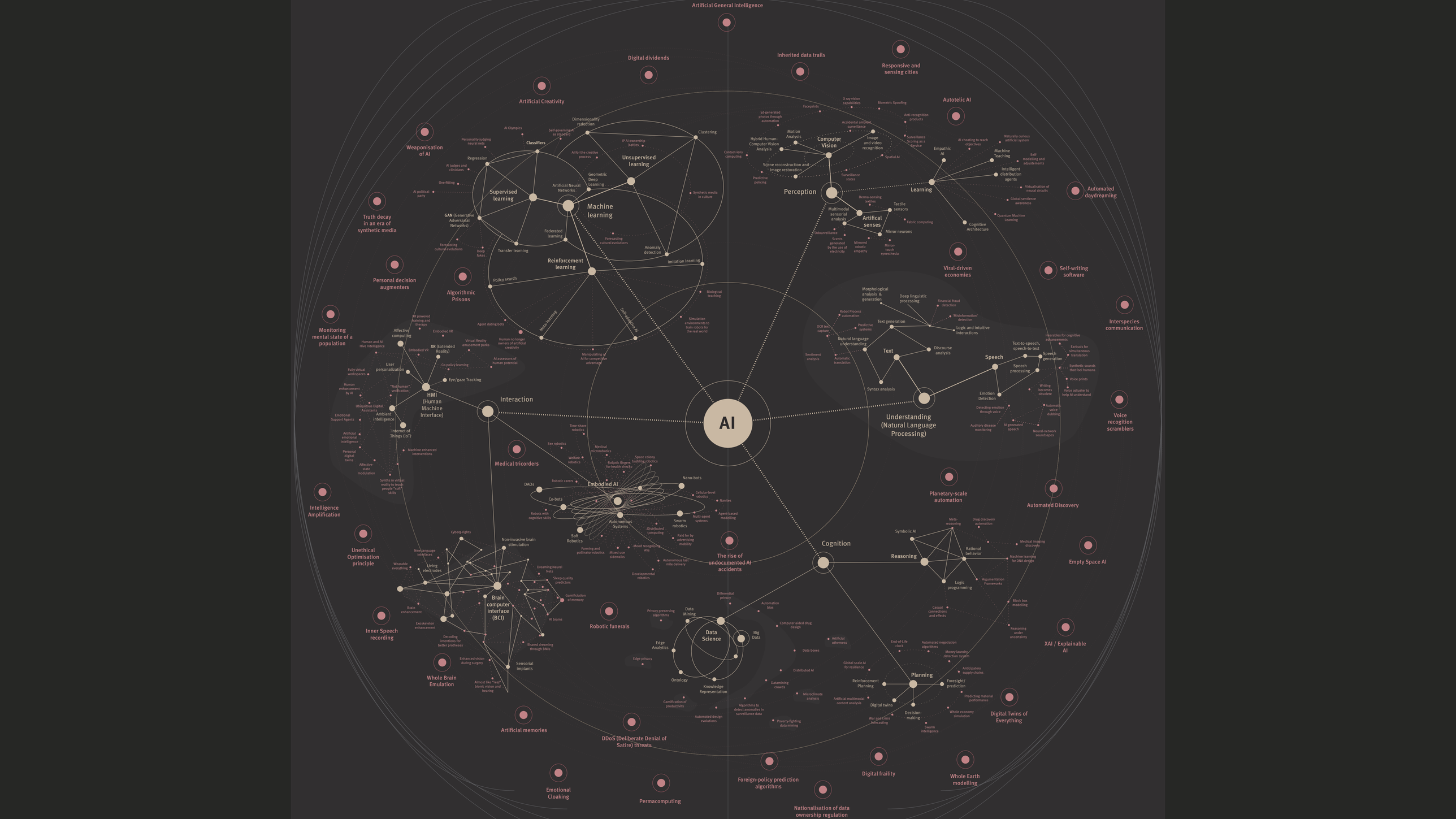
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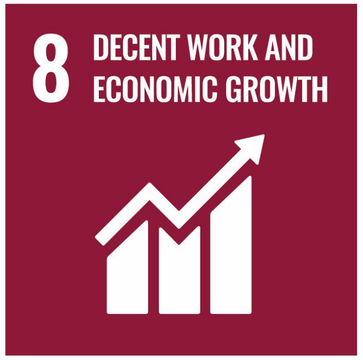
SUSTAINABLE DEVELOPMENT GOALS



SUSTAINABLE DEVELOPMENT GOALS

AI for Social Good

Food Security

Feeding the future

Precision **agriculture**

Crop monitoring and **disease detection**

Bacterial diseases *Viral diseases* *Fungal diseases*

Climate **resilience**


Crop-yield increase

Seed design and **improvement**

Planting planning & soil enrichment

Reduce the risk of **Hunger**

Improve **food quality** & **distribution**

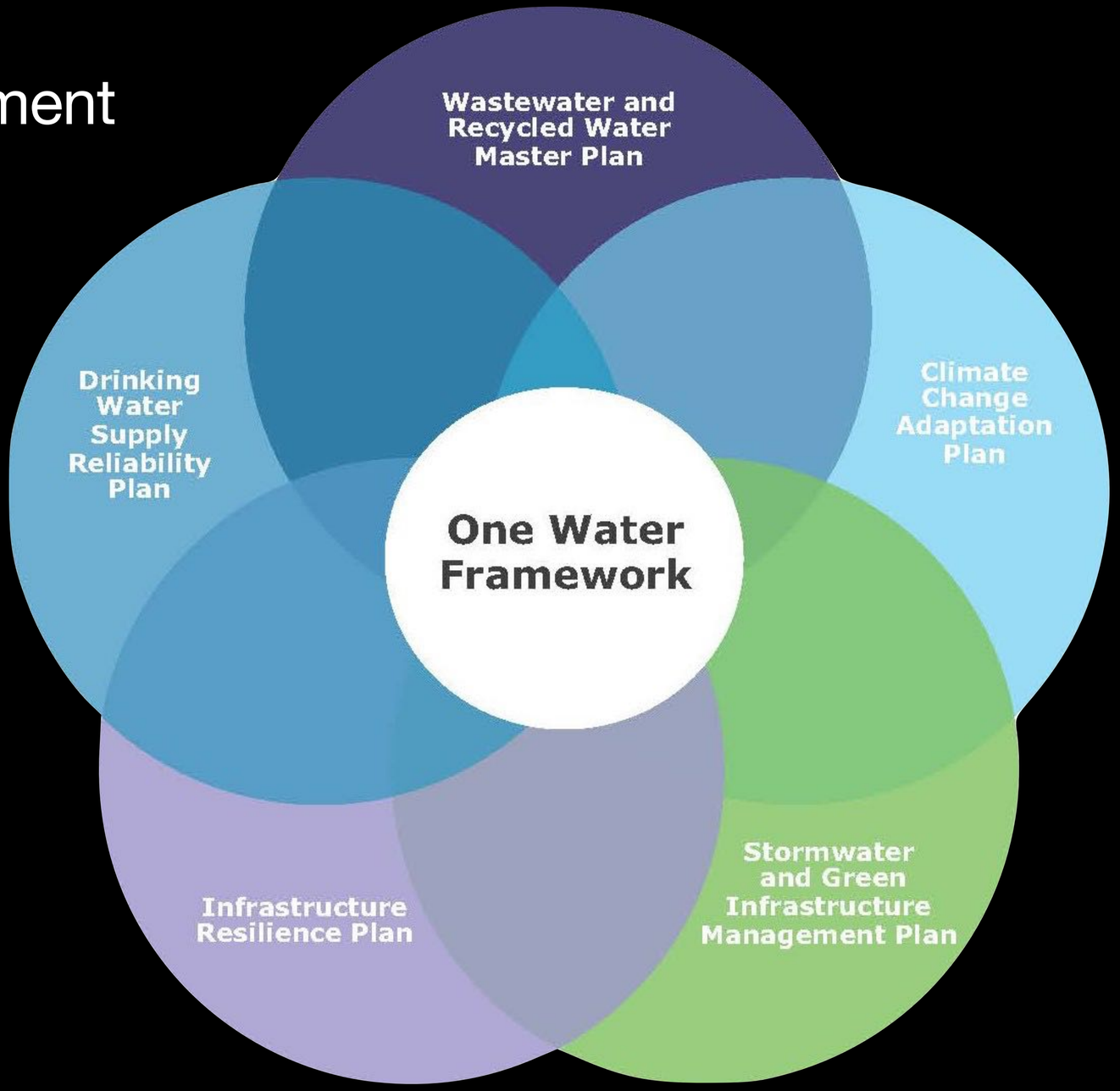
Map where and how to help

People are losing their livelihoods and their incomes, and supply chains are **disrupted**

AI for Social Good

Water

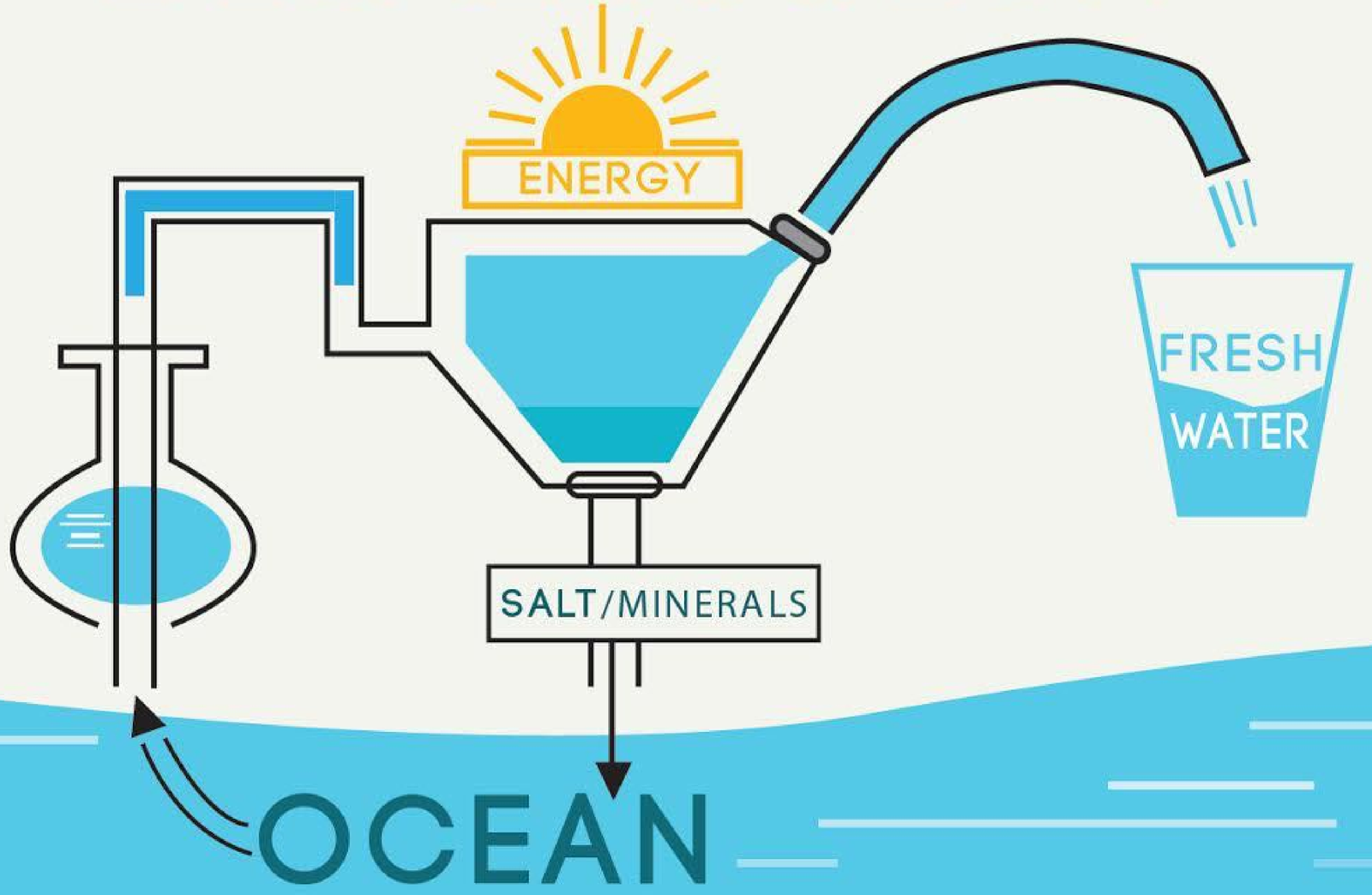
Water Resource Management



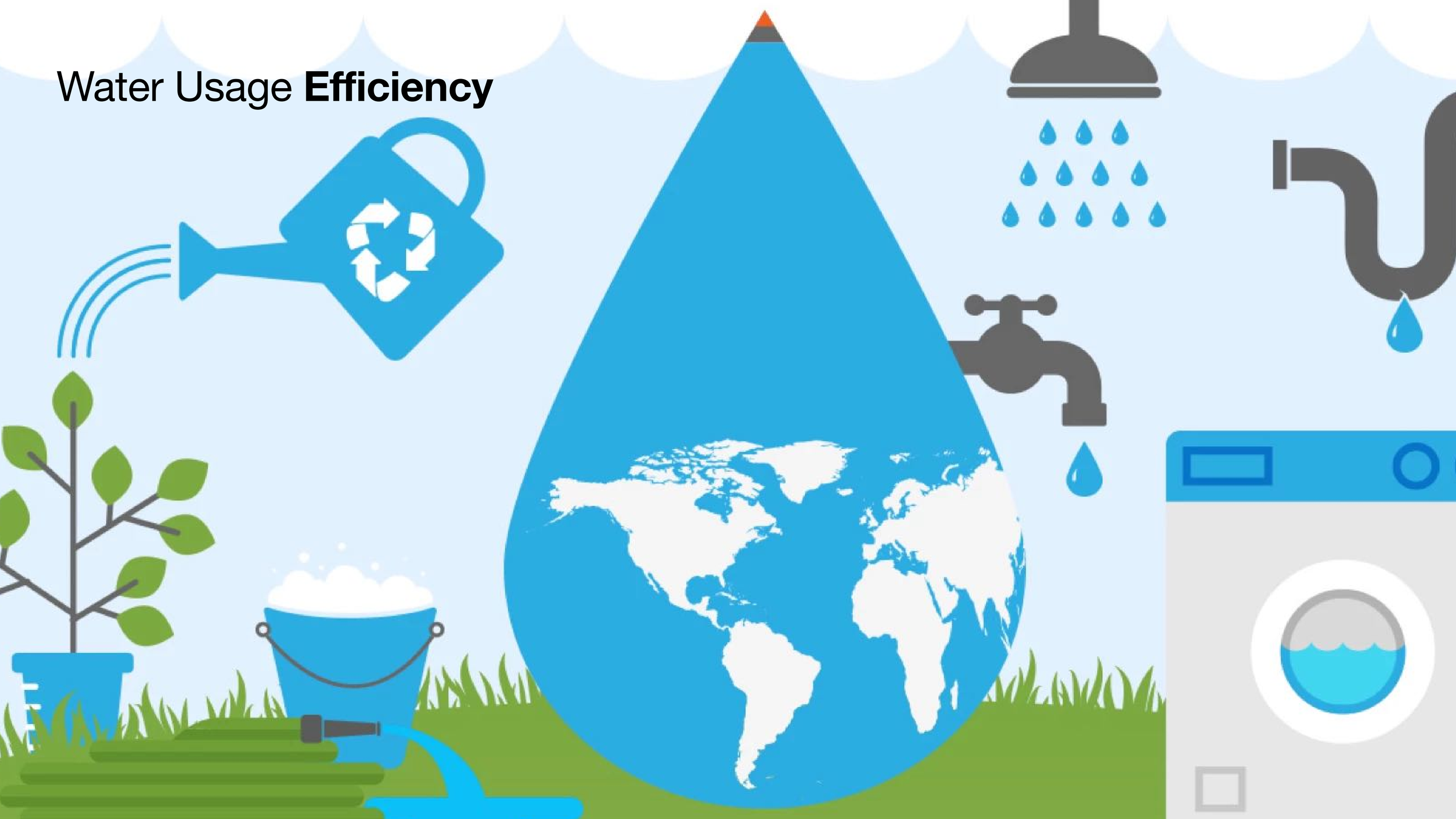
Water Quality Monitoring

Smart Water Grids

DESALINATION



Water Usage **Efficiency**



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The point of **no return**

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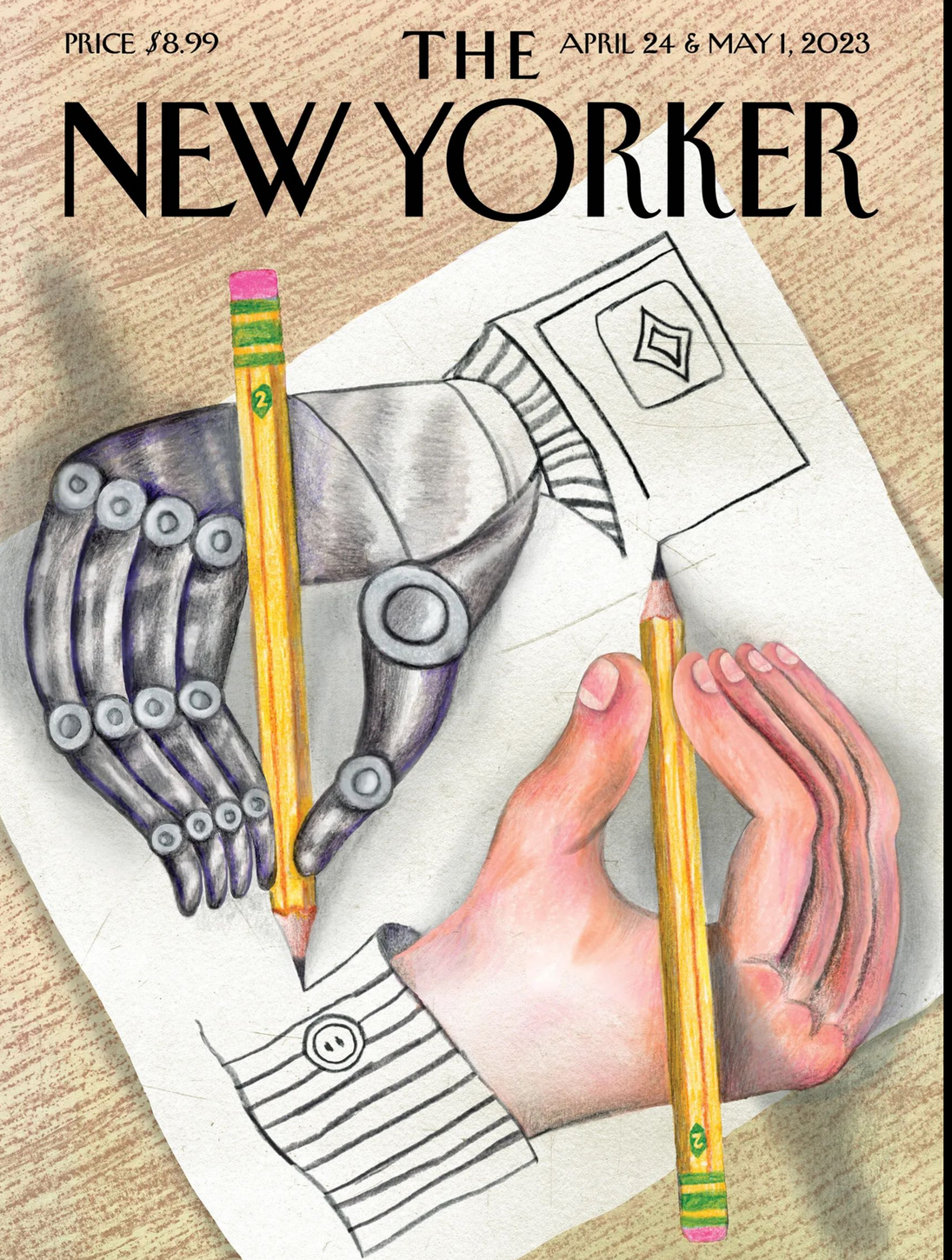
reasoning for complex data



Obrigado!

Merci / Thank You / با تشکر / 谢谢 / Grazie
Danke / شكرًا / Gracias

The UN Sustainable Goals and How AI, IoT, Biotech, Robotics & Nanotech can Help

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