



DEPARTMENT OF
**ECONOMIC AND
SOCIAL AFFAIRS**



APRM
African Peer Review
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**Africa Regional Forum on
Data Governance and Digital Government
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**Data Governance for AI in the Public Sector:
In search of the Governance “of, with and by” AI**

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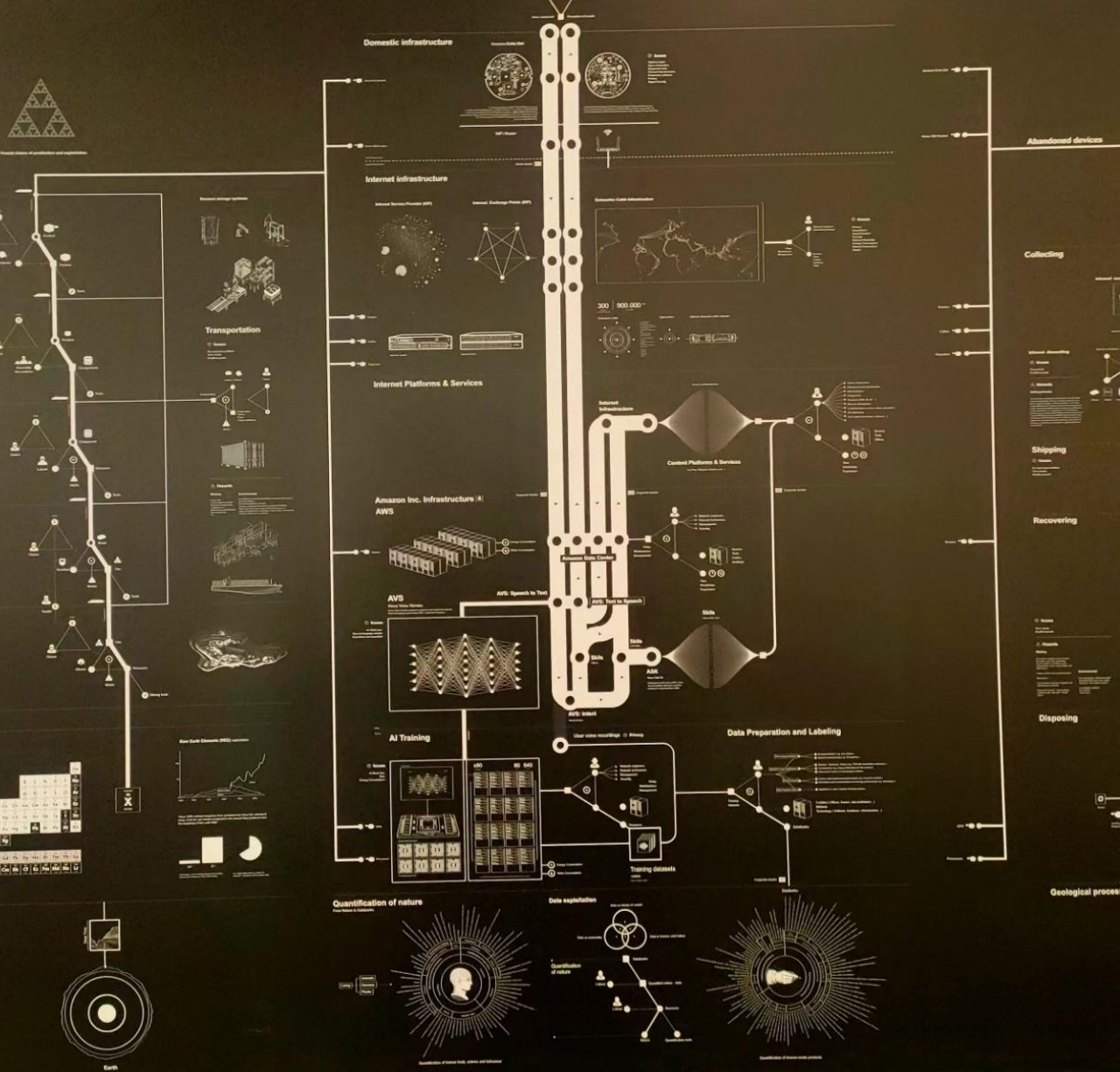
Outline

1. AI and data: a symbiotic relationship
2. AI in the public sector: power and perils
3. Back to the future: AI and data challenges

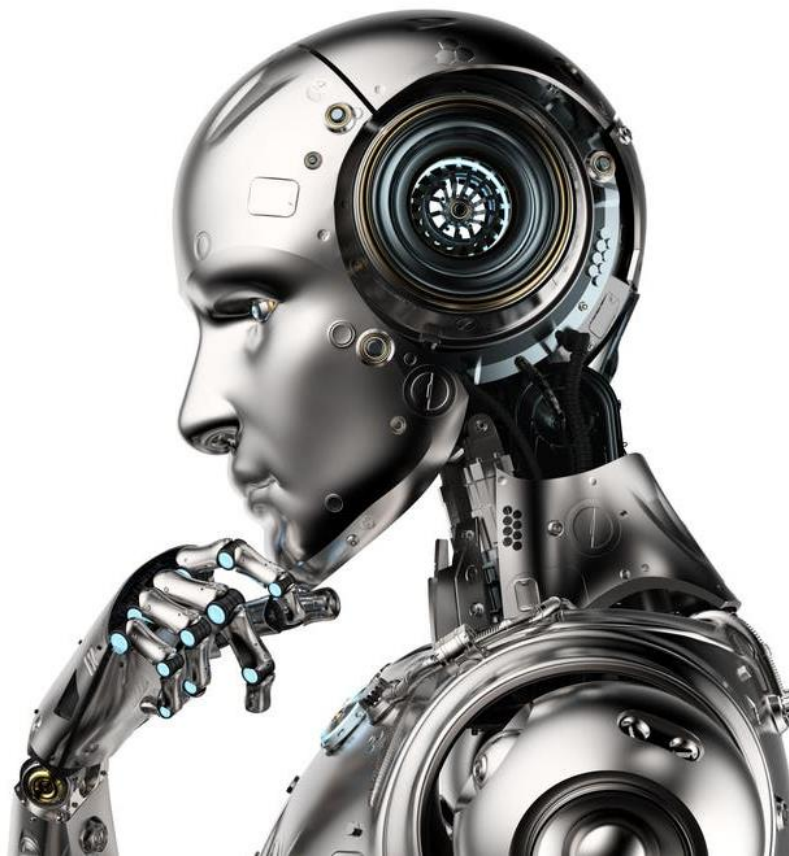
1. AI and Data: a symbiotic relationship

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Intelligence system made of human labor



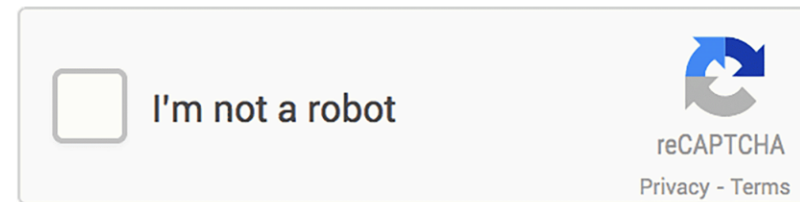
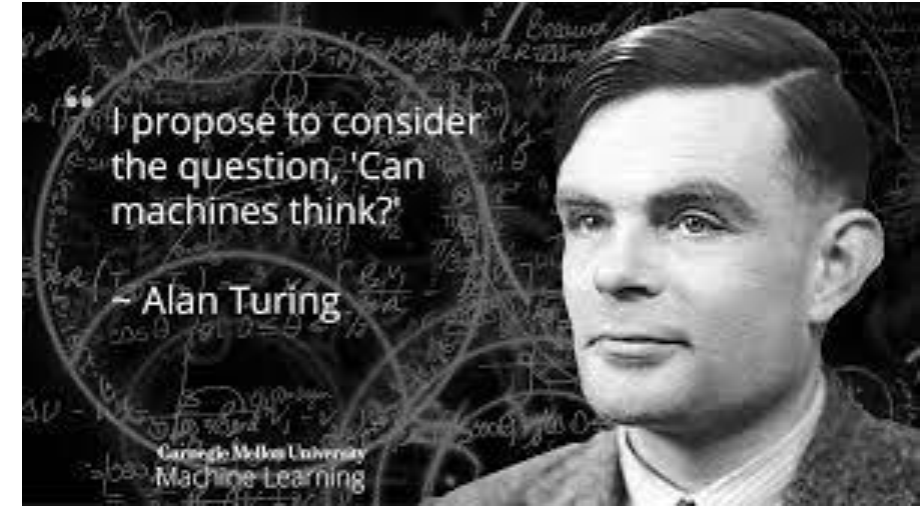
What is AI?



The origins

Can machines think?

- **Turing Test (1950)**
- Basic questions to identify who is the human and who is the machine



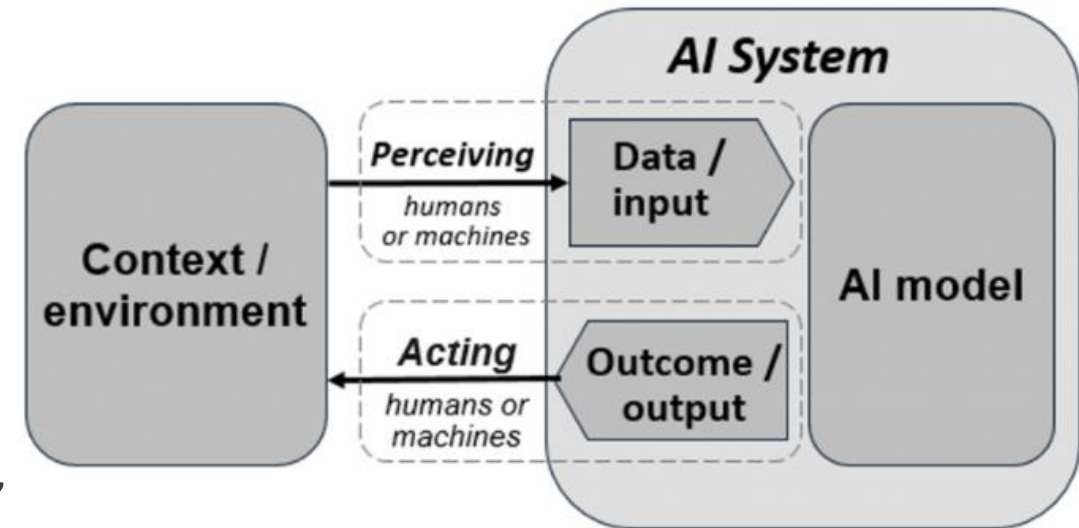
- Or the opposite today! Are you a human?

A moving target?

OECD updated definition (after ChatGPT explosion)

(29 November 2023)

- An AI system is a machine-based system that can, for a given set of human-defined explicit or implicit objectives, infer, from the input it receives, how to generate outputs such as ~~makes~~ predictions, content, recommendations, or decisions that can influence ~~ing~~ physical real or virtual environments. Different AI systems are designed to operate with varying in their levels of autonomy and adaptiveness after deployment*

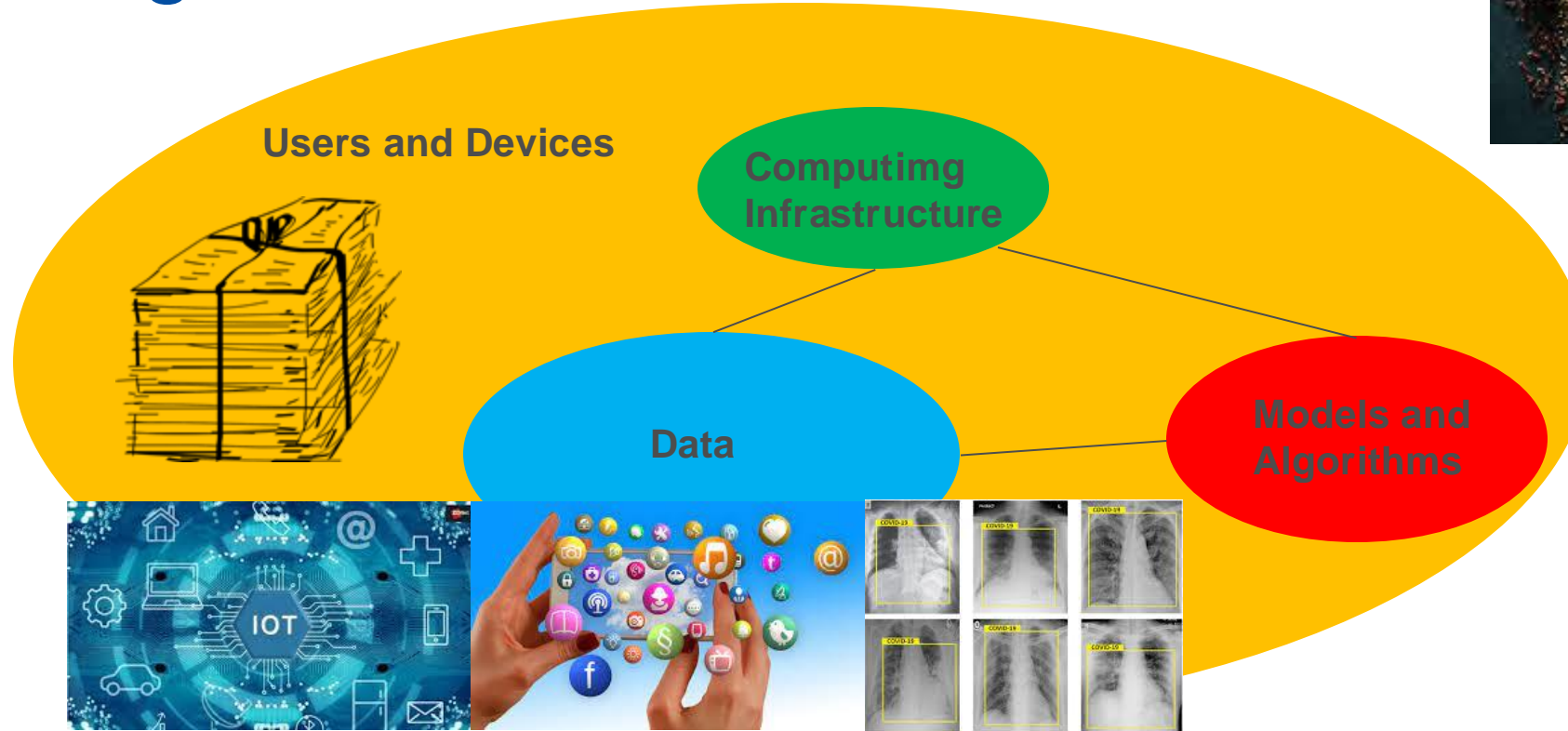


Source: Stuart Russel, OECD, 2023

<https://oecd.ai/en/wonk/ai-system-definition-update>

AI ingredients

- Any AI system requires:



- An Algorithm requires **data** for:



- Generating images
- Generating videos

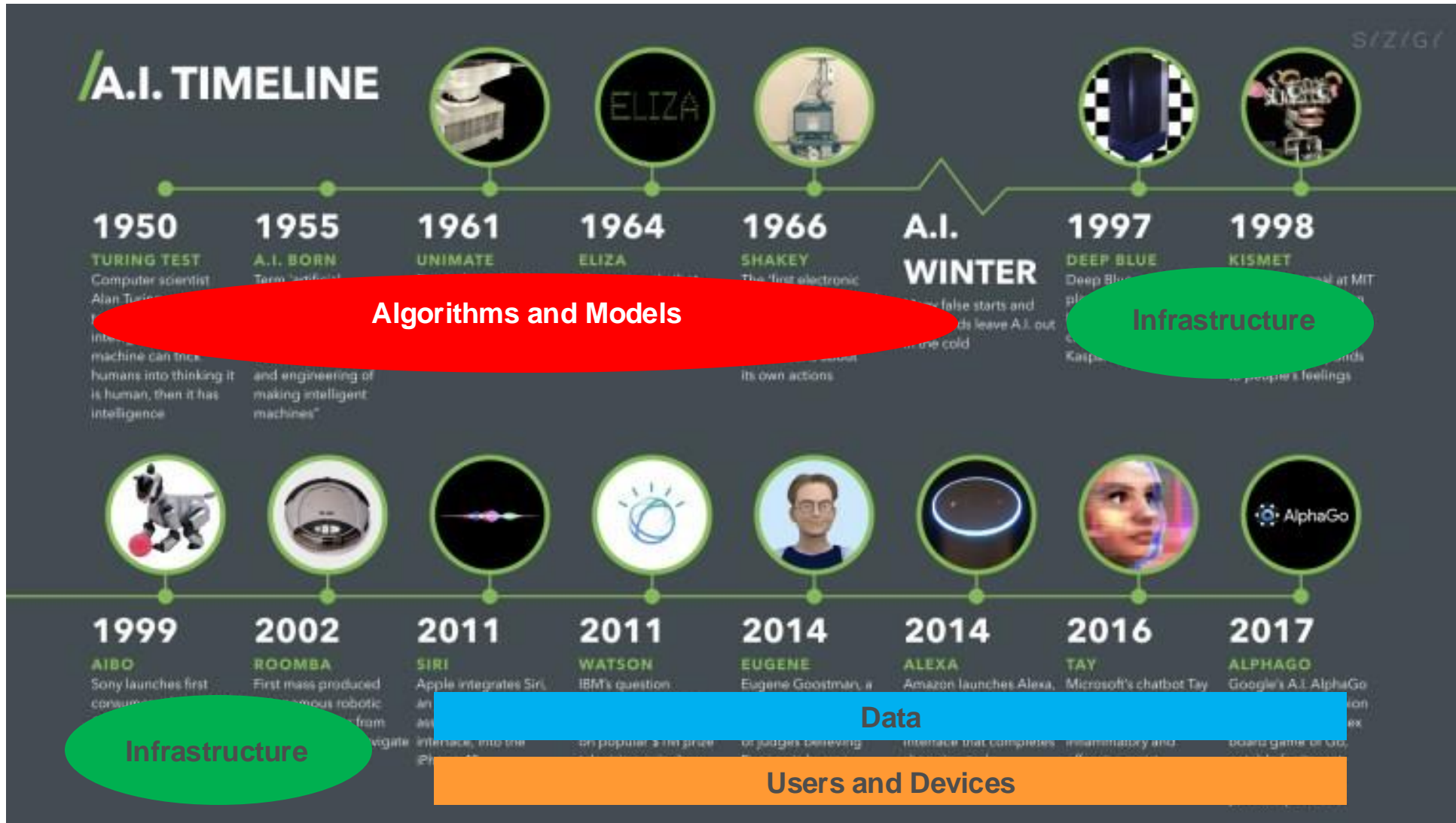


- Generating texts
- Translating to other languages



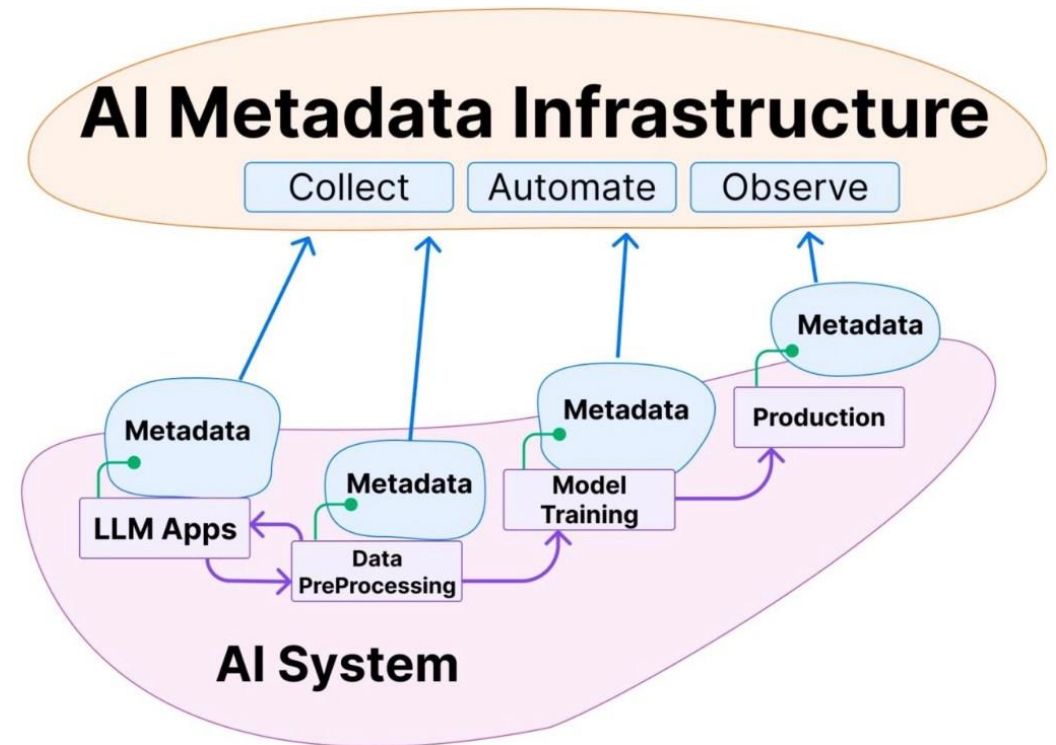
- Writing computer programs

AI evolution (the world before ChatGPT)



But how does AI work in practice?

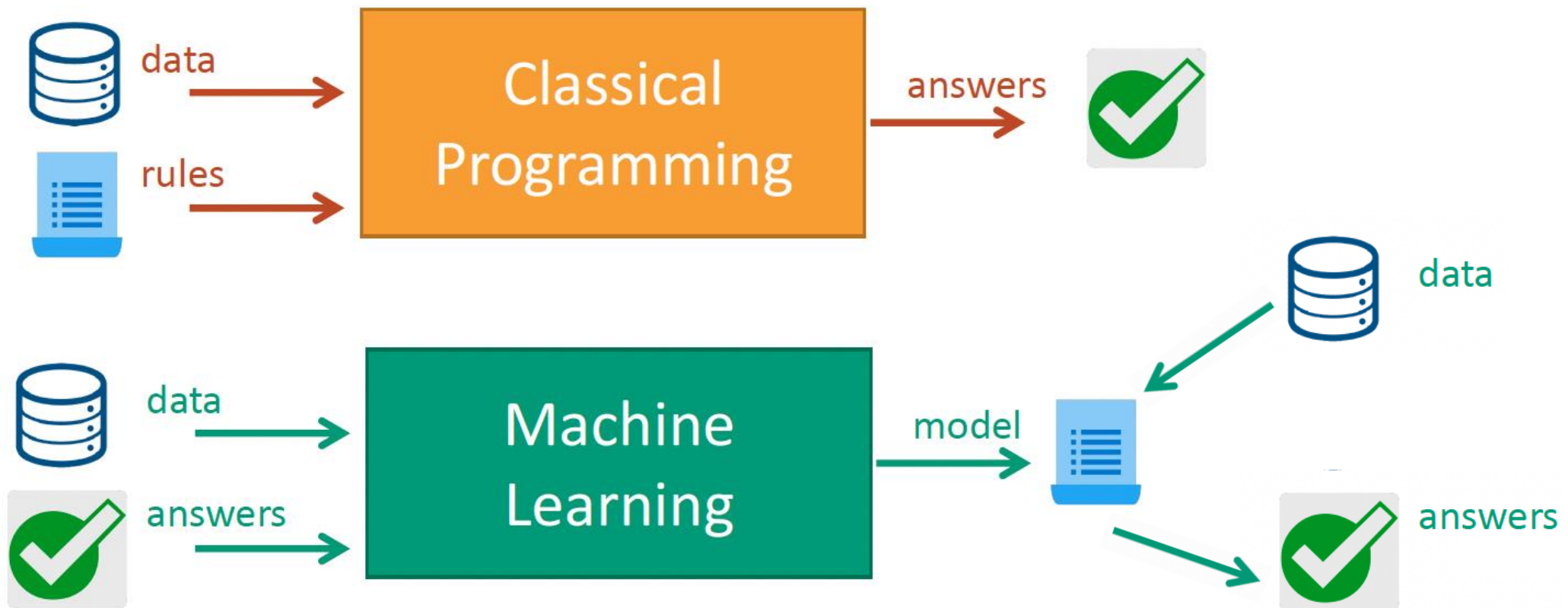
- AI systems work by ingesting large amounts of labeled training data (metadata), analyzing the data for correlations and patterns, and using these patterns to make “predictions” about future states
 - For example, a chatbot that is fed examples of text can learn to generate lifelike exchanges with people, or an image recognition tool can learn to identify and describe objects in images by reviewing millions of examples



Source: Lorica, B., (2023), AI Metadata

Classical programming vs Machine Learning

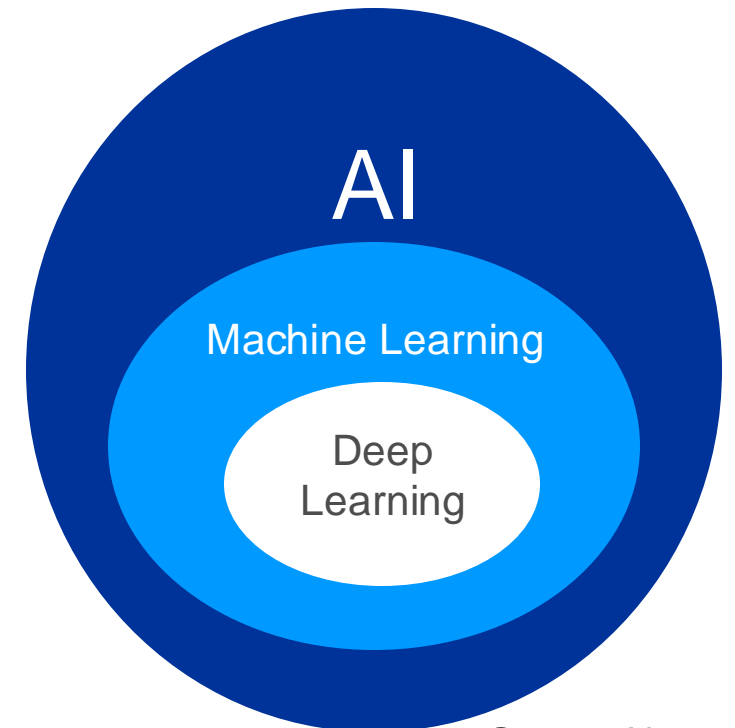
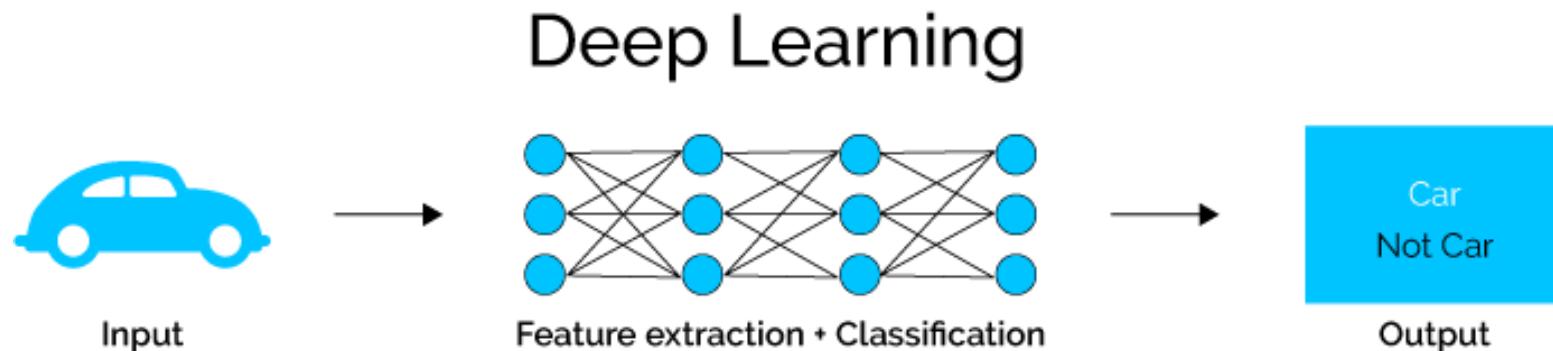
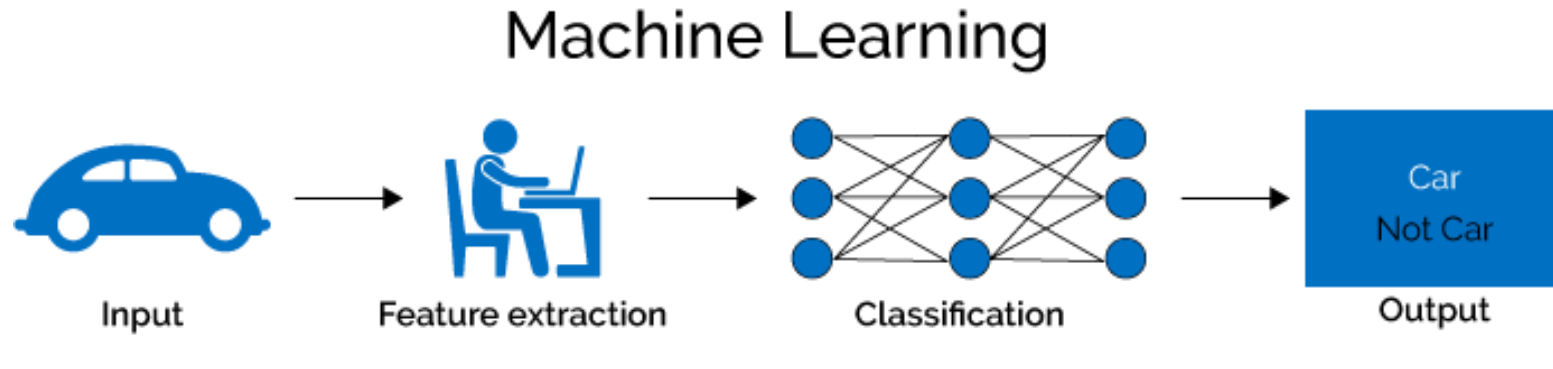
- A Machine Learning (ML) system is trained rather than programmed



Source: Fosca Giannotti, Scuola Normale Superiore di Pisa

Deep Learning (DL)

- Algorithms that learn from vast volumes of data extracted from different sources, often real time
- Computer systems adapt their behaviour continuously to new data without human intervention (e.g. Chatbot)



Why is Generative AI different?

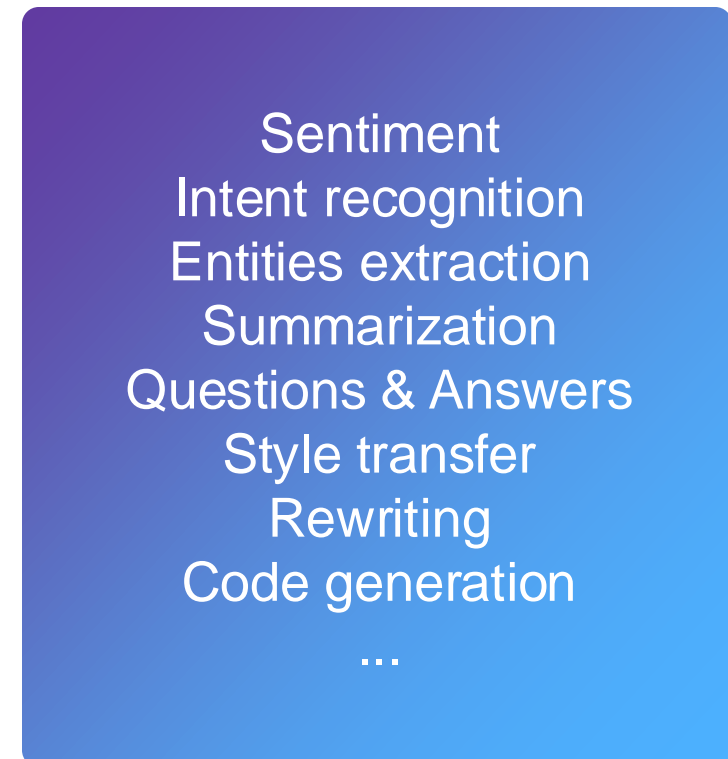
- Generative AI create new written, visual, and auditory content given prompts or existing data

Traditional Models

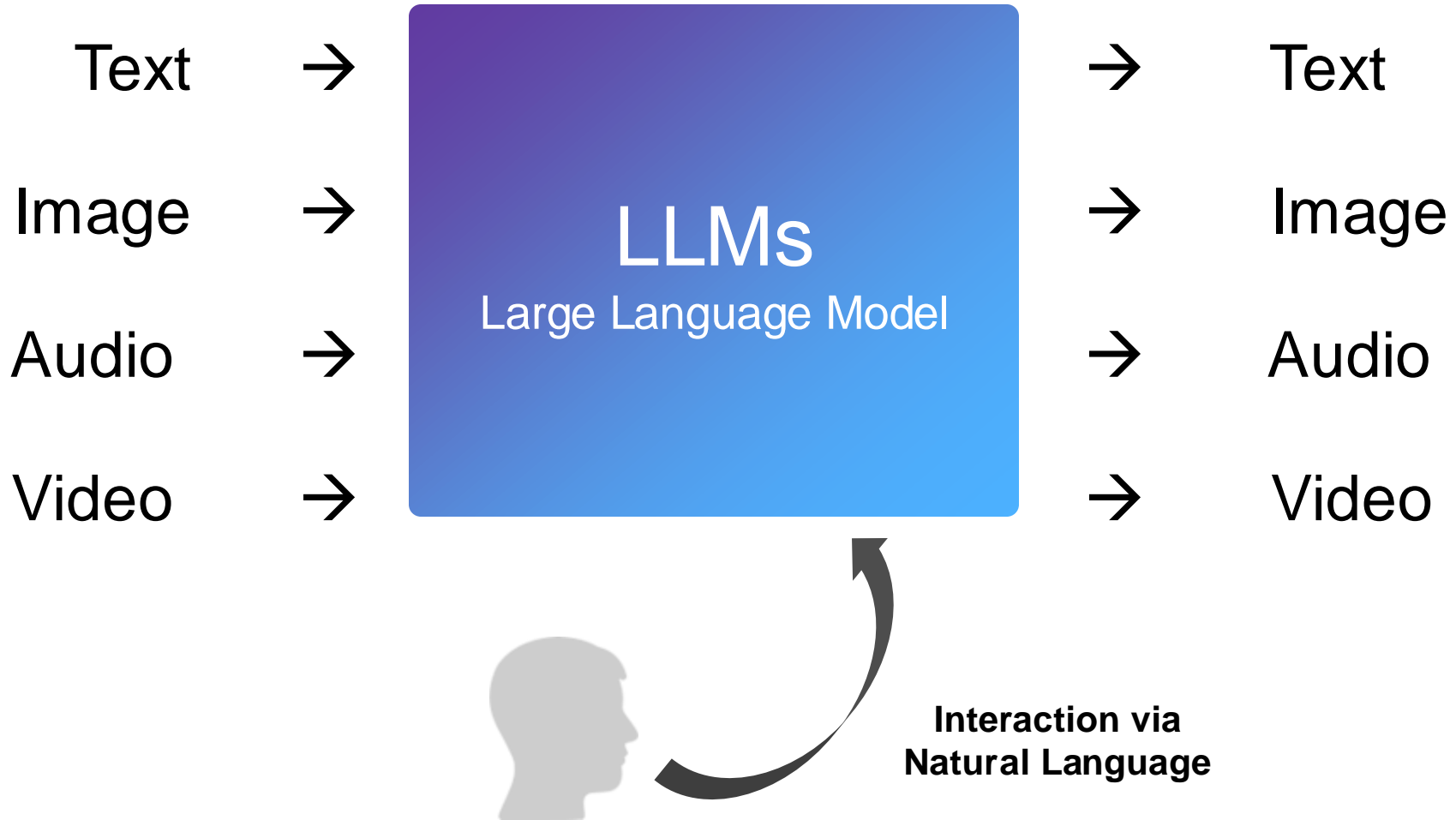


New Foundation Models

(one single model for everything)



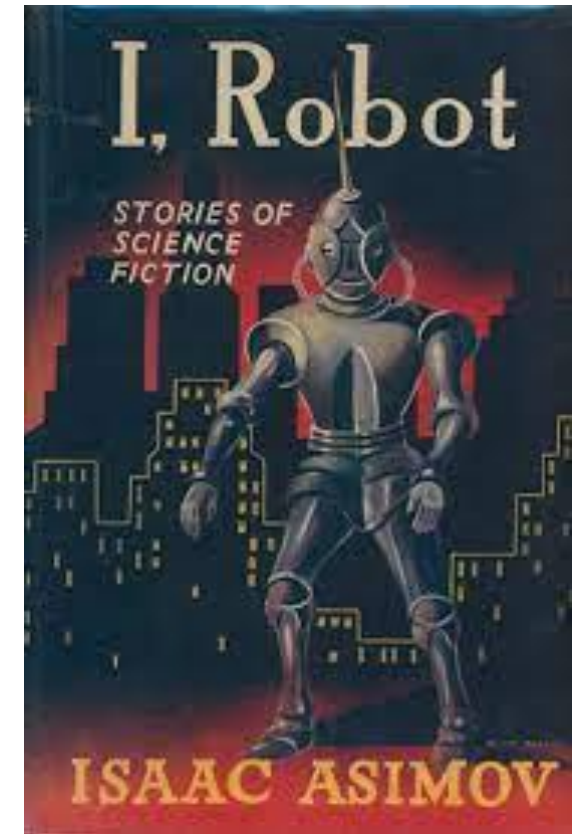
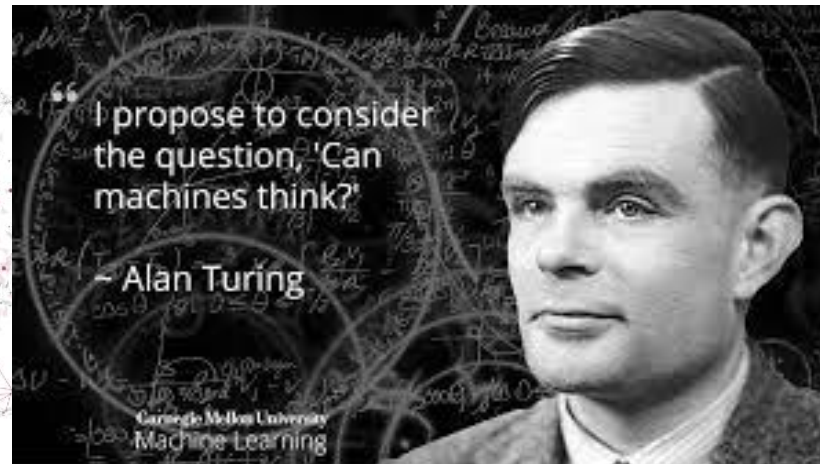
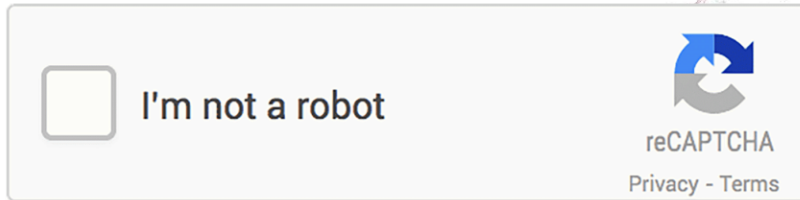
How does Generative AI work?



Are we going too fast?



- From a time when humans code algorithms and take responsibility for the quality and correctness of the resulting software...



1950

- ... to a time when machines automatically learn algorithms from a sufficient number of examples of the input/output behaviour predicted by the algorithms

2. AI in the public sector: powers and perils



...in the public sector!

- AI systems are integral part of many high-impact government decisions
 - **mainstream use of ADMS** to support the provision of social benefit entitlements, often with a lack of quality data and poor algorithm accuracy
 - **proliferation of FRS** in public spaces, causing unease and often unnecessary surveillance and human rights breaches, especially in non-democratic regimes
- **Covid-19 outbreak exacerbated the threats AI systems pose further**
 - governments had to quickly reorient resources to adopt fully digital ways to carry out administrative work and deliver public services with risks of mishandling data protection rules (e.g. contact-tracing apps and tools for early detection of citizens' behaviours)
 - but in reality this occurred in most public sector applications of AI even before Covid-19 piled more pressure onto government administrations

Powers and perils of AI in government



- **Data-Driven Policy-Making:** High potential for improving the quality of services by processing huge amounts of data, supporting public officials in decision-making processes, helping simulating policy options and and assessing “real time” impact
- **Enhanced internal management:** support recruitment services, facilitate detection of frauds, better allocation of resources and enabling predictive maintenance services, and enabling completely new services leveraging on innovative partnership models
- **Better public service delivery:** Facilitate access to information, automate redundant processes and reducing physical contact thus reducing risk of corruption and providing tailor-made applications and customised solutions to citizens

Powers and **perils** of AI in government



- **AI and ADMS are integral part of many high-impact government decisions**
 - e.g. mainstream use of ADMS to support the provision of social benefit entitlements, often with a lack of quality data and poor algorithmic transparency
- **Risks** of crystallising dysfunctional systems, intensifying asymmetries and penalising citizens in vulnerable situations
 - **Discrimination “by default”**: AI can enable better data collection and help generate knowledge and solutions by applying advanced predictive analysis, but it also tends to be invasive and can often further intensify social prejudices and biases
 - **“Black-boxing” effect**: navigating through false positives and false negatives. Predictive algorithms are prone to error with examples of harmful use that can lead to create paradoxes in control systems and increase the danger of mass surveillance

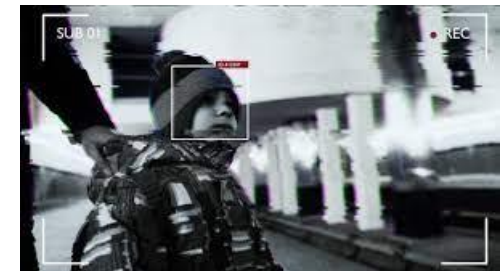
How strong are democratic antibodies in the age of AI?

- From fraud detection to government resignation
 - **Systeem Risico Indicatie (SyRi) and the Fraude Signalering Voorziening (FSV) in The Netherland**



- Tracing “ghetto” models for children at risk
 - **The Gladsaxe model in Denmark**

- Use - and abuse - of Facial Recognition Systems
 - **FRS for fugitive child robbers in Buenos Aires and the proliferation of systems to monitor citizens behaviors, from London and Paris to Brazil and Uruguay, for example...**



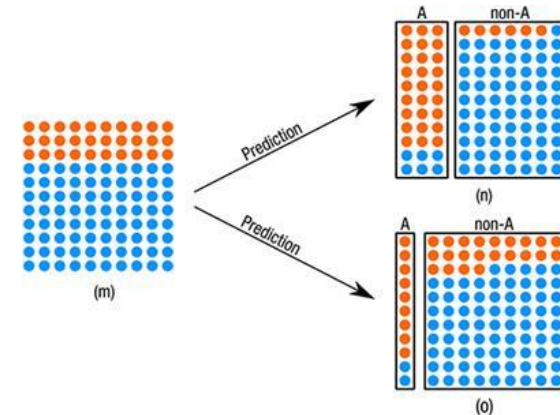
The rise of the known unknown in the Digital Welfare State

- Computer says no: nudging social service paths
 - RPA for welfare applications in Trelleborg, Sweden



- To grade or not to grade: The A-level disgrace
 - The Ofqual grading algorithm system in the UK

- Algorithmic profiling: the new glass ceiling
 - The ArbeitsMarktService (AMS) in Austria and the Powiatowe Urzędy Pracy (PUP) in Poland

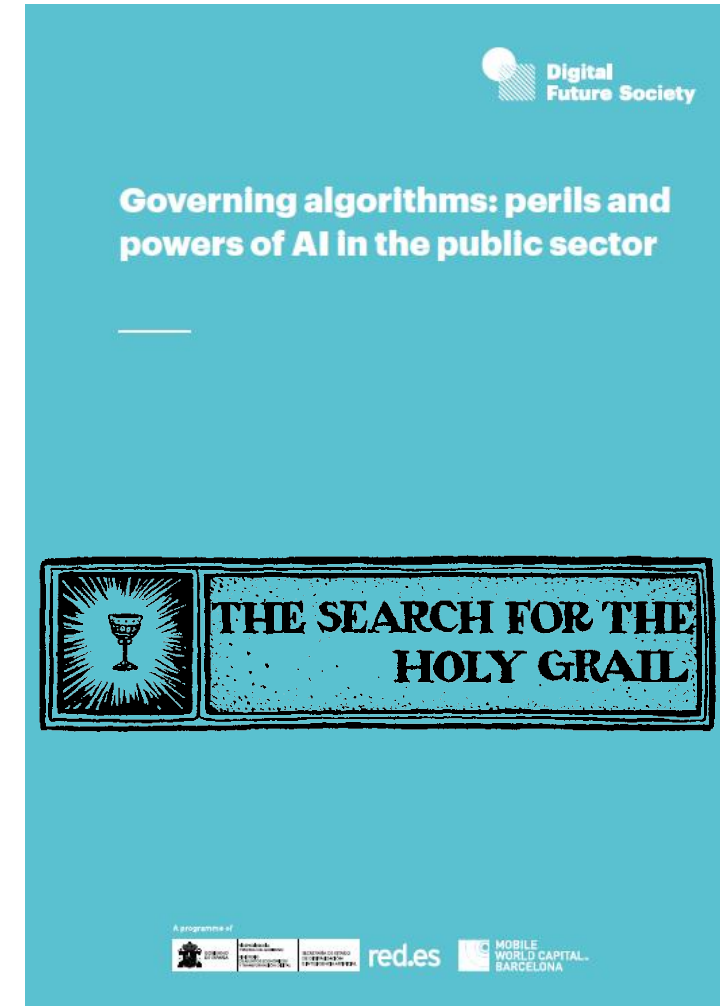


The need for the Governance “of, with & by” AI

Policy-maker’s trilemma in the digital age

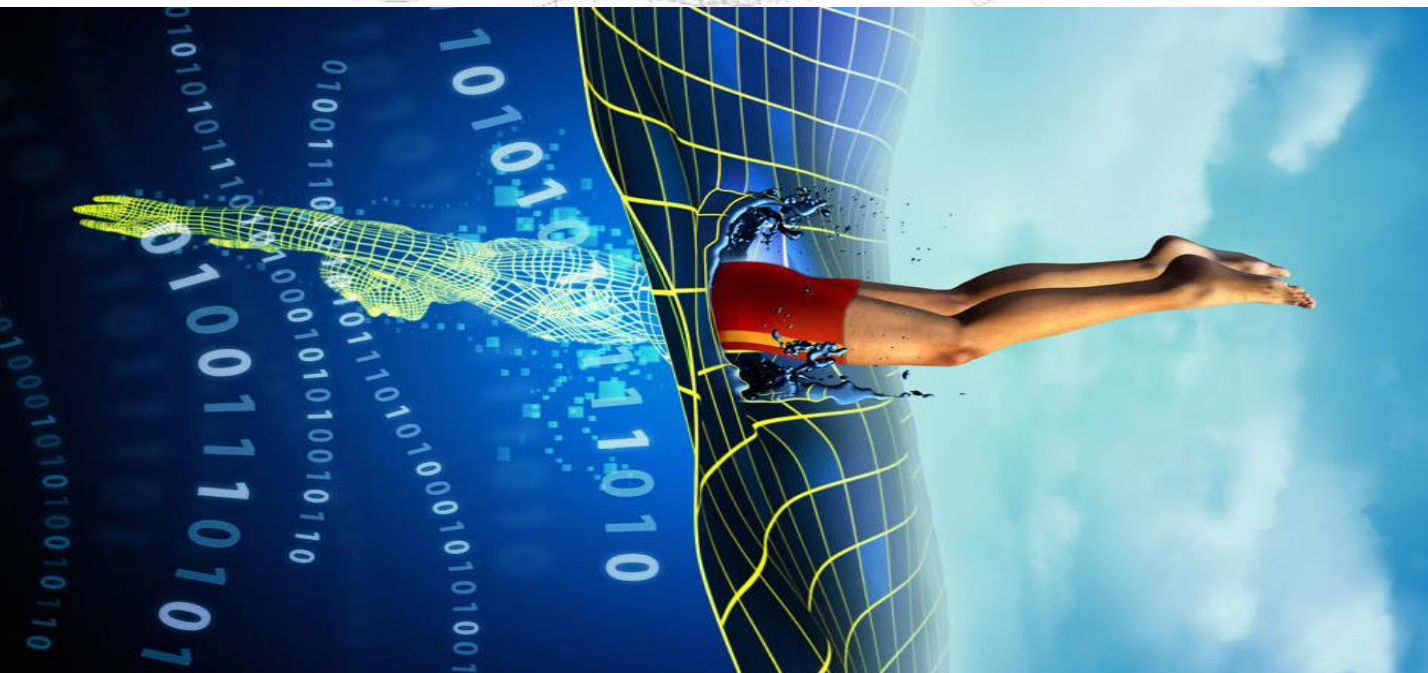
“the obligation to protect citizens from potential algorithmic harms is at odds with the temptation to increase efficiency and enhance quality of digital services”, [Misuraca, DFS, 2021]

- **Governance of AI:** introducing AI into the public sector must not override existing governance mechanisms and institutional barriers need to be addressed
- **Governance with AI:** humans should remain in control of a set of technologies that reinforce human capacity, safeguarding human rights and deploying AI ethically
- **Governance by AI:** the true power and risk of AI use in the public sector emerge when human decision makers would surrender to the “superhuman” capacities of AI



3. Back to the future: AI and data challenges

Shaping Digital Europe 2040!



Digital technologies are **already** transforming economy and society

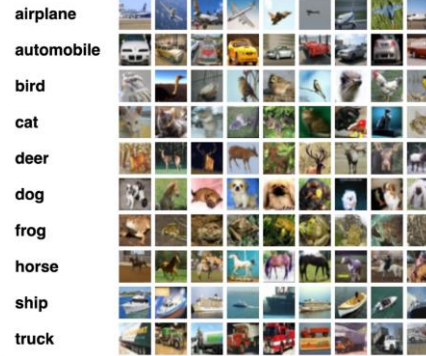
- Improved accuracy on imitation, automation, augmentation
- Lack of performance on tasks requiring logical reasoning skills
- Limitations, bias, high risks of dis(mis)information and fakes

DYLAN FUGETT	BERNARD PARKER
Prior Offense 1 attempted burglary	Prior Offense 1 resisting arrest without violence
Subsequent Offenses 3 drug possessions	Subsequent Offenses None
LOW RISK 3	HIGH RISK 10

Fugett was rated low risk after being arrested with cocaine and marijuana. He was arrested three times on drug charges after that.

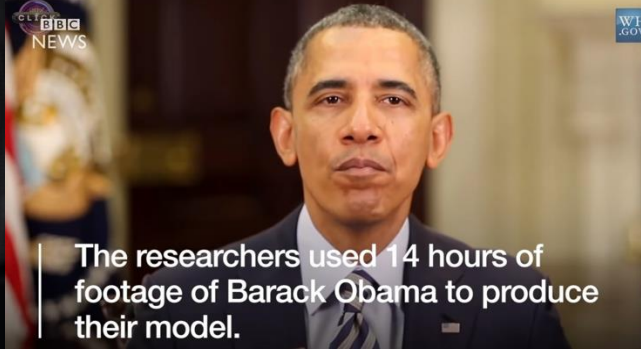


A DEMONSTRATION OF IMAGE CLASSIFICATION
Source: Krizhevsky, 2012



What is the mustache made of?

A DEMONSTRATION OF KIDNEY SEGMENTATION
Source: Kidney and Kidney Tumor Segmentation, 2021



The researchers used 14 hours of footage of Barack Obama to produce their model.





AGENDA 2063

The Africa We Want

Aspiration 1

A prosperous Africa based on inclusive growth and sustainable development

Aspiration 2

An integrated continent, politically united and based on the ideals of Pan Africanism and the vision of Africa's Renaissance

Aspiration 3

An Africa of good governance, democracy, respect for human rights, justice and the rule of law

Aspiration 4

A peaceful and secure Africa

Aspiration 5

An Africa with a strong cultural identity, common heritage, values and ethics

Aspiration 6

An Africa where development is people-driven, unleashing the potential of its women and youth

Aspiration 7

Africa as a strong, united and influential global player and partner



Data Governance in Africa: State of play - The Foundations



- **The African Charter on Statistics 2009** is a code of professional ethics for members of the African Statistical System, statisticians and other professionals working in the area in Africa
 - Out of 33 signatories, 24 countries have ratified the Charter
- **The Africa Data Consensus 2015** outlines a strategy for implementing data policies in Africa
 - The aims within this strategy include strengthening national statistics offices, championing open data practices by creating an inclusive data ecosystem involving government, private sector, academia, civil society, local communities and development partners and adopting a needs-centered approach to data collection. The Consensus was adopted in response to calls for a framework on the data revolution in Africa and its implications for the African Union's (AU) Agenda 2063 and the Sustainable Development Goals (SDGs)
- **Africa Data Revolution Report 2018** examines the state of open data and Open Government Data across African communities
 - It finds out that there is large diversity across governments in their adoption of open data and several governments are willing to publish their data for public good. The report discusses the important role of intermediaries in advancing the ecosystem as well as how data-driven journalists can accelerate open elections. It recommends having increased political commitment (beyond one-time initiatives) and releasing relevant data while still timely—even if not fully processed internally.

Data Governance in Africa: State of play - Recent developments



- **Bridging the Data Policy Gap in Africa: Recommendations to national statistical offices and governments to enhance the production and use of data for evidence-based policymaking 2021** discusses the statistical capacity across Africa
 - It finds out that African national statistical offices often lack adequate financial and human resources and struggle to provide accessible and available data due to capacity challenges. They also find that a culture of using data to make policy decisions is not well developed.
- **AU - Data Policy Framework 2022** acknowledges that data has the potential to provide the basis of a new social contract and create tremendous innovation and societal value
 - The framework also makes clear that there are risks associated with the irresponsible collection, processing, and storing of data and that the right policies and regulations are required to ensure that personal data is managed, used and reused in responsible ways
- **African Economic Research Consortium - A Data Governance Framework for Africa 2022** discusses key features of effective data governance framework within an African context
 - The paper recommends a continental data governance strategy and that governance frameworks should maximize the use of data, ensure productive cross-border data flows and protect individual rights

The need of a “New Deal on Data” for Africa

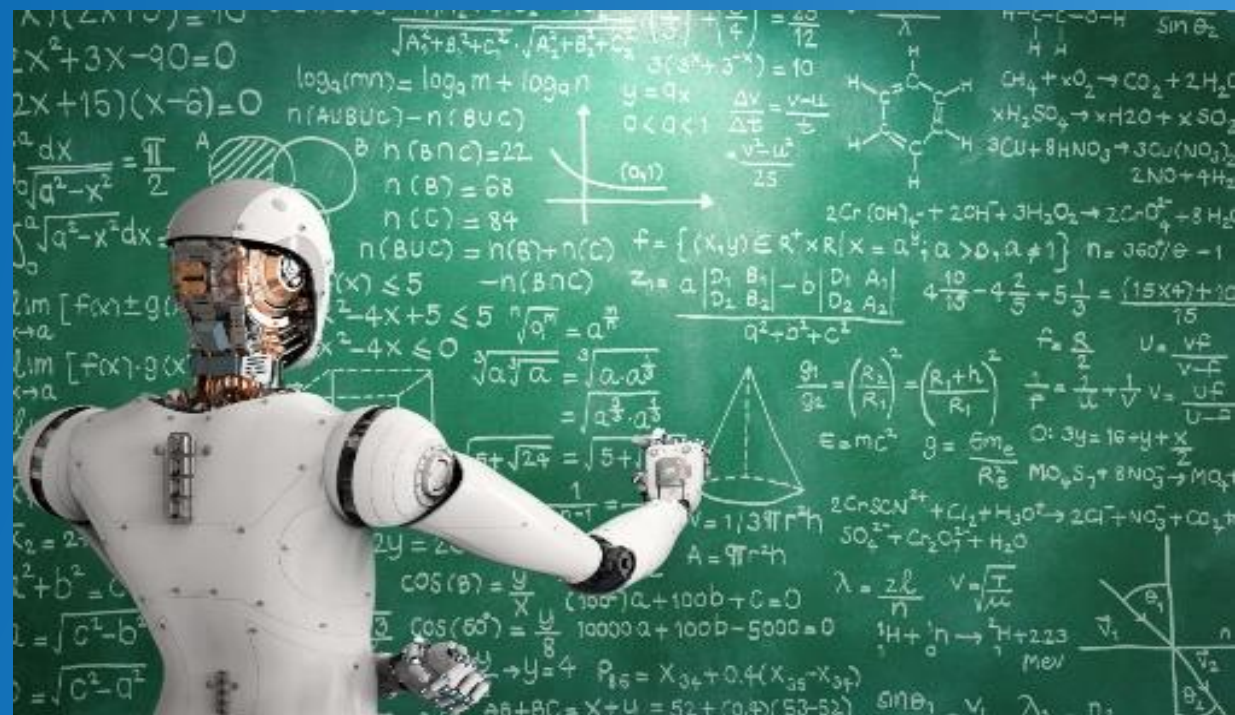


- 1. Increasing the supply:** much progress has been made in advancing access to open data in Africa. However, this progress has not been equal across countries and regions.
 - Challenges remain in collecting and sharing quality data and maintaining open data portals, with a need to increase the supply of relevant, quality, and timely data
- 2. Cultivating demand:** there are challenges prioritizing and expressing the demand for data re-use.
 - Significant gaps remain between the supply of open data and what data users are looking for. There is a need to solidify who is looking for open data and for what purpose.
- 3. Aligning incentives:** Preconceived notions of open data being harmful often supersede the potential for positive impact.
 - In the face of complex challenges that continue to impact the momentum of the open data movement (e.g. COVID-19), there is an urgent need to strengthen the value propositions of open data for key stakeholders.
- 4. Accelerating implementation:** several open data policies have been developed across Africa
 - The challenge is determining how to implement those policies within different sectors and levels of government. Many stakeholders are unclear on the value of open data and where impact could take place. Additional expertise, resources, and capabilities are needed to transition from policy to practice.
- 5. Advancing coordination:** There are several context-specific challenges in coordinating data rights, policies, and open data implementation across African countries.
 - There is a need for a distinctive Africa specific approach to accelerate the open data movement.

Conclusions: Turning away from dystopian futures



- **Beware of techno-solutionism:** avoid thinking of AI as some sort of super-agent able to do more or less everything
- **Be suspicious of ethical shortcuts:** if superficially handled, AI systems may infringe upon the principles of privacy and data protection
- **Adopt a public value perspective:** focusing on the effective implementation of AI to address the complex challenges government must solve
- **Be ready to handle disruption:** experimenting with AI considering both tangible changes in procedures, as well as the need of “cognitive restructuring”
- **Design new models of governance:** rethink how services are delivered, data is managed, and the way algorithmic decision-making is implemented



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