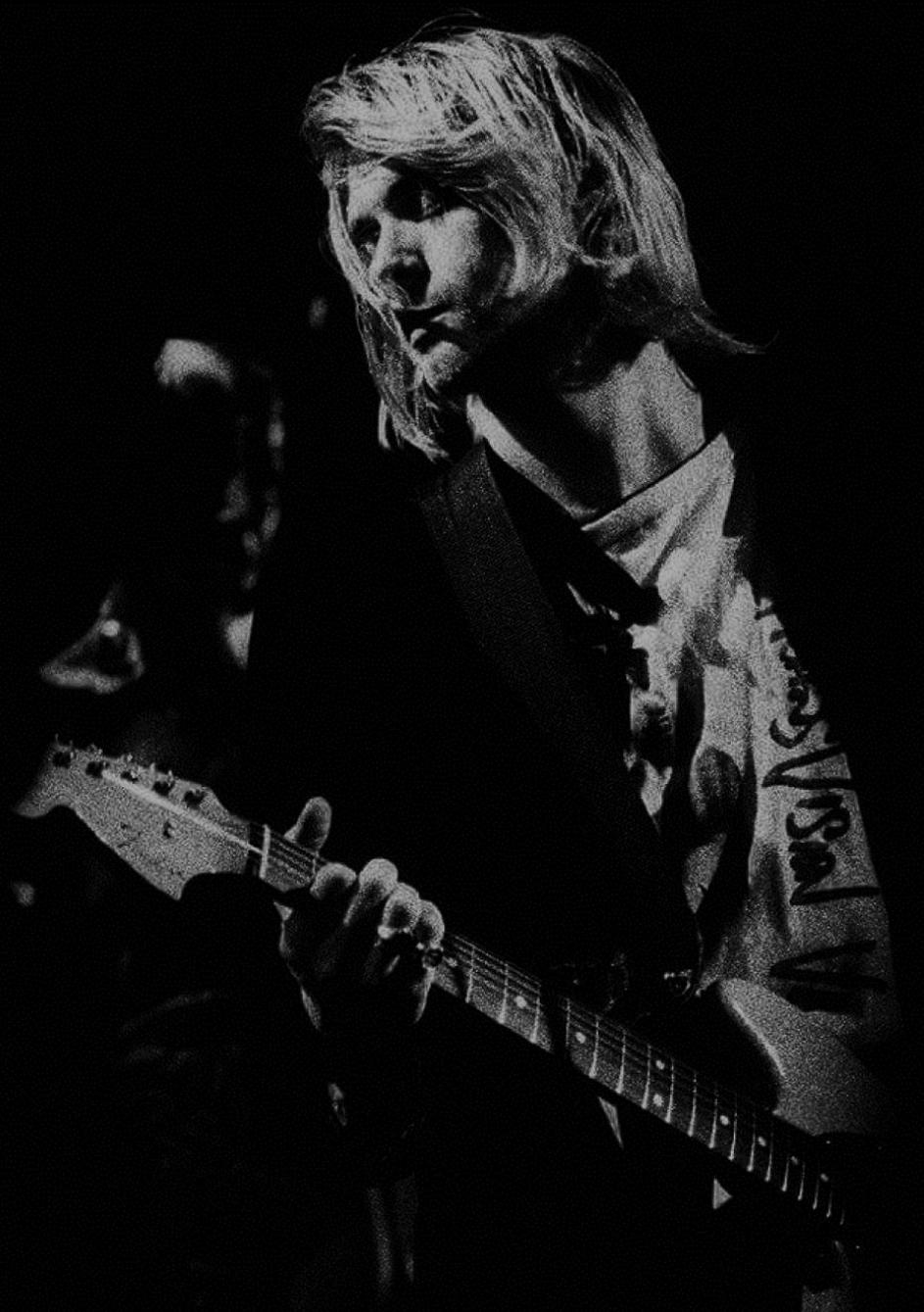


“I don't care/  
I feel as one /  
Drowned in  
the sun”



<https://Audit-Championship.com/en/NewYear2023>



# 2023 New Year Special



**5 Audit Learning Paths, incl. Audit Ethics**

**33 Gamified Trainings, up to 100+**



Artificial Intelligence



Cloud



Cyber Security



Drohnen



Internet der Dinge



Virtual Reality



5G



Smart Learning

in a World of Digital Transformation Processes

# How AI is transforming our profession.



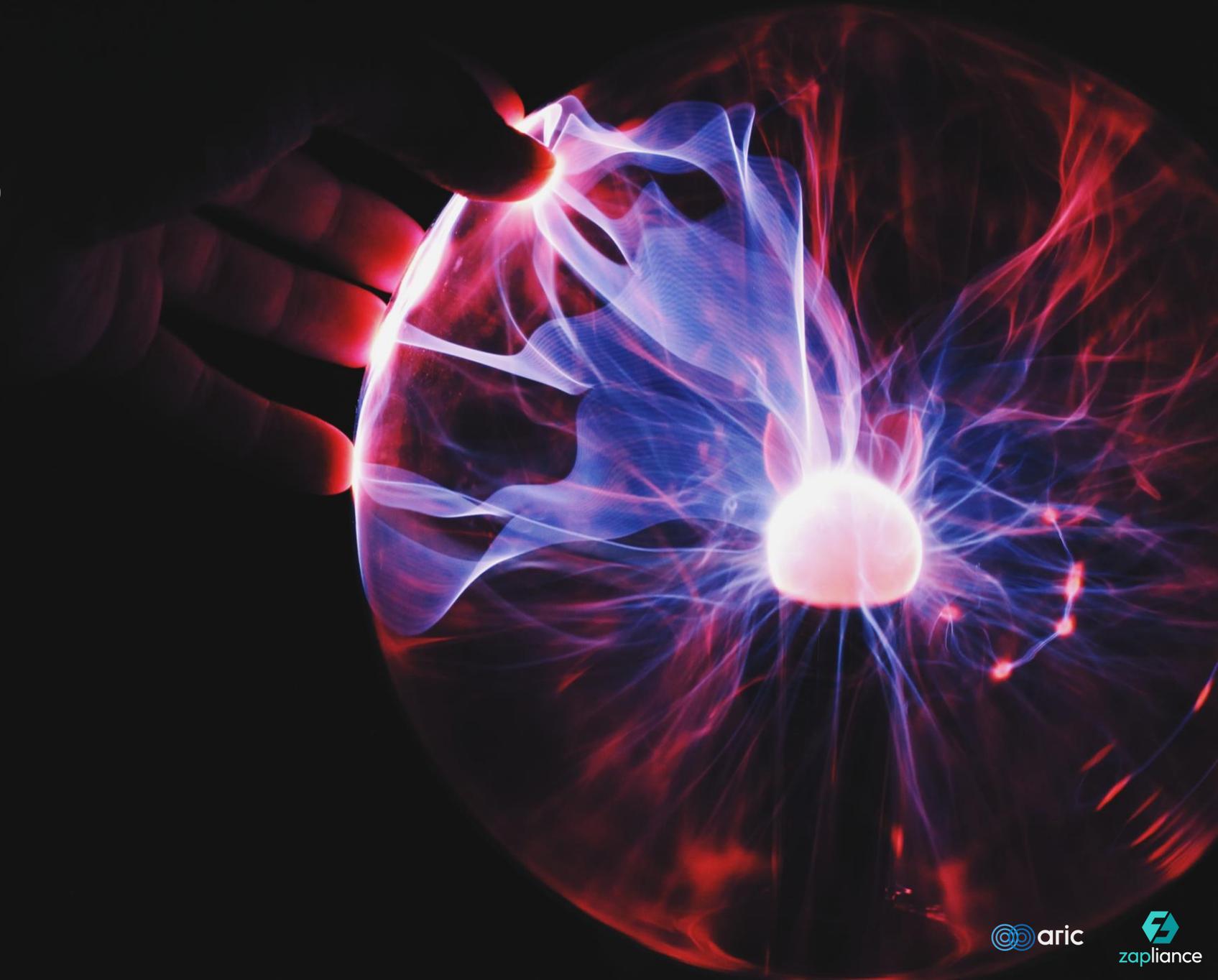
**Internal Audit is comfy!**



“frog with tie working on PC sitting in a boiling pot”  
Generated on [craiyon.com](https://craiyon.com)

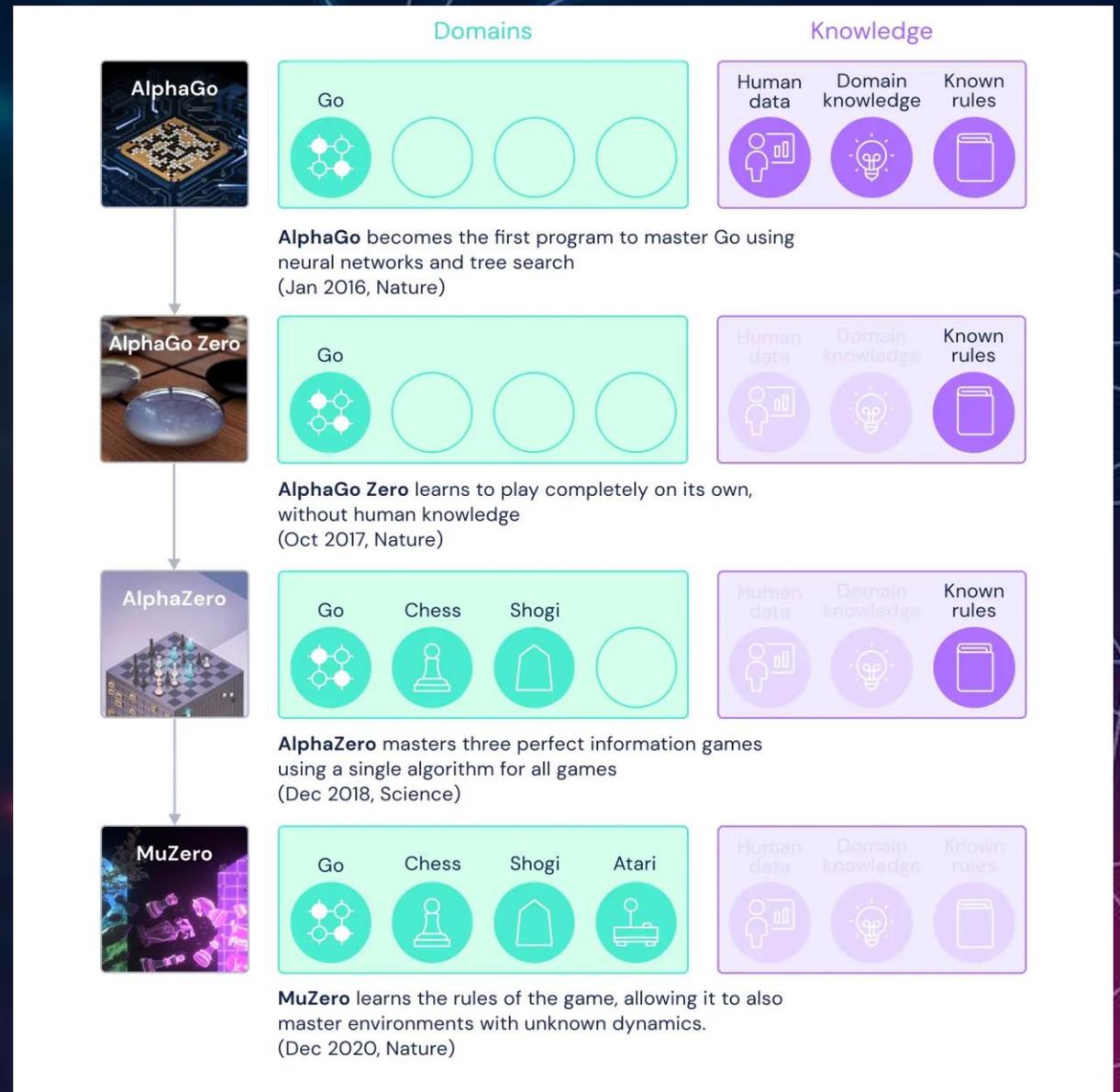


# Multi-Sensor-Fusion





# “MuZero: Mastering Go, chess, shogi, and Atari without rules”

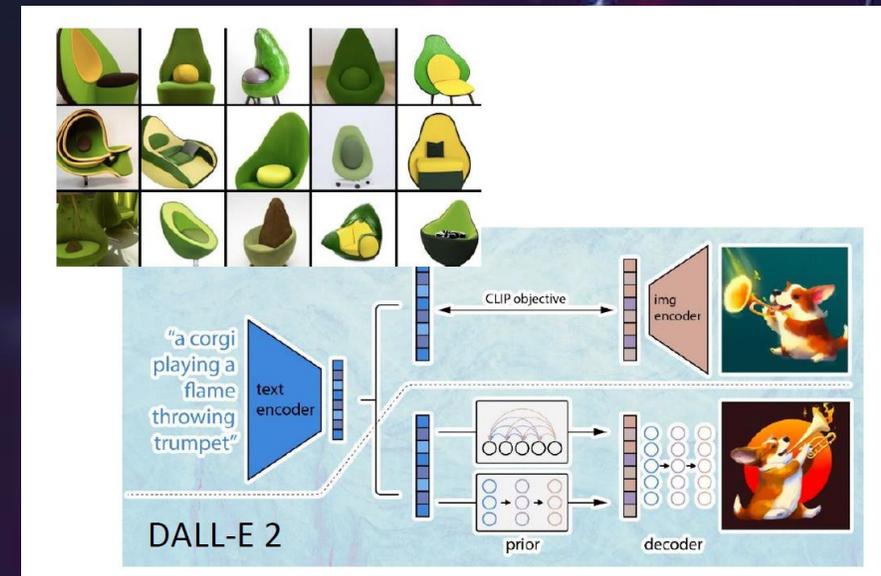
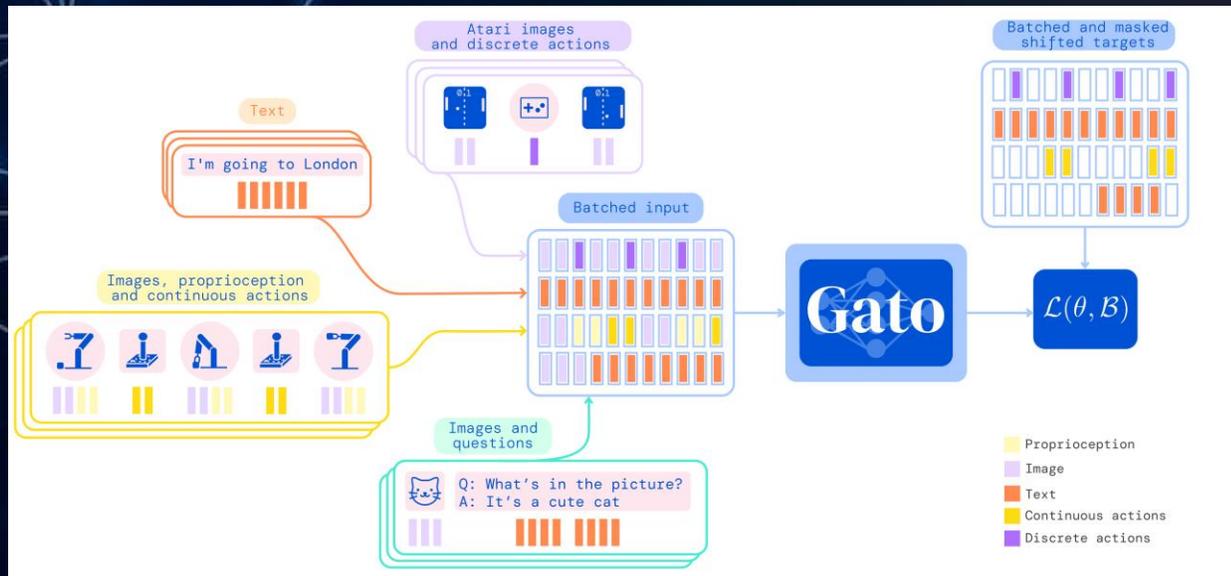


# Multimodal models

## On the way to general AI

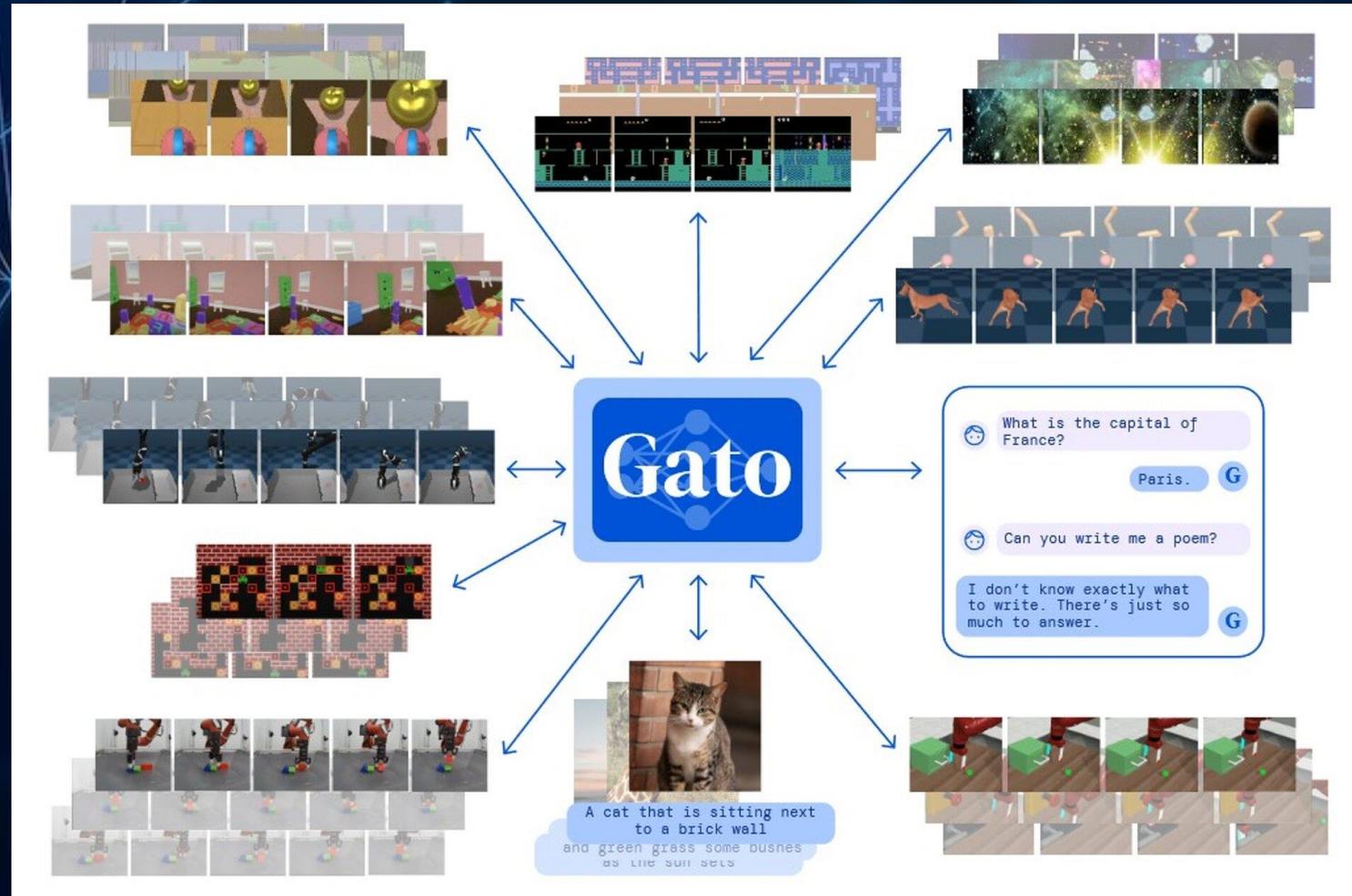
“With a single set of weights, *Gato* can engage in dialogue, caption images, stack blocks with a real robot arm, outperform humans at playing Atari games, navigate in simulated 3D environments, follow instructions, and more.”

Scott Reed, Senior Research Scientist at DeepMind



# Multimodal models

*Gato* – the generalist agent by DeepMind

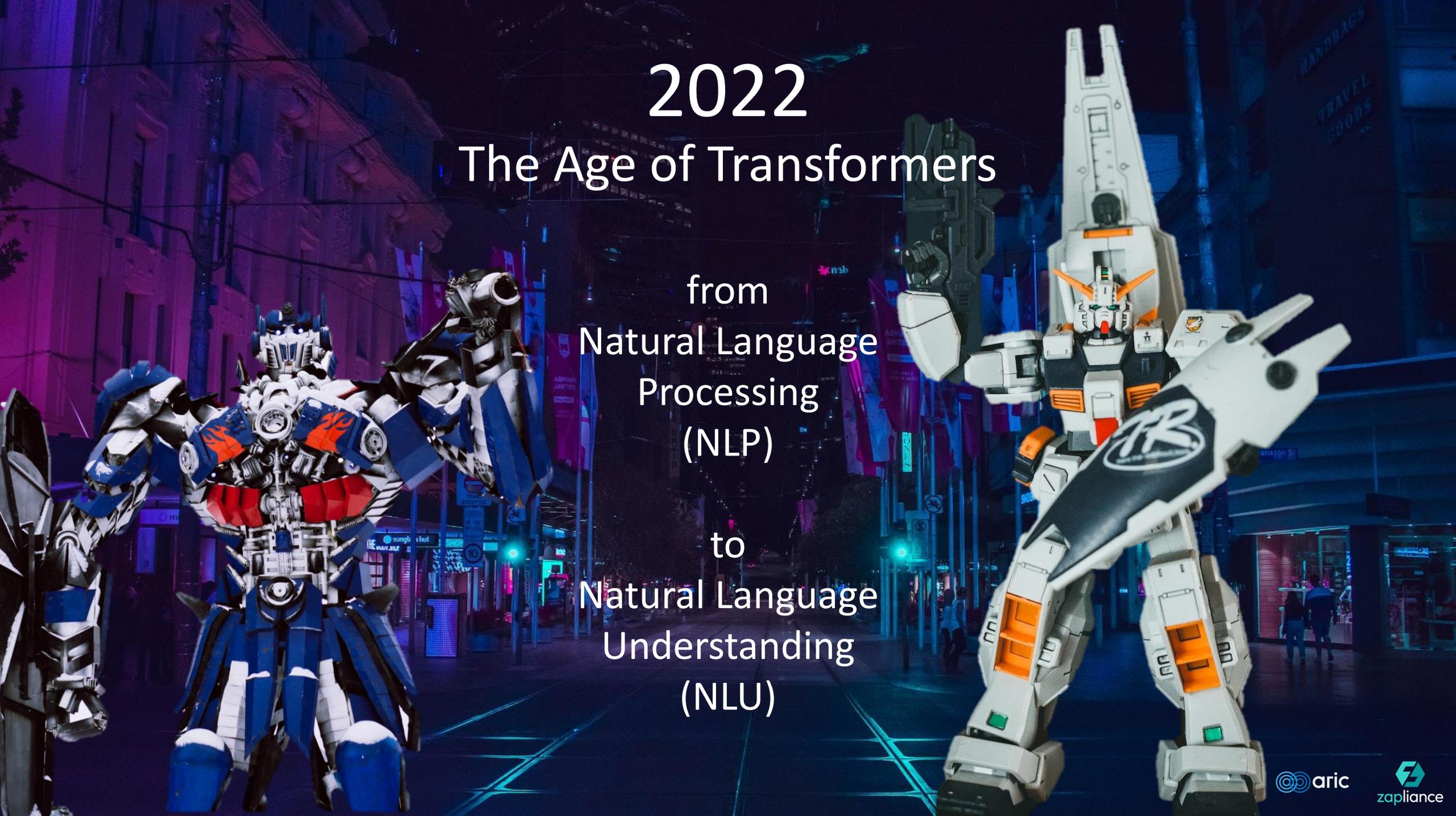


# TAKE-AWAY #1: Speed

“AI is  
outpacing  
Moore’s  
Law”

Stanford University 2019 AI Index report





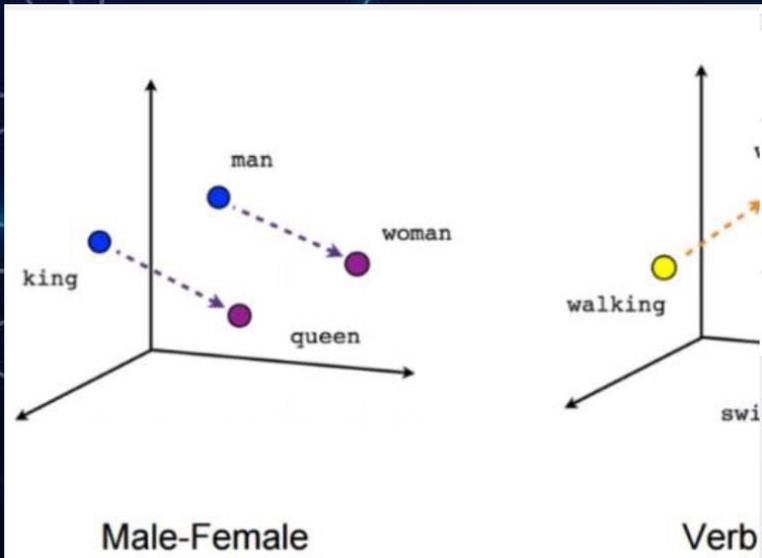
# 2022

## The Age of Transformers

from  
Natural Language  
Processing  
(NLP)

to  
Natural Language  
Understanding  
(NLU)

# Context is King



Deutsch ▾ English (UK) ▾ Glossar

Wir treffen × We meet

Deutsch ▾ English (UK) ▾ Glossar

Ich bin auf dem Spielplatz.  
Wir treffen uns an der Bank. × I am in the playground.  
Meet me at the bench.

🔊 👍 👎 📄 🔗

# Context is King

“RNNs become very ineffective when the gap between the relevant information and the point where it is needed become very large. That is due to the fact that the information is passed at each step and the longer the chain is, the more probable the information is lost along the chain.

In theory, RNNs could learn these long-term dependencies. In practice, they don't seem to learn them. LSTM, a special type of RNN, tries to solve this kind of problem.”

>> Welcome, ladies and [prediction]!<<

# Context is King

“RNNs become very ineffective when the gap between the relevant information and the point where it is needed become very large. That is due to the fact that the information is passed at each step and the longer the chain is, the more probable the information is lost along the chain. In theory, RNNs could learn these long-term dependencies. In practice, they don't seem to learn them. LSTM, a special type of RNN, tries to solve this kind of problem.”

# TAKE-AWAY #2:

## Context is King!

Text

“RNNs become very ineffective when the gap between the relevant information and the point where it is needed become very large. That is due to the fact that the information is passed at each step and the longer the chain is, the more probable the information is lost along the chain.

In theory, RNNs could learn these long-term dependencies. In practice, they don't seem to learn them. LSTM, a special type of RNN, tries to solve this kind of problem.”

Emotions



CAER-Net, a deep learning technique for context-aware emotion recognition

# TAKE-AWAY #3:

Challenge your auditor's mindset!

$$I + P = O$$

$$I + O = P$$



The future of AI  
in Europe is  
responsible AI

Governance



Ethics & Regulations



Security & Robustness



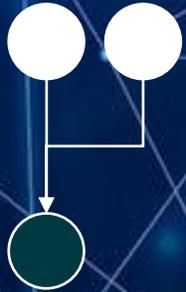
Fairness & Sustainability



Explainability

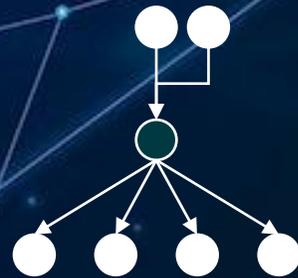


# AI or not AI?



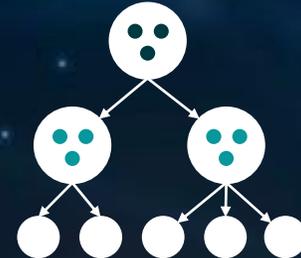
Autonomy

The application decides autonomously by machine or significantly supports a human decision so that there is at least significant machine influence.



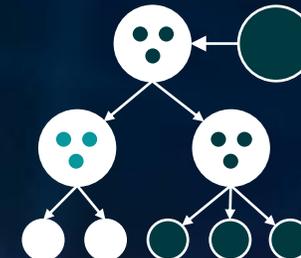
Relevance to the business

The decision is not merely a decision on the technically correct processing of business transactions, but the decision has business relevance or influence on the organization.



Learning

The way machine decision-making works are not merely based on static rules (e.g. "if-then-else chaining"), but the decision calculus was first learned by the machine through the processing of training data.



Possibility of dynamic adaptation

The way decisions are made could be adapted regularly as new data is continuously added for advanced training of the algorithm used.



Specificity

It is not a standard AI solution that can be used by everyone without special adaptation (e.g. Google Translator).

# The EU AI Regulation

## The term “AI Systems”

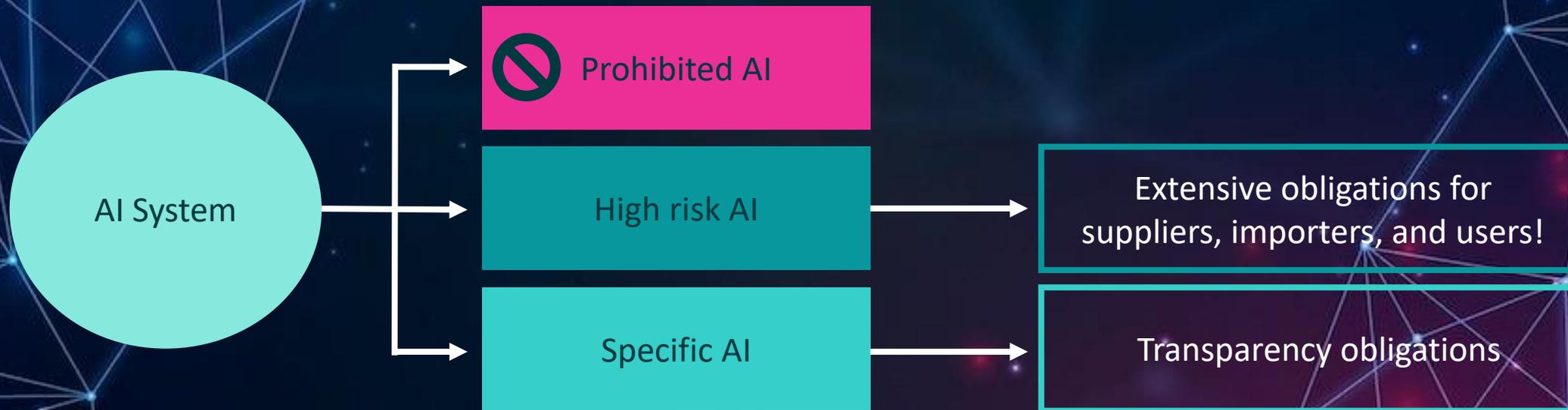
Machine learning concepts, with supervised, unsupervised, and reinforcement learning using a wide range of methods, including deep learning (DeepLearning)

Logic and knowledge-based concepts, including knowledge representation, inductive (logic) programming, knowledge bases, inference and deduction engines, (symbolic) reasoning, and expert systems

Statistical approaches, Bayesian estimation, search and optimization methods.

# The EU AI Regulation

## The regulation concept



# The EU AI Regulation

## The regulation concept



### Prohibited AI

- Techniques of subconscious, **subliminal influence** with intent to harm.
- AI systems that **exploit weaknesses of a group of people** (age, physical or mental disability) with the intent to harm
- **Social scoring**
- **Real-time biometrics** for law enforcement purposes (exceptions include victim search, missing person search, danger defense, terror defense)

### High risk AI

- **Critical infrastructures** (e.g., transportation) where the life and health of citizens could be at risk.
- **Education and training**, where a person's access to education and professional life could be affected (e.g., assessment of exams)
- **Safety components of products** (e.g., an AI application for robotic-assisted surgery)
- **Employment, human resource management, and access to self-employment** (e.g., software to evaluate resumes for hiring processes)
- **Key private and public services** (e.g., credit scoring, which denies citizens the ability to obtain a loan)
- **Migration, asylum, and border control** (e.g., verifying the authenticity of travel documents)
- **Administration of justice and democratic processes** (e.g., application of legislation to specific facts)

### Specific AI

- Intended for **interaction** with natural persons
- **Emotion recognition**
- Visual and acoustic manipulation ("**deep fake**")

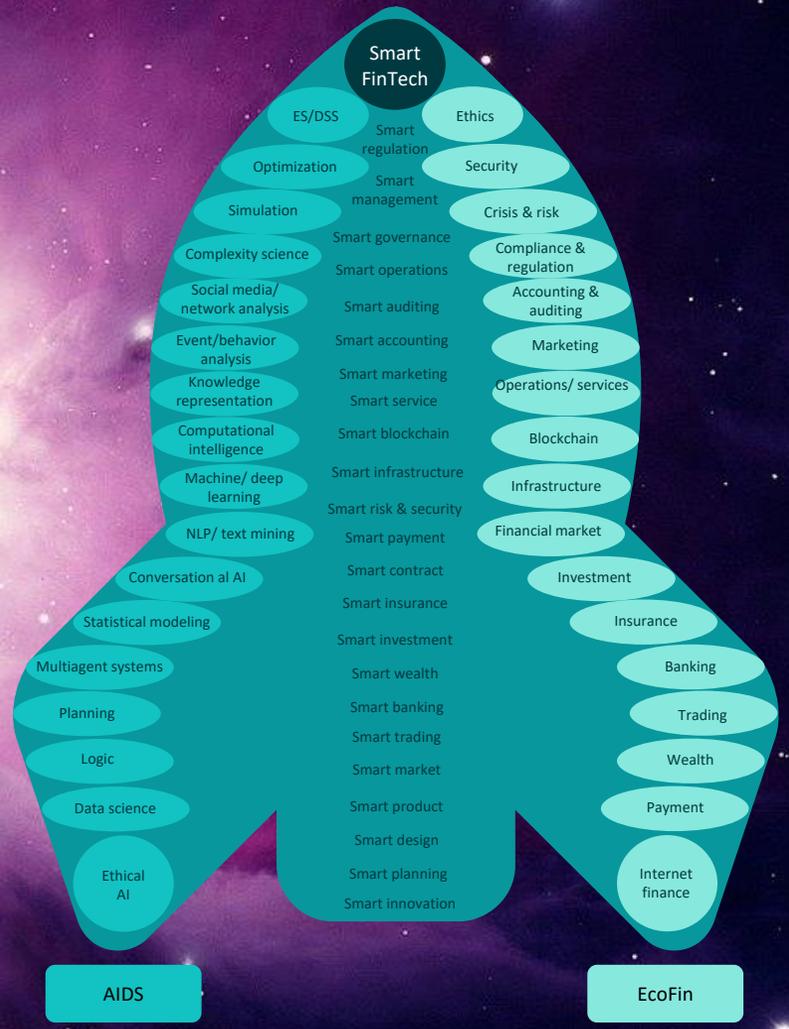
# TAKE-AWAY #4:

## Responsible AI : Auditing AI and AI in Audit

1. Defining a common-sense AI definition
2. Watch out for the EU Artificial Intelligence Act
3. Start playing today!

# TAKE-AWAY #5:

AI rocket is fully loaded and ready for take-off!



**Thanks for  
taking part  
at Audit Challenge  
Conference Series 2023**



Alexander Rühle, CEO zapliance