HR Strategies in an Era of AI Innovation

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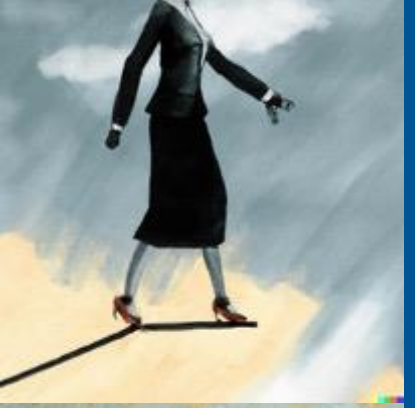
Overview

- About me
- Two types of AI:
  - Task-specific AI
  - Generative AI
  - Challenges and opportunities in the public sector
- Humans working with AI
- Workplaces in an AI future
  - Challenges and opportunities in the public sector

About me

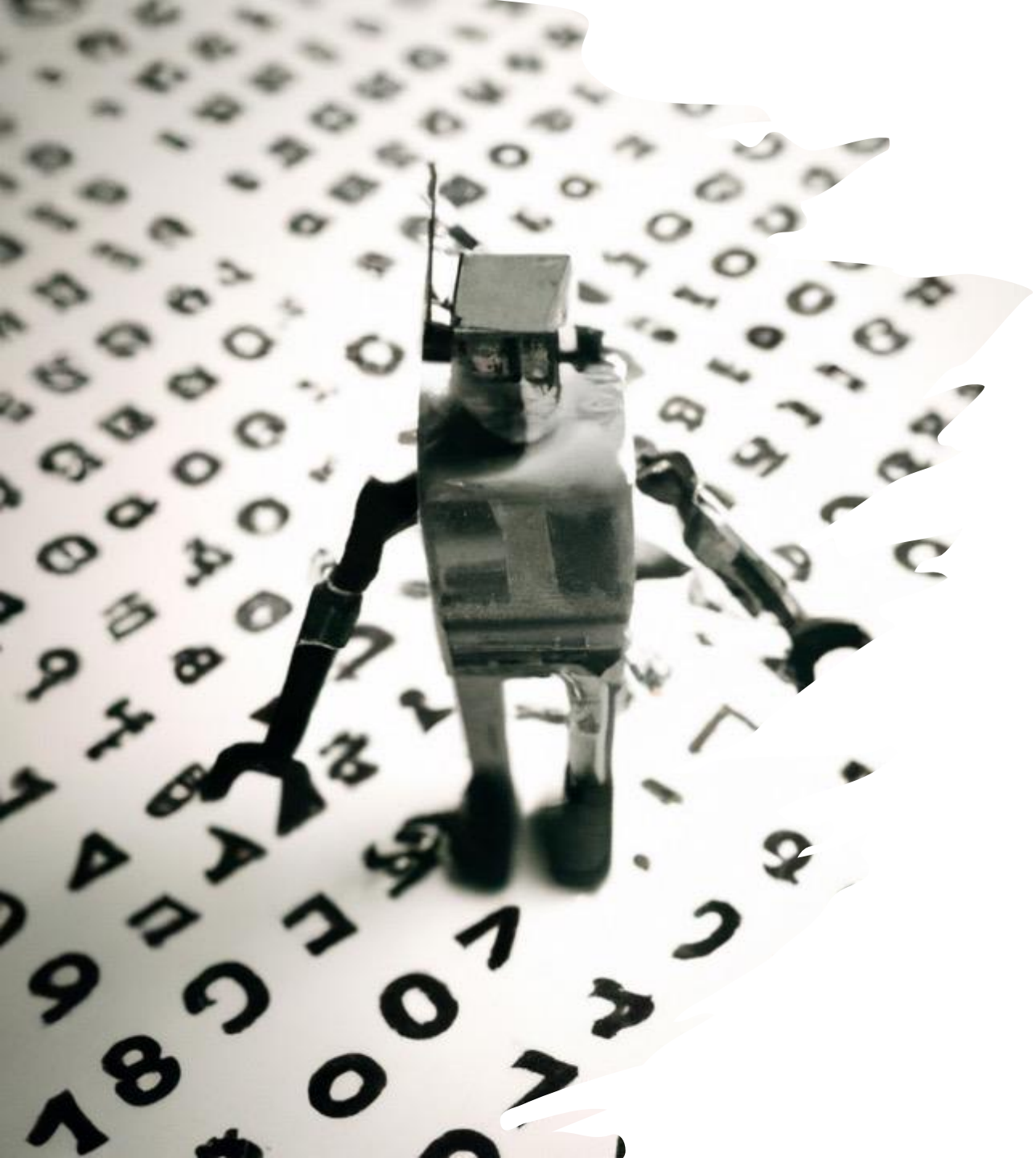


Research on workplace inequalities, job insecurity & career trends

WEF project on responsible use of AI in HR

Research on the impact of AI on the future of work & workplaces

Two types of AI

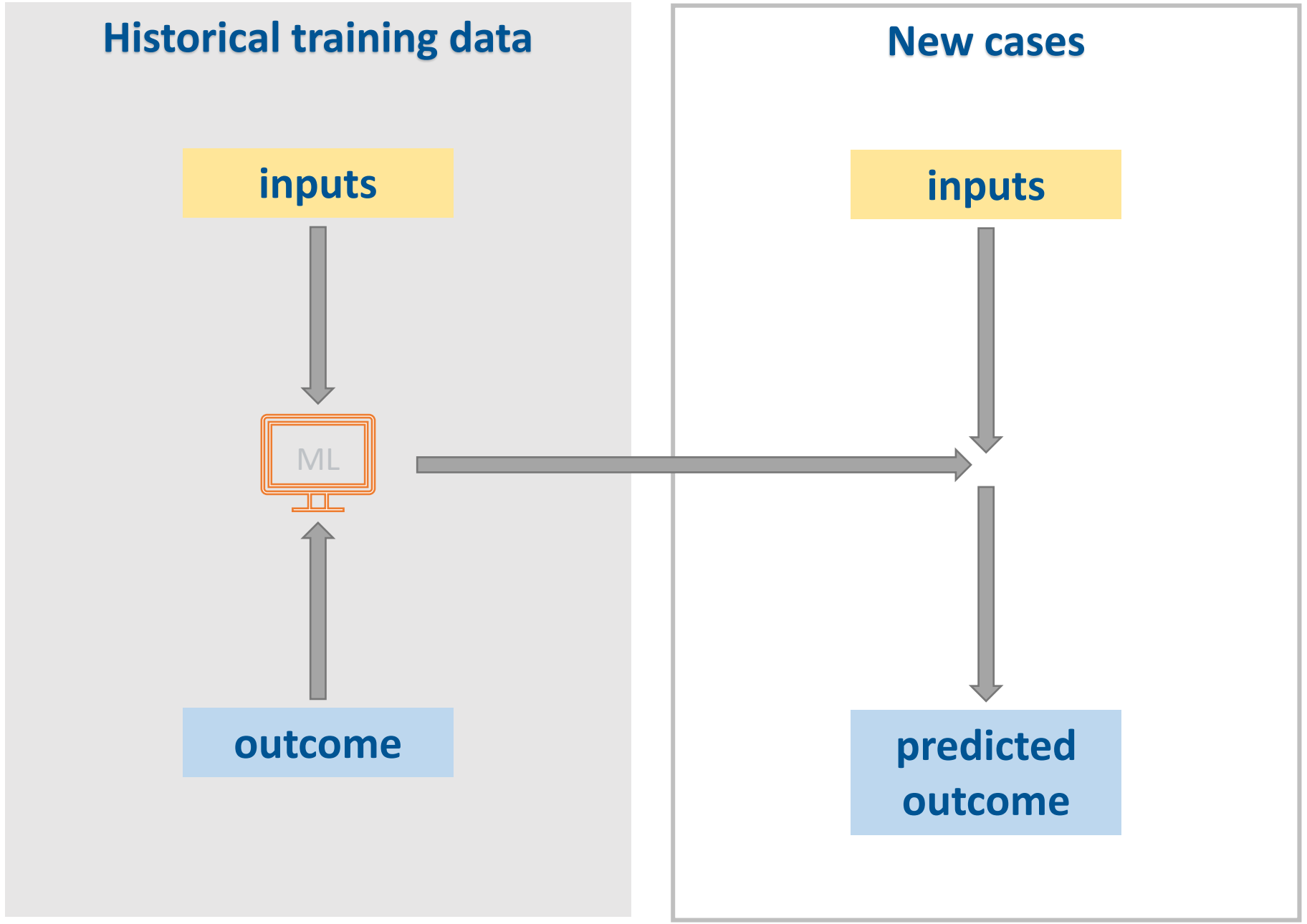


Machine Learning

- Looking for patterns in a LOT of real-world data
  - Usually historical examples
  - More training data → more complex & nuanced algorithms
- Using those patterns to make predictions for new cases
- Two varieties:
  - Task-specific AI (supervised)
  - Generative AI
  - (also: unsupervised ML, reinforcement ML)

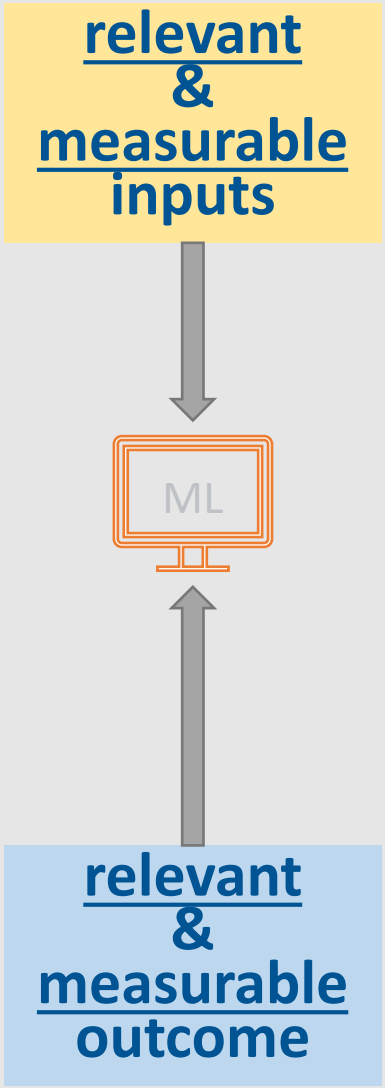
Task-specific AI

Task-specific ML

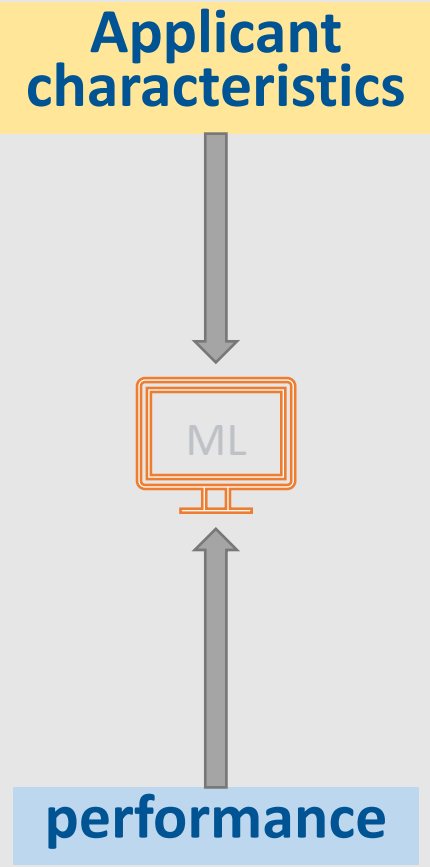


Task-specific ML

A lot of relevant training data



Past hires (enough data?)



Task-specific ML

Pros

- Designed for the task
- Can be more understandable/explainable than generative AI

Challenges/notes

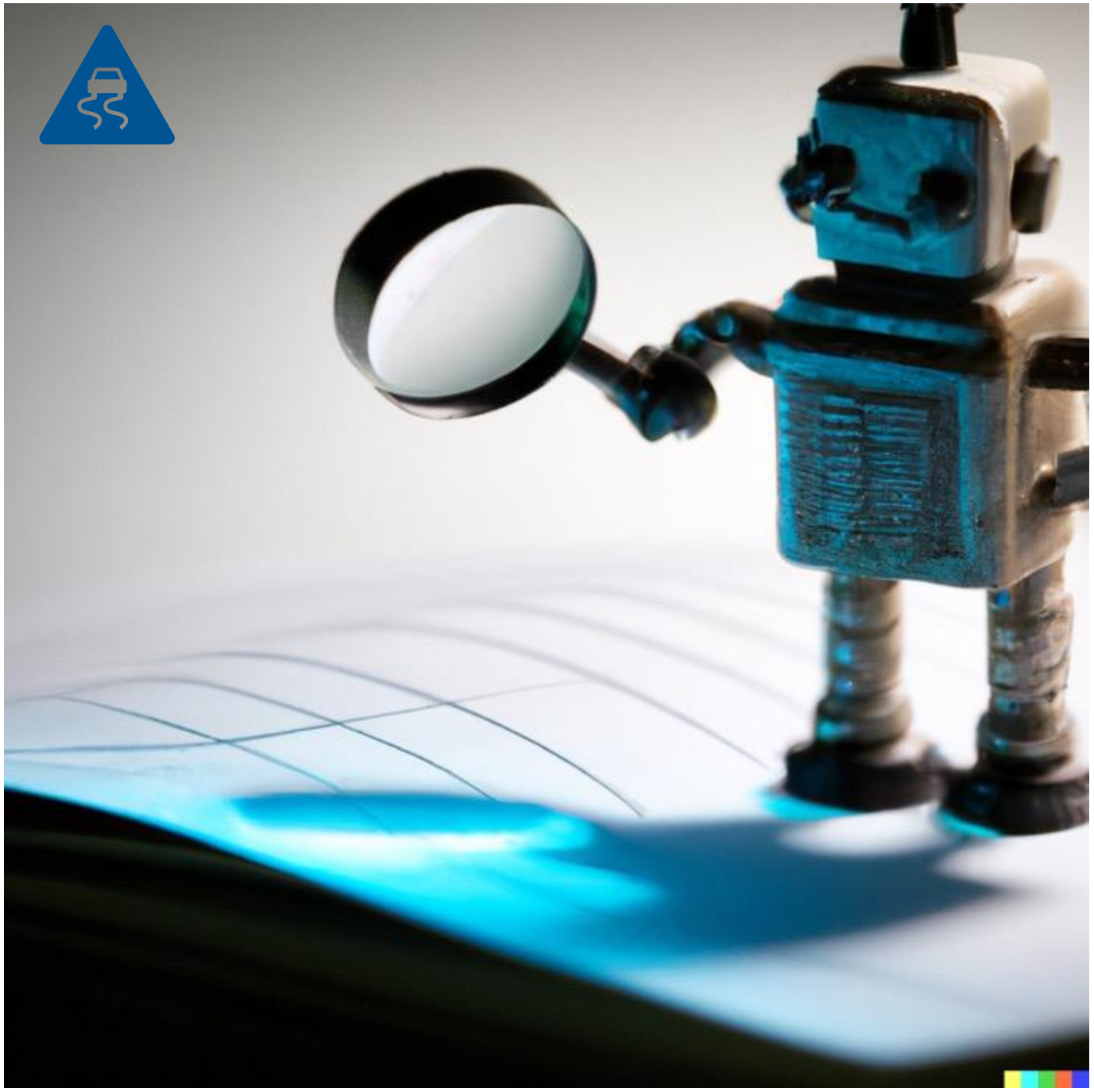
- Enough relevant data?
- Not objective, not “computer teaches itself”
  - Human decisions in design play a big role
  - Training data reflects human behaviour

Opportunities using task-specific AI

- Surprisingly wide range of uses, need:
  - Large amount of relevant training data
  - Well-measured & relevant inputs
  - Well-measured & relevant outcome

Possibility 1: Most boring, repetitive tasks

- Especially low-risk and fairly objective
- But too complex for a computer program
- Examples?
  - Interview scheduling
  - Transportation logistics



Possibility 2 (Caution!): ML will find the "hidden patterns"

- Decide who to hire based upon predicted performance
- Prison parole decisions based upon predicted likelihood of future conviction

- Help: outcome is measured well, humans making bad decisions
- Hurt: outcome reflects subjective biases or problems in the context

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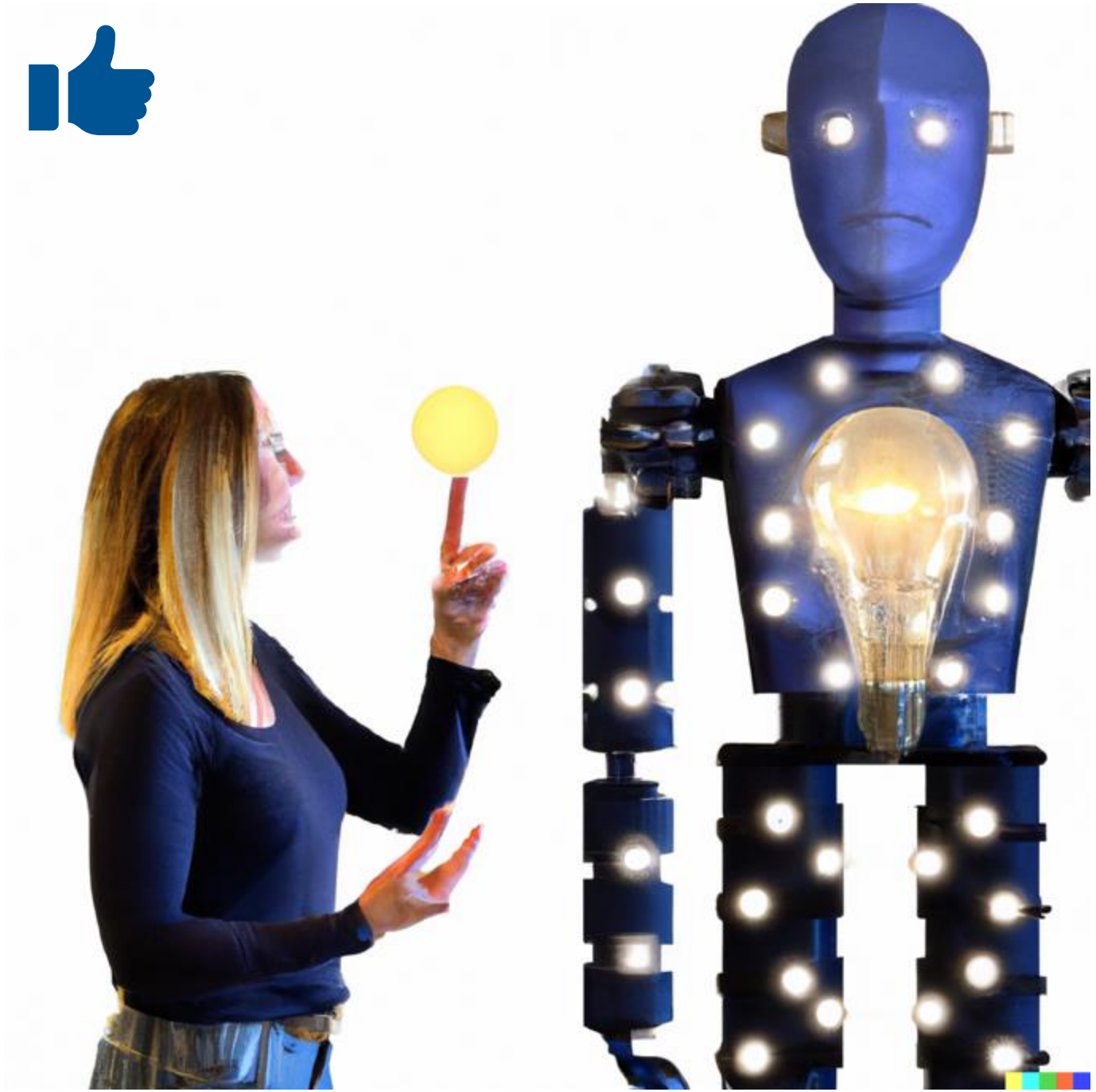
“AI is a cutting-edge technology that encodes the status quo”

- Training data includes both the good and the bad parts of the real world
- Algorithm assumes that the context won’t change, it doesn’t suggest how to improve the context

Possibility 3: Use human creativity, AI is just a tool

- Use human insight to:
  - Alter existing tasks
  - Develop new capabilities
- Examples
  - Remove bias from job postings
  - Personalized career recommendations
  - Monitor vast data for signs of a pandemic
  - Match unemployed/former military to jobs



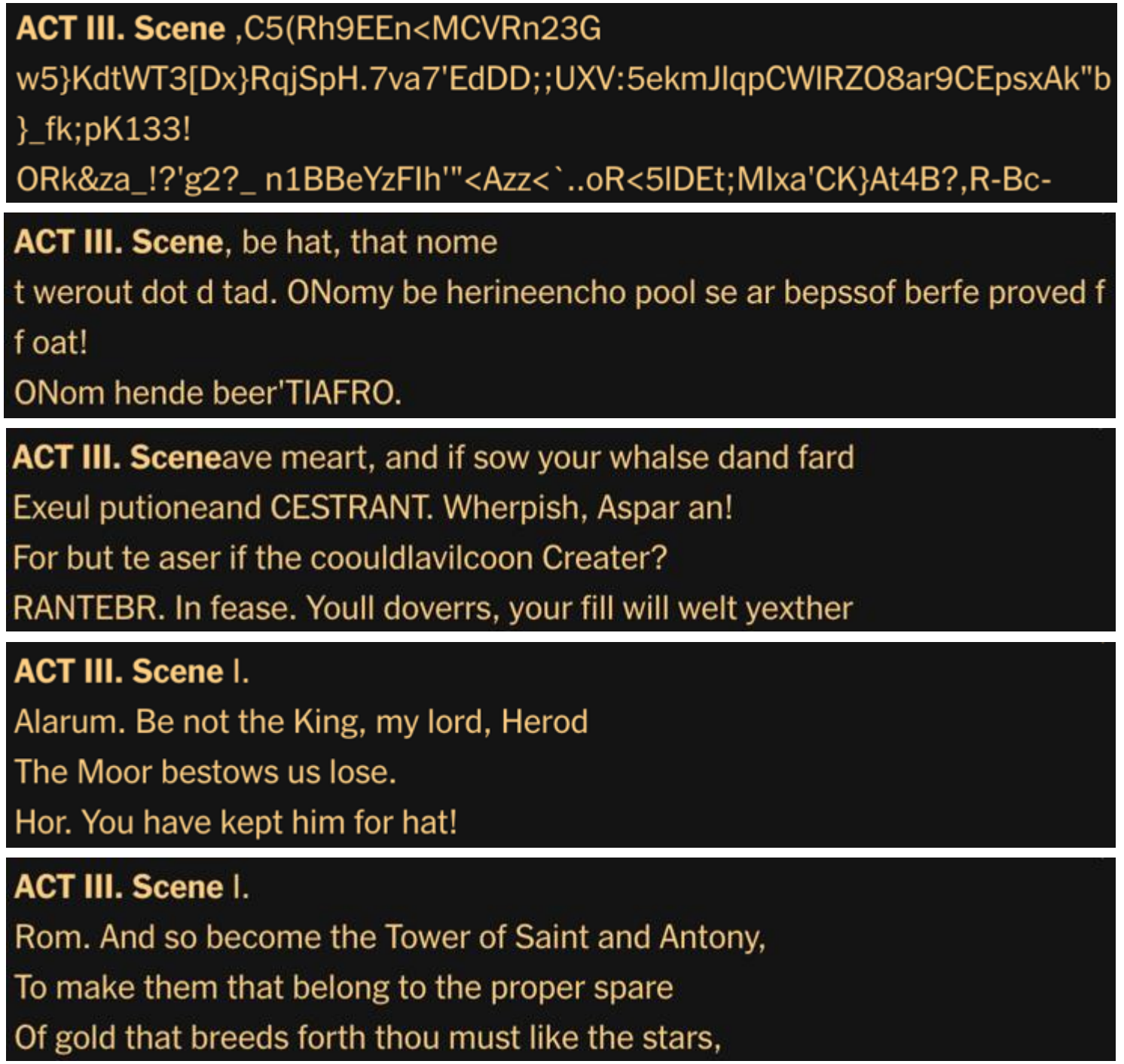
Generative AI

Generative AI

- Image/video generation (Dall-e, etc)
  - Note: images in this presentation were generated by Dall-e
- **Large language models**: ChatGPT, BARD, etc.
  - Training data: all text available on the internet
  - Inputs:
    - Partial words (“tokens”), vocabulary of >10,000
    - >4,000 (even 100,000) previous tokens in sequence
  - Outcome:
    - The next token (partial word)
- Goal: accurately predict the next token

New York Times:

GPT from scratch



https://www.nytimes.com/interactive/2023/04/26/upshot/gpt-from-scratch.html

Large language models

- Shockingly “intelligent”
  - Vast amount of human knowledge is available as text on the internet
  - Huge amount of training data → extremely sophisticated algorithms
  - **BUT**: does not actually understand, still just predicting the next word
    - False information
    - Bad at math
- Gives a different answer each time
  - Randomly selects next token based upon probabilities
  - Once selected, that token becomes part of inputs for predicting the next one → hallucinations

Fine-tuning LLMs

- Layered on top of base LLMs
- Checking, filtering, and training systems to reduce problems
- Fine-tuning for specific uses
- Taming the beast, but the beast is still there

Pros and cons of LLMs

- Contains most of human knowledge. Truly amazing most of the time, but:
  - Also includes undesirable human behaviour
  - Well-known tendency to make things up
- Complexity → impossible to explain/understand
- Probabilistic approach → different answer every time
- Concerns about ethics of training data (copyright)
- Privacy of what is typed into the system

Uses of LLMs

- Trained on language
  - Ideas for writing: emails, letters, PR, scripts, essays, job postings
  - Suggestions for customer service agents
  - Job interview questions, test questions
  - Writing computer code
- Example: helping customer service agents
  - Improved outcomes, particularly for less-skilled agents
  - Best humans still did better

Challenges & opportunities in the public sector

Public sector challenges & opportunities

- Challenges
  - Greater responsibility, government services affect people's lives
    - Ethical challenges of AI are real
  - Often less flexibility
- Opportunities
  - Improve services, increase government effectiveness
  - Improve public sector job quality by reducing repetitive work
  - Governments can serve as a model for the effective and responsible use of artificial intelligence

Resources and examples

- Government of Canada AI risk assessment framework
- World Economic Forum & UK Government AI procurement guidelines
- Canadian Ministry of Defense piloting of AI-based hiring tool

Humans using AI

Involve multiple stakeholders

- Need multiple perspectives at all stages
  - Design of systems
  - Organizational decisions to select and deploy AI systems
  - Implementation and feedback
- → better systems
- → buy-in

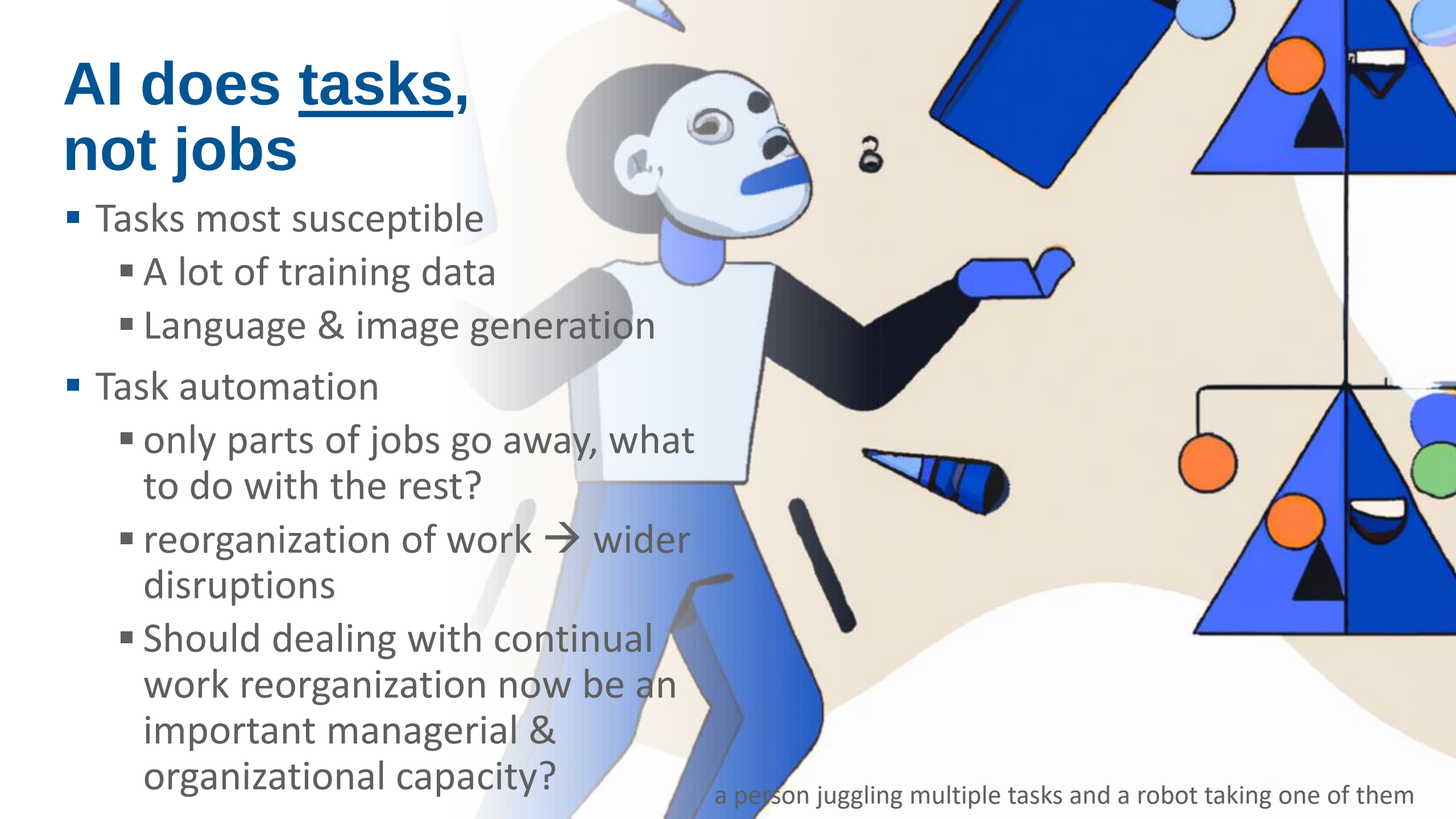
Human users need clear guidance

- **AI is not magic!** Be clear about the limitations of the systems and how human judgement is still needed
- Task-specific AI
  - Design of the system: training data, inputs, outcome
  - Explainability: system overall and for a given case
  - Known limitations, what it doesn't consider, where human judgement is needed
- Generative AI
  - Known limitations: hallucinations, etc.
  - Challenge: best used by human experts but how to develop that expertise?

Workplaces in an AI future

AI does tasks, not jobs

- Tasks most susceptible
  - A lot of training data
  - Language & image generation
- Task automation
  - only parts of jobs go away, what to do with the rest?
  - reorganization of work → wider disruptions
  - Should dealing with continual work reorganization now be an important managerial & organizational capacity?



a person juggling multiple tasks and a robot taking one of them

Challenges & opportunities in the public sector

Public sector challenges & opportunities

- Challenges
  - Public sector often has more rigid job structures
  - May be harder to hire in new areas and for new skills
- Opportunities
  - Serve as a model of multistakeholder involvement
    - Public sector employees & citizens are critical to ensuring a well-designed tool
  - Serve as a model for retraining & rethinking work

Public sector managers & AI

- AI is not magic, but also not pure evil
  - Understand basics of how AI works
  - Know the limitations of AI & key ethical concerns without being alarmist
- Be on the lookout for ways that AI can improve public services and/or public sector jobs
- Involve workers (and citizens) in AI adoption & implementation decisions
- Anticipate tasks that may be automated by AI and plan for the retraining & redeployment of workers

Thank you!