21º CONFERENCIA INTERNACIONAL SOBRE PALMA DE ACEITE

21st International Oil Palm Conference

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The Future of Artificial Intelligence for Agribusiness

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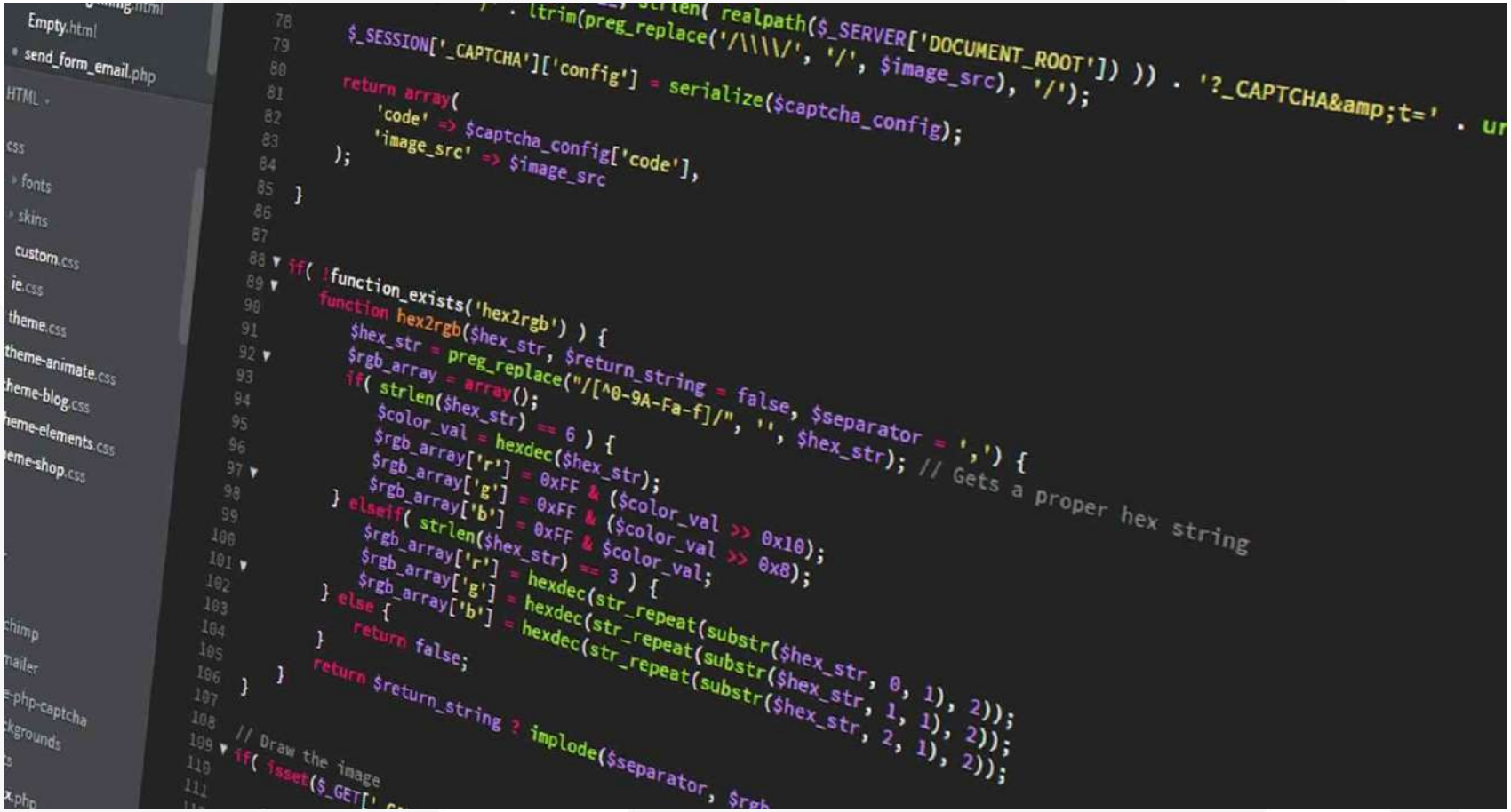
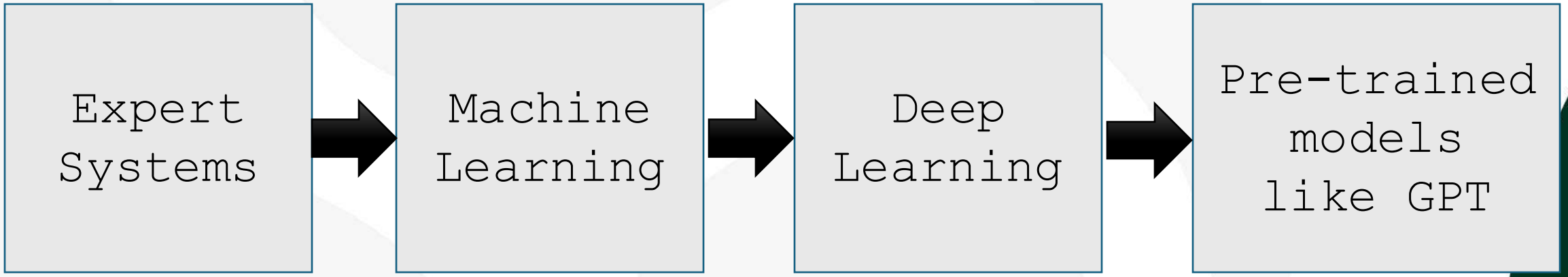
Director, Fubon Center for Technology, Business and Innovation

NYU Stern School of Business

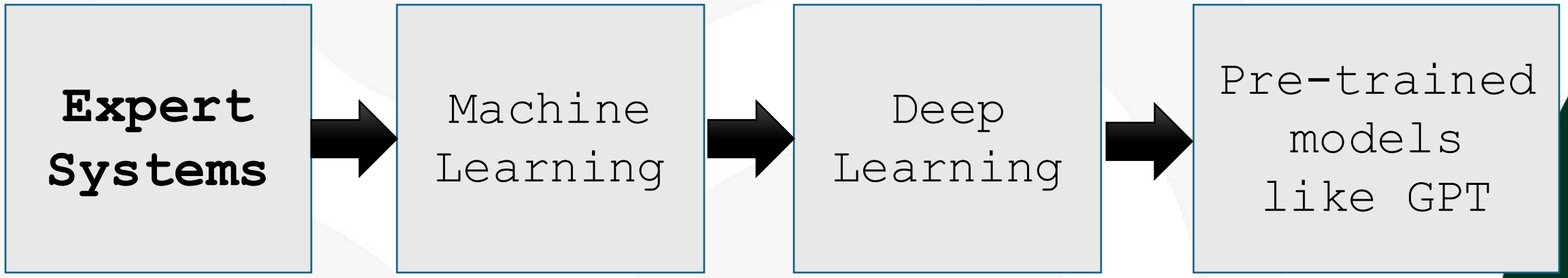
Pre-AI: computers told exactly what to do



The many phases of AI

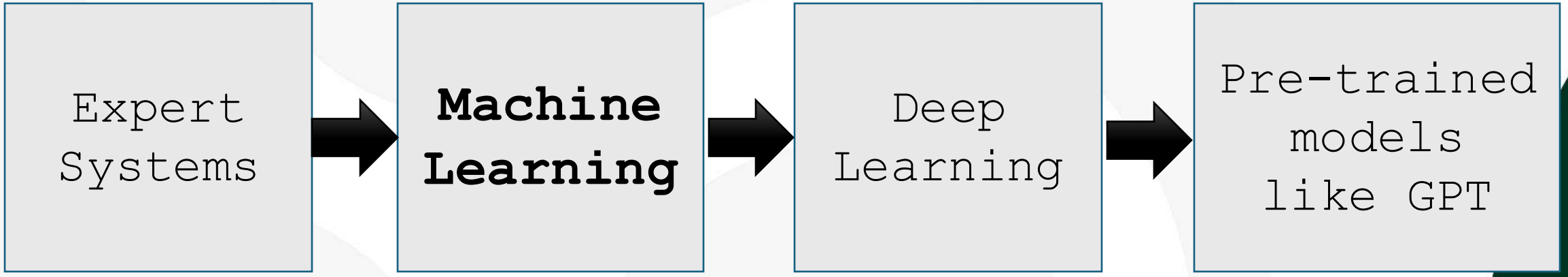


Expert systems: aggregate expert rules

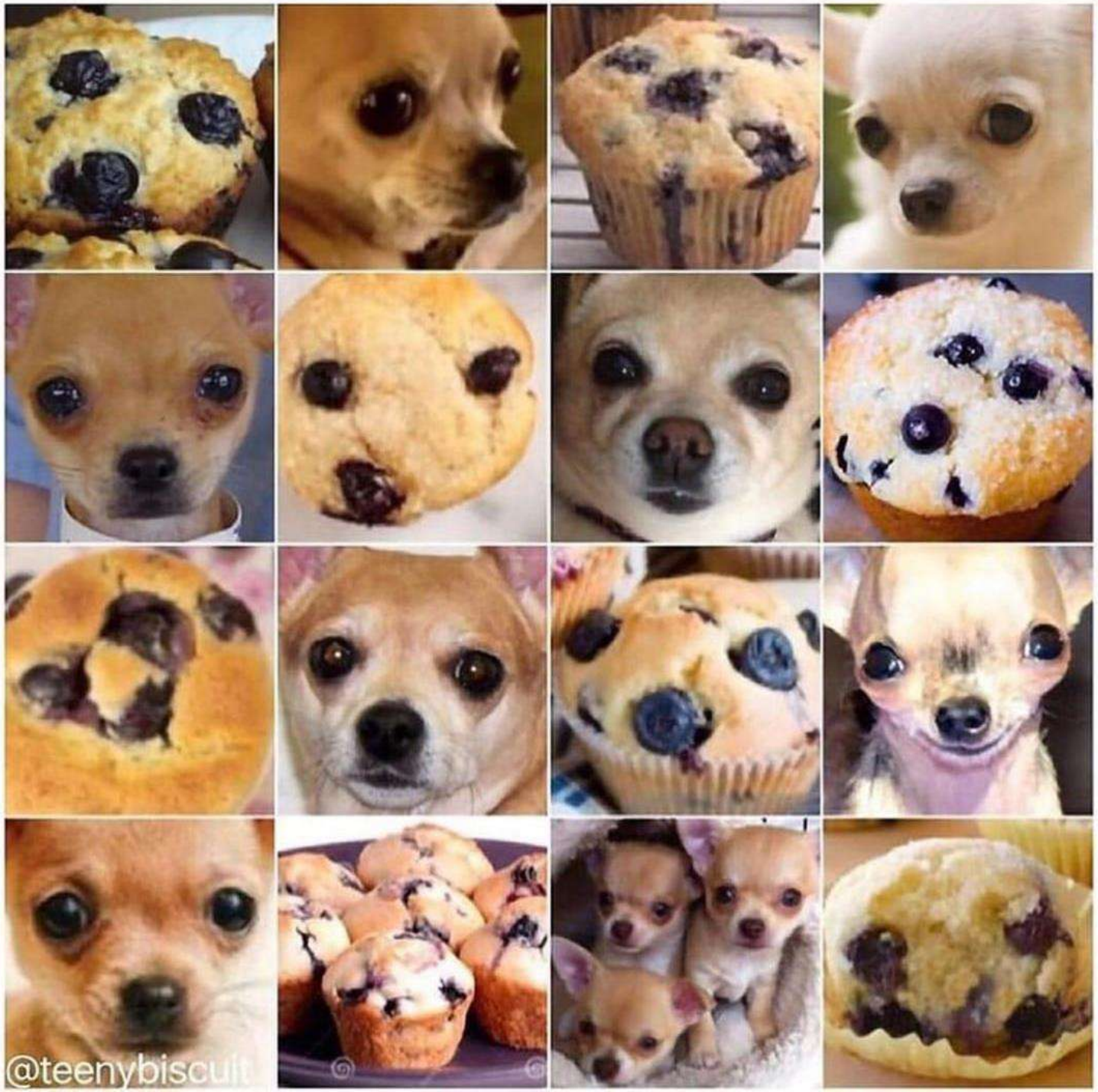


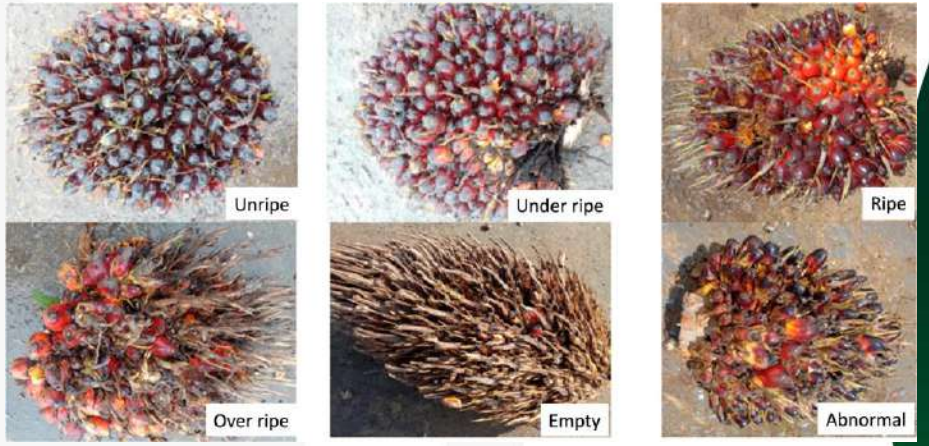
expert-derived (heuristic) rule-based

machine learning: learn directly from data

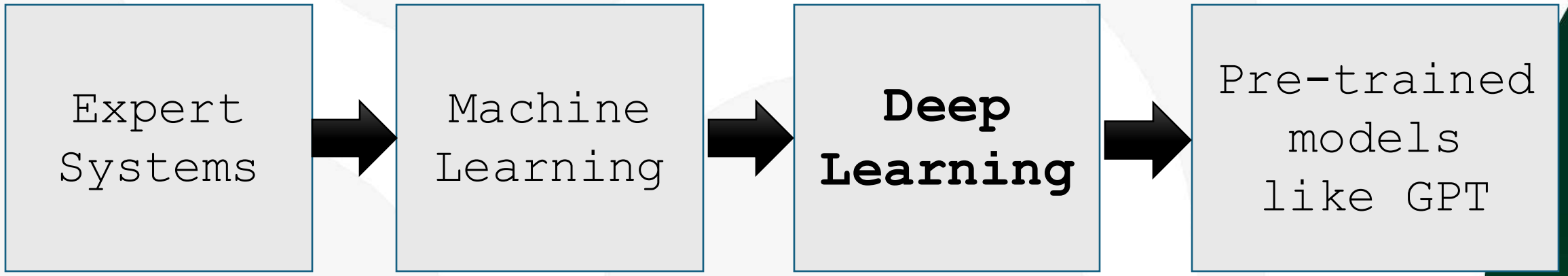


Examples: logistic regression, SVM, decision trees, random forests

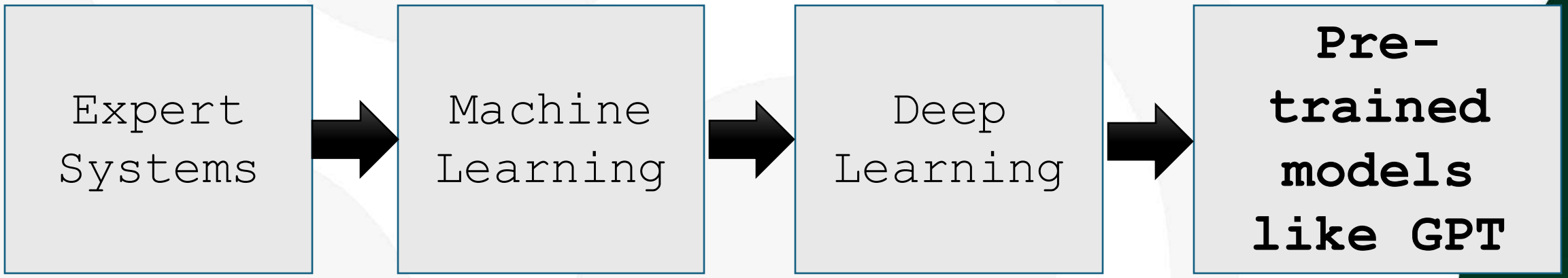

@teenybiscuit

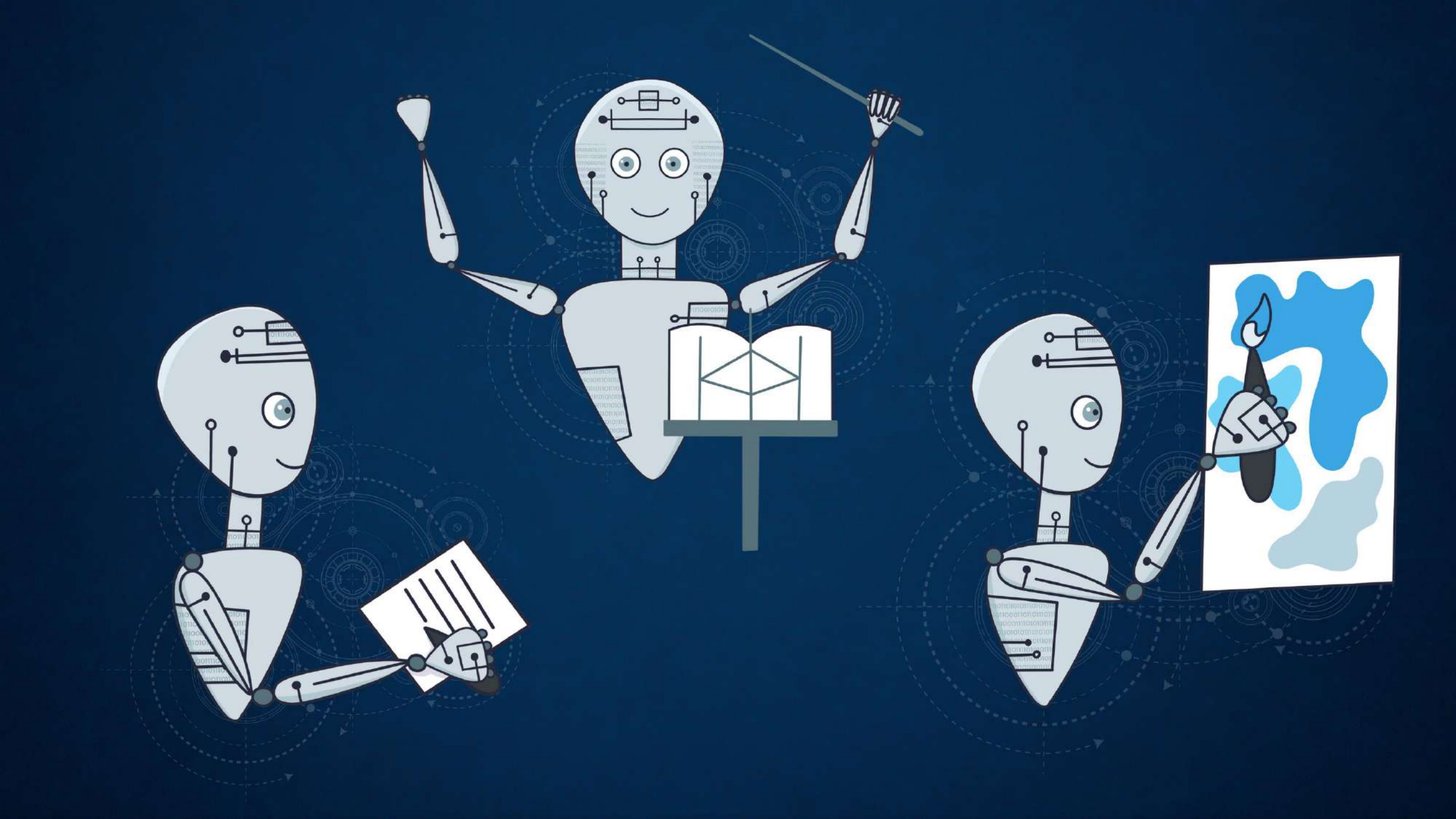

Unripe
Under ripe
Ripe
Over ripe
Empty
Abnormal

deep learning: AI creates own features



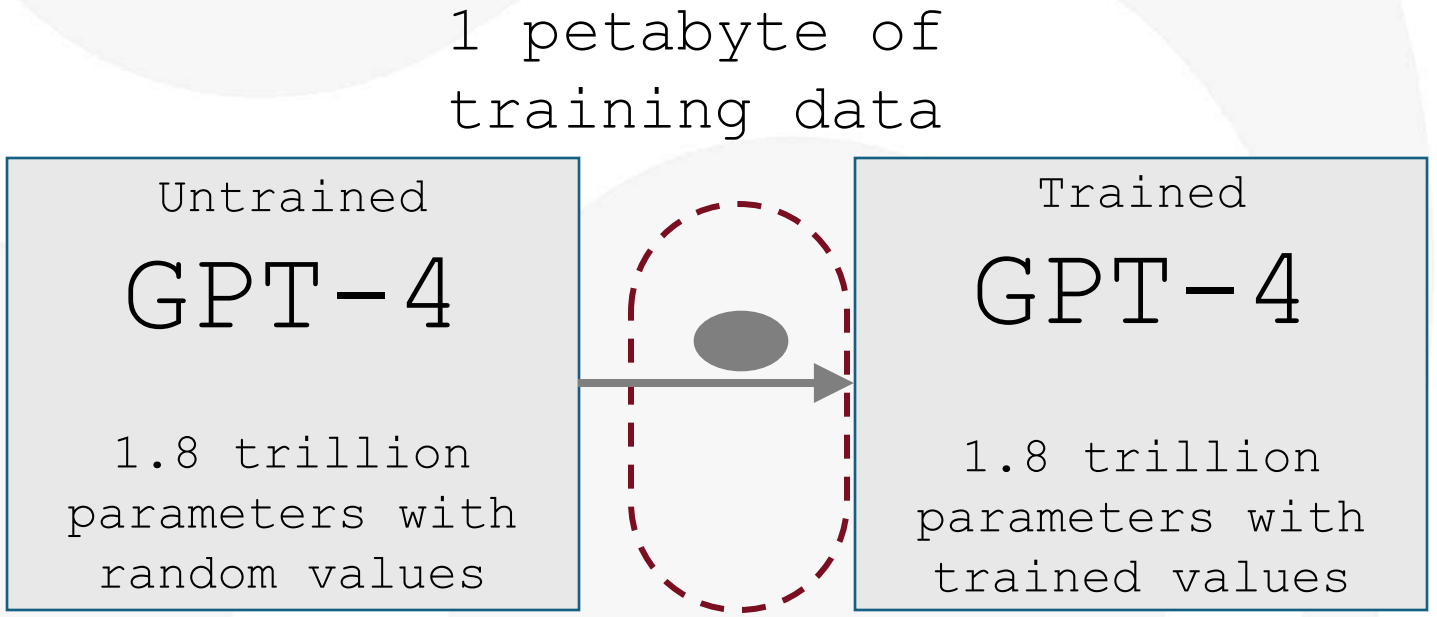
AI today: generative AI and platforms





genAI and LLMs

- Simple idea: Massive **deep neural networks** trained on vast amounts of text
- Trained to predict the next word, given a “context” and “prompt”
- Example: GPT



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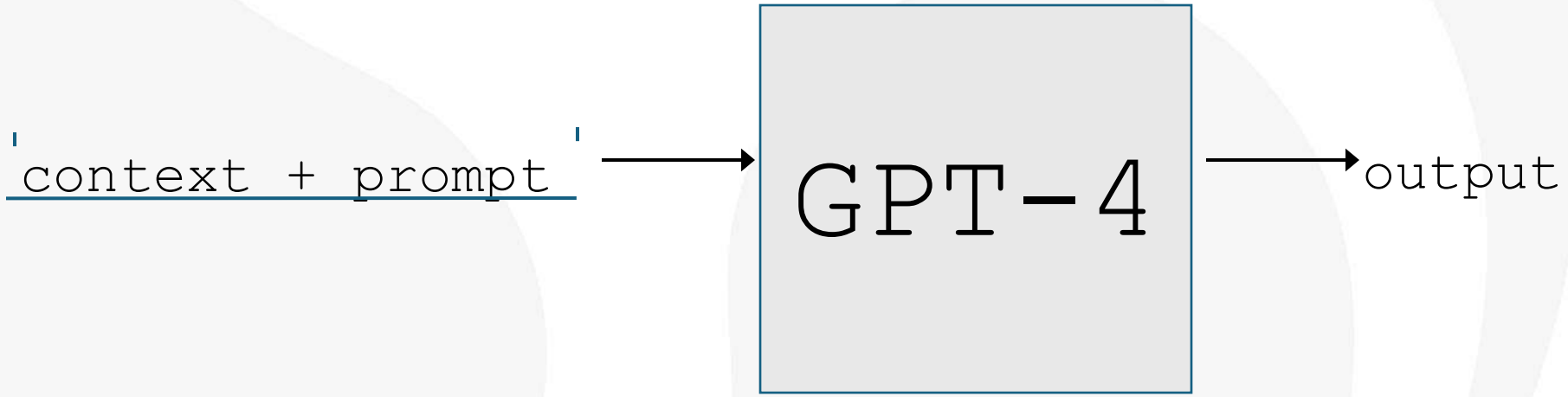
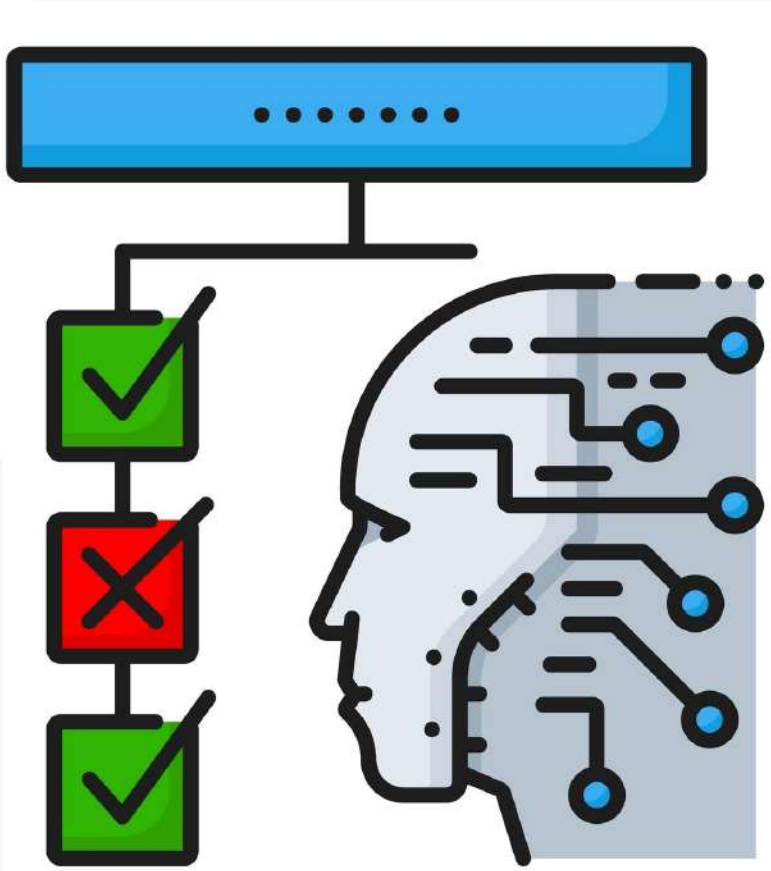
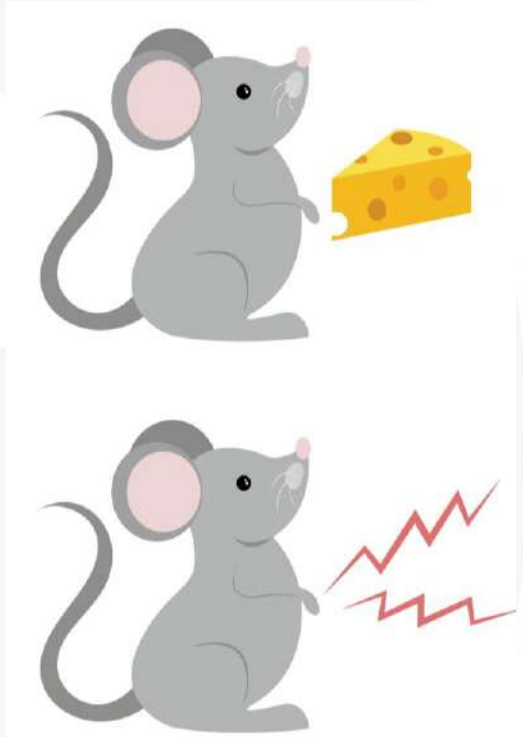
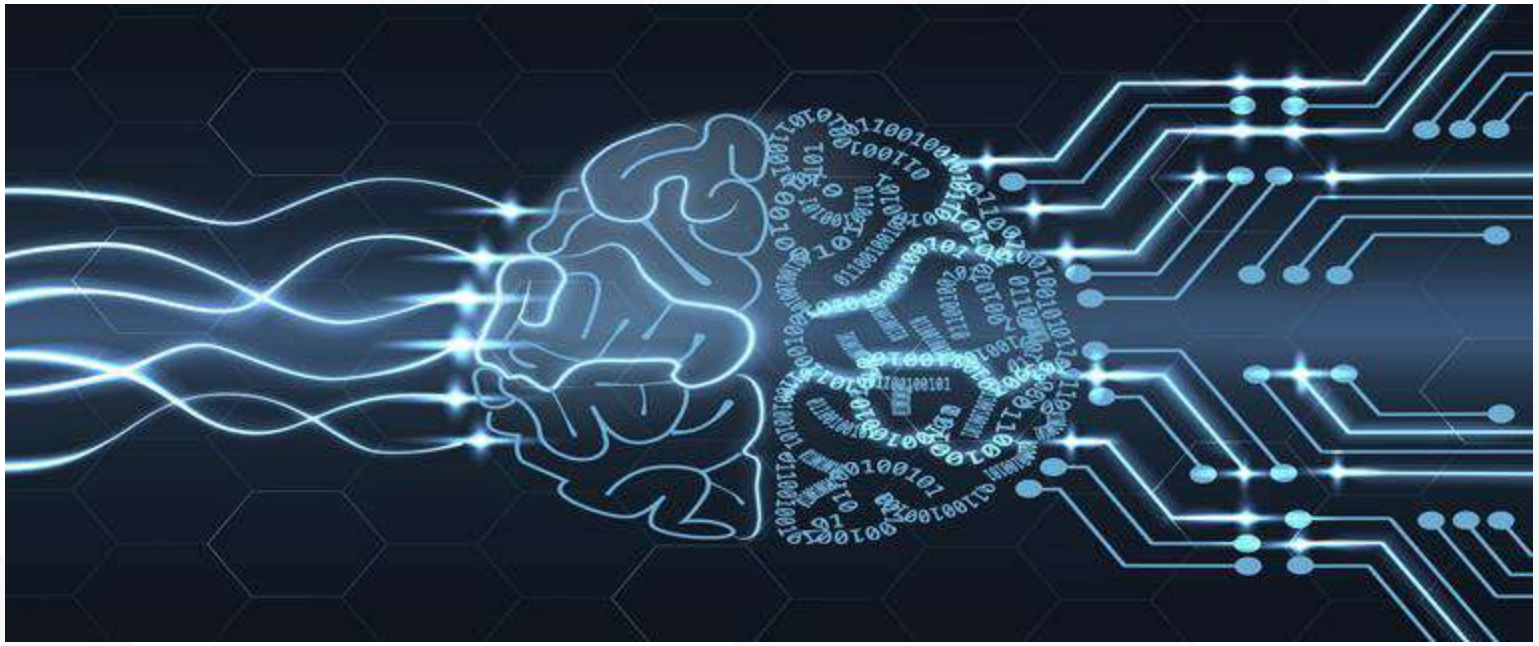


reinforcement learning





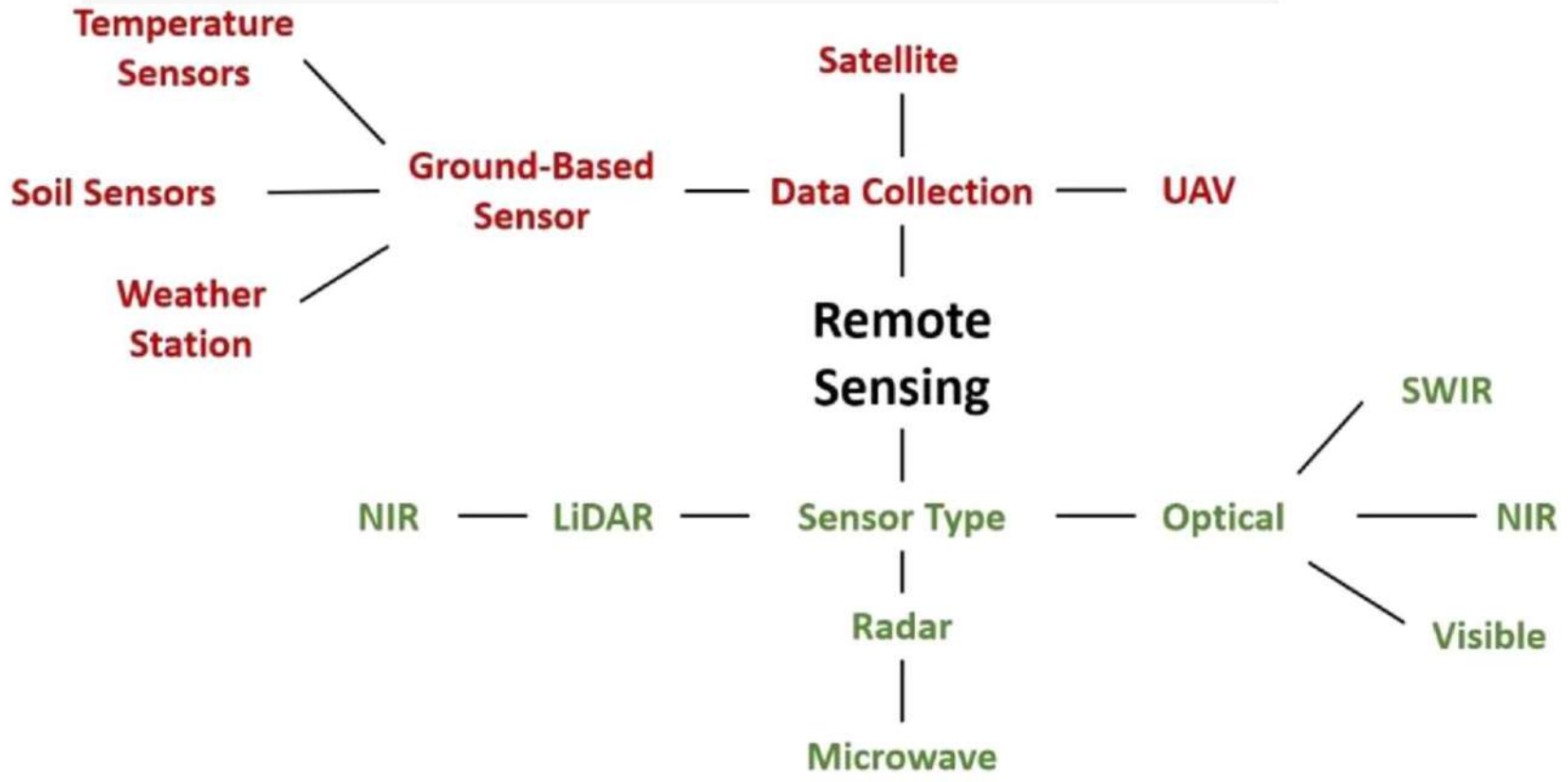
key lesson: most AI is not genAI



The opportunity for the agriculture sector

Massive amounts of rich data
soil moisture, weather, satellite/drone, pest and disease

The opportunity for the agriculture sector



Massive amounts of rich data
soil moisture, weather, satellite/drone, pest and disease

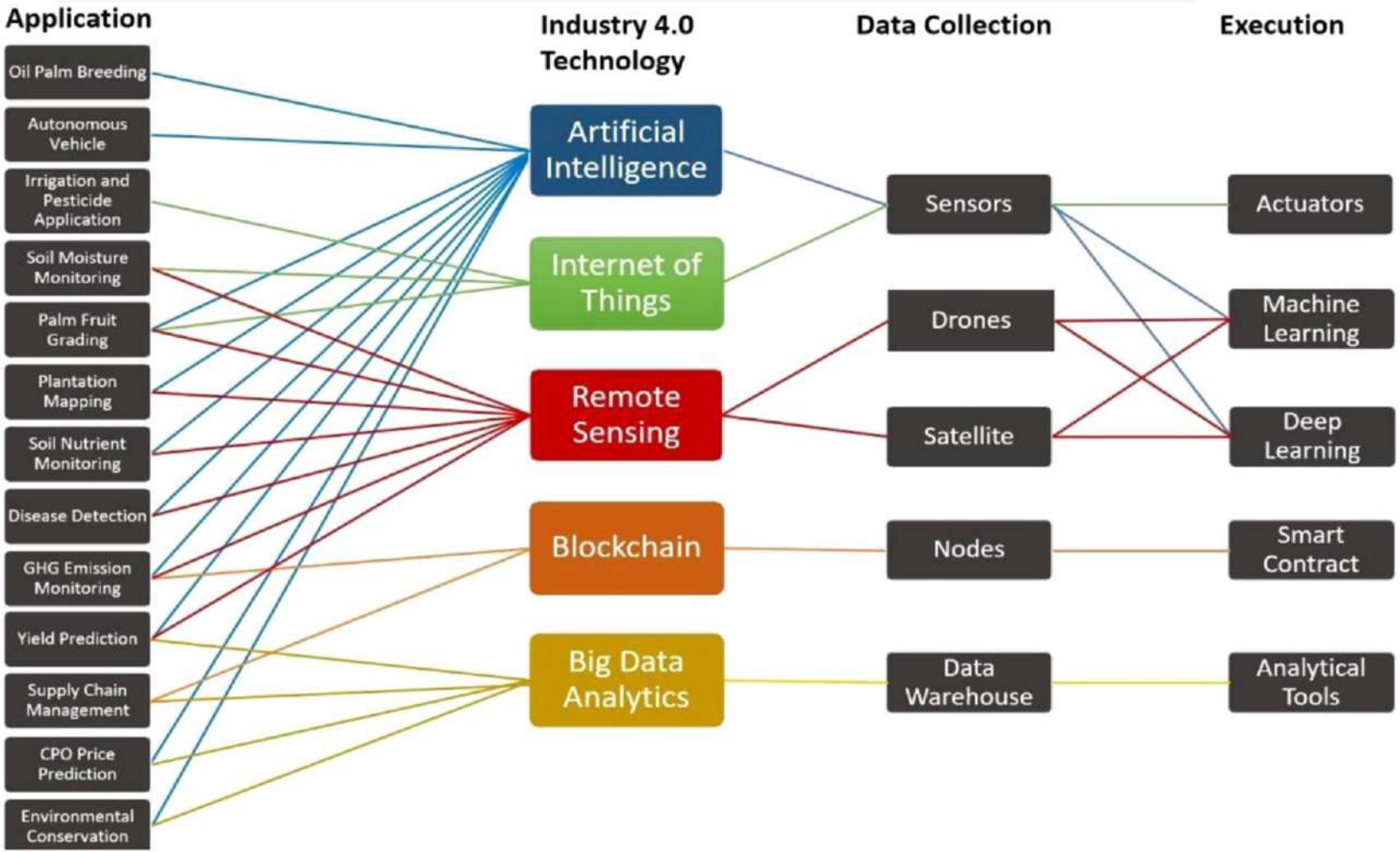
The opportunity for the agriculture sector

Strong feedback loop allows for self-healing systems

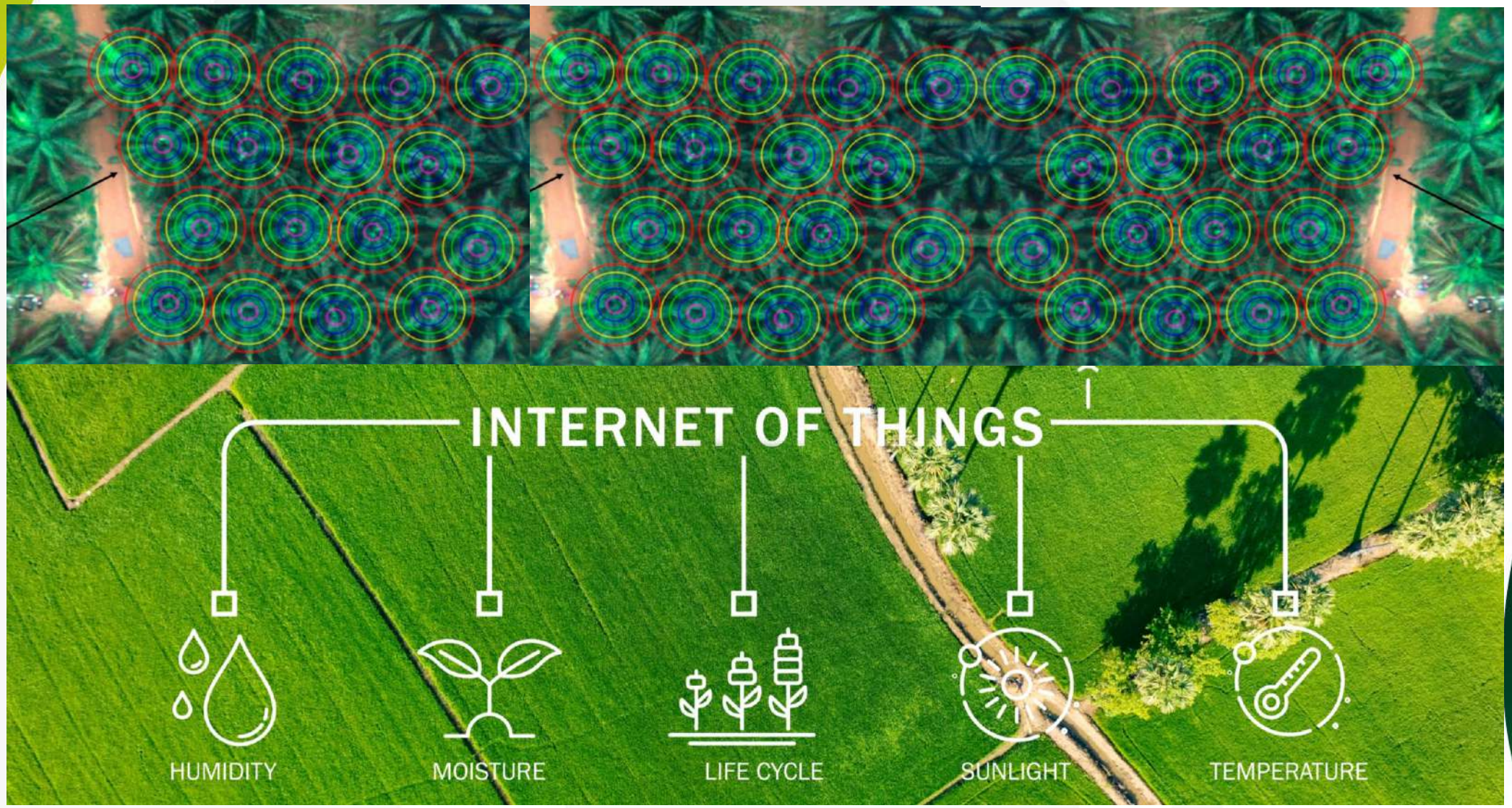
The opportunity for the agriculture sector

Resources are constrained, making the business case for AI investments

The opportunity for the agriculture sector



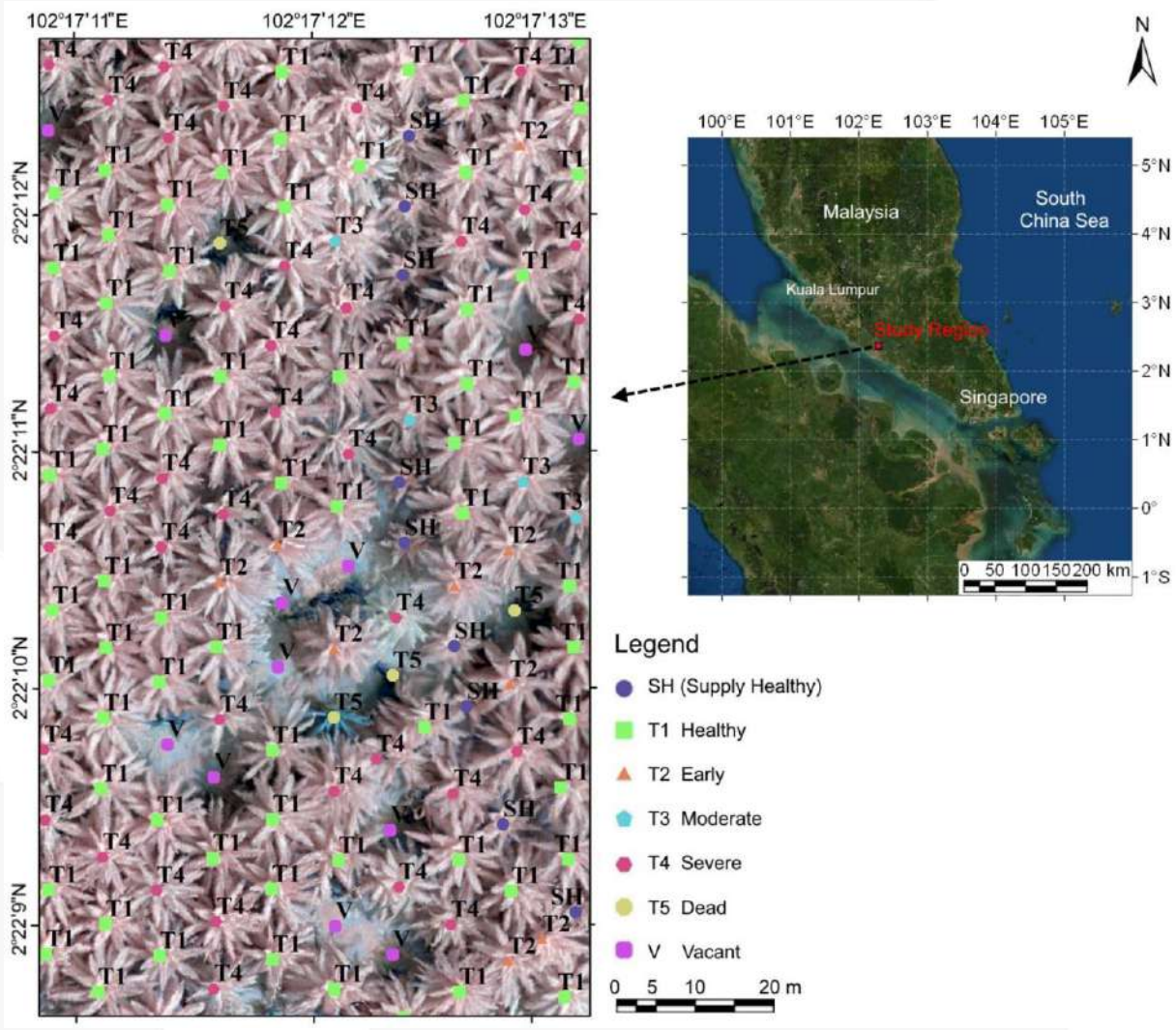
The key differentiator for the agriculture sector



Global examples of success

Deep learning for fruit ripeness monitoring

Global examples of success

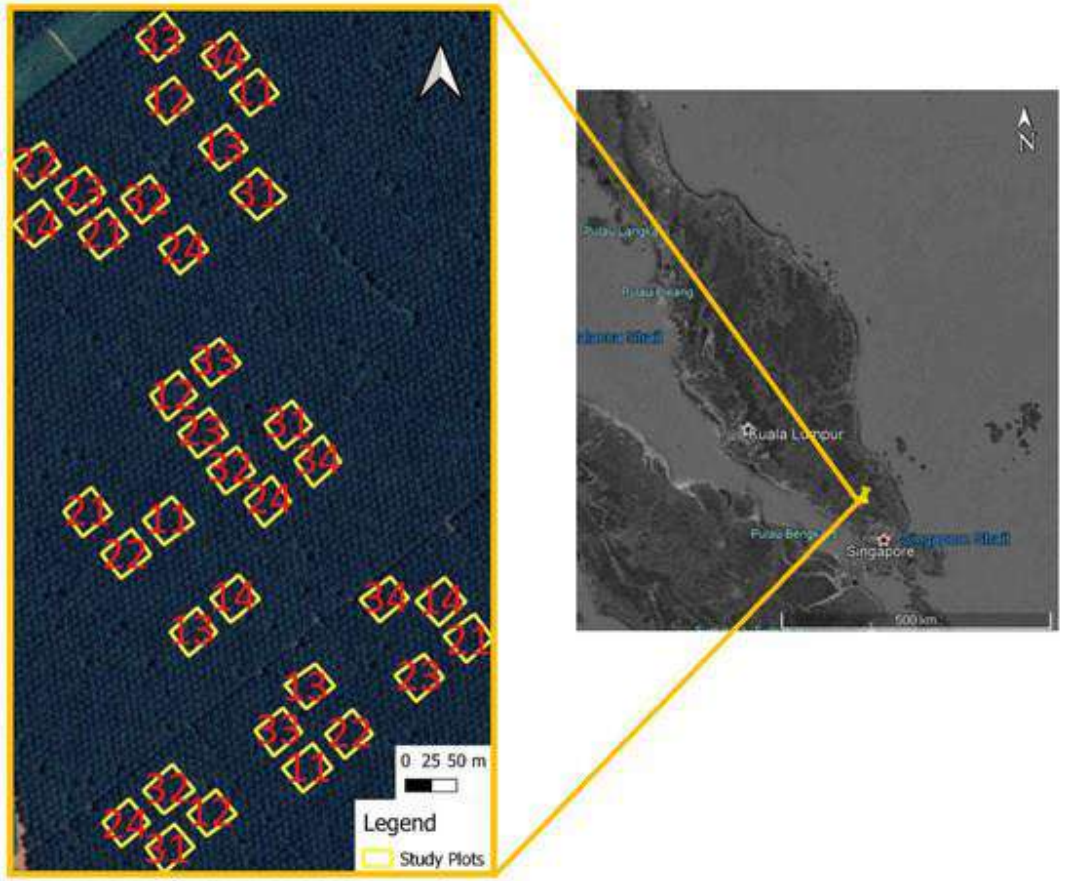


UAVs and deep learning for disease detection

Global examples of success

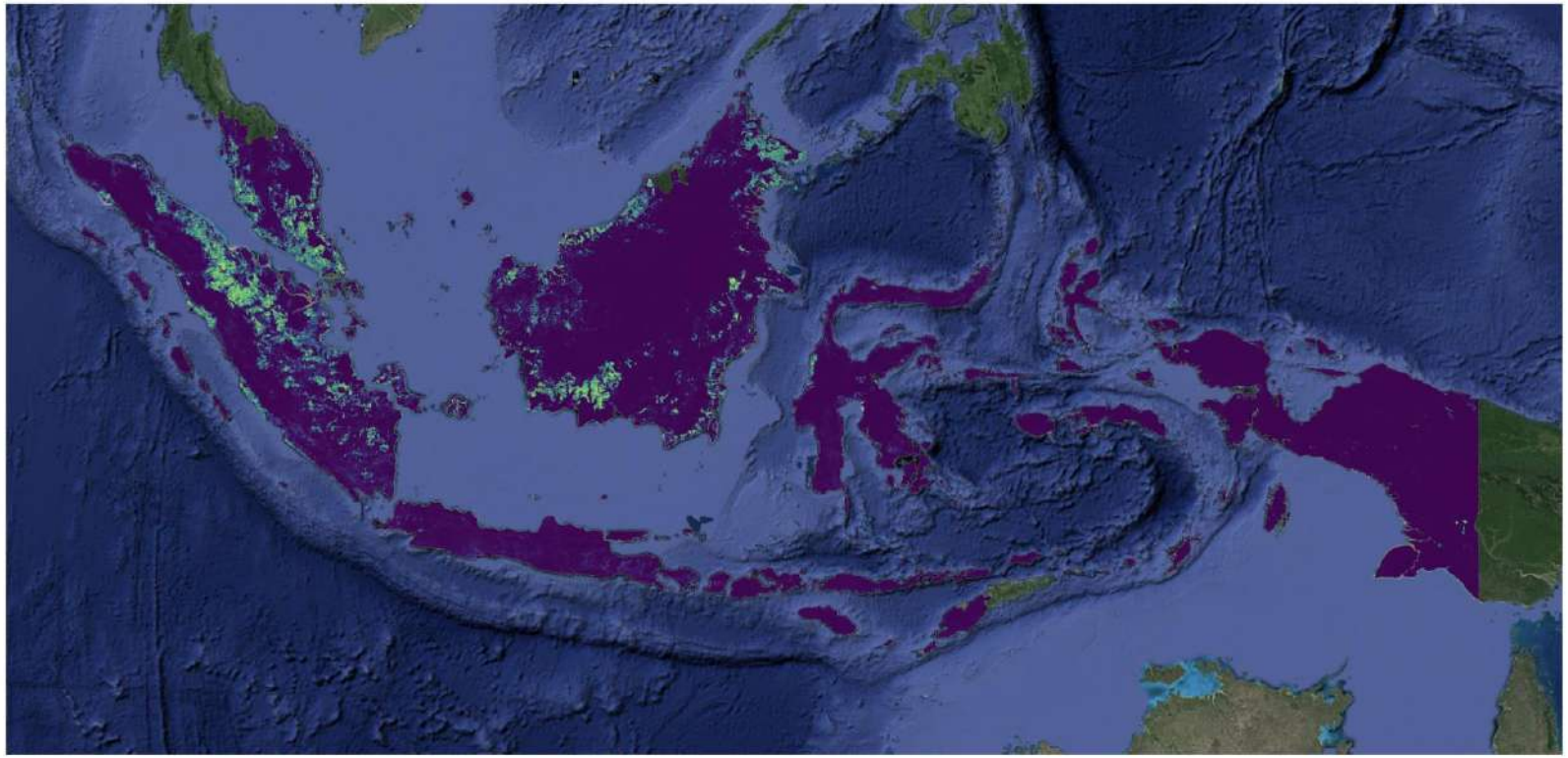
Deep learning for bud rot detection

Global examples of success



Satellite imagery for fertilizer detection using SVMs and random forests

Global examples of success



Satellite imagery for density estimation

Key lesson: rethink your processes!

1B1
2B1
3B1
4B1
1A1
2A1
3A1
4A1
2178
KIVA Systems
1348
1348
1374
1375
1377

Reimagine work to get real value from AI

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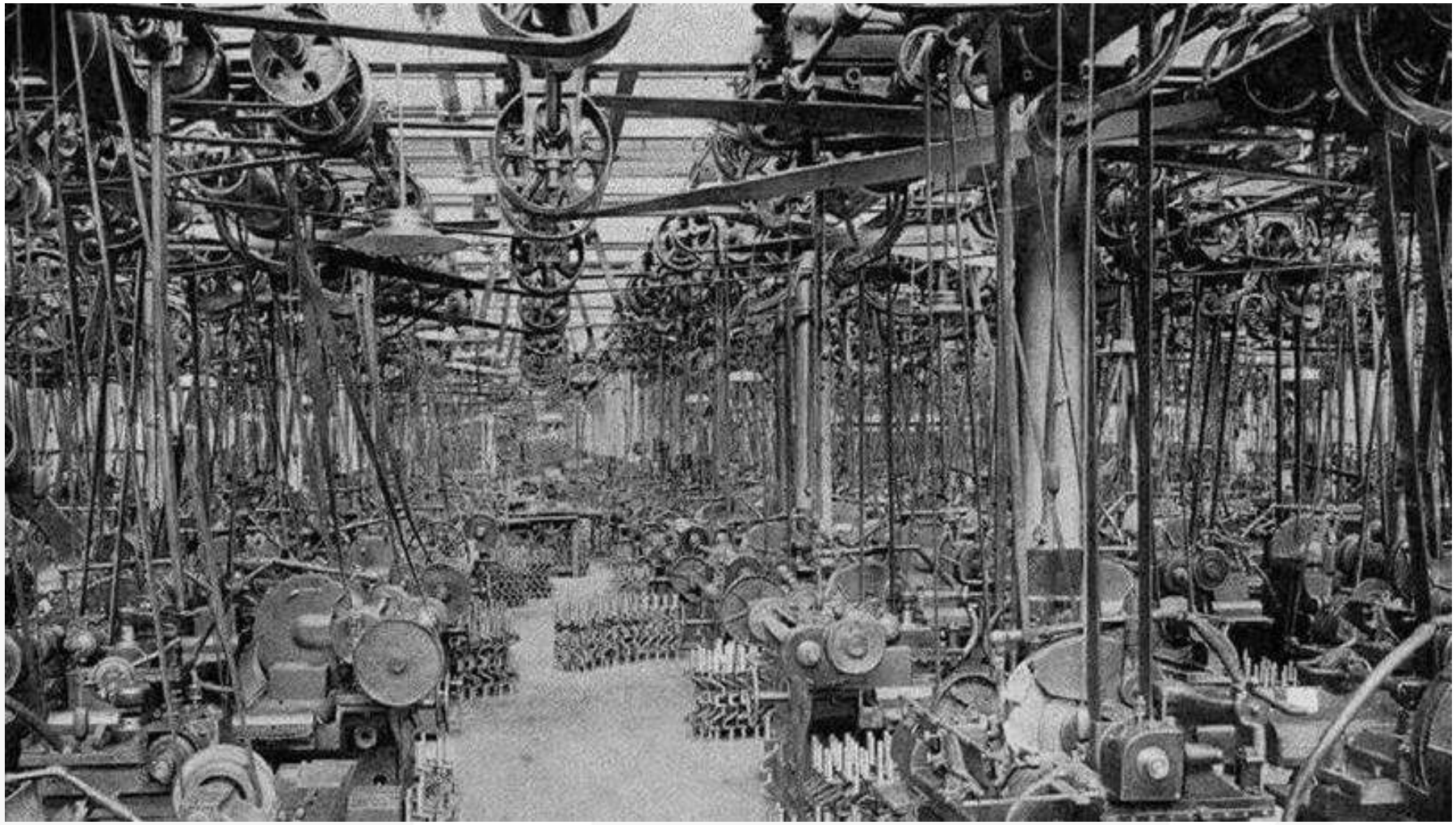
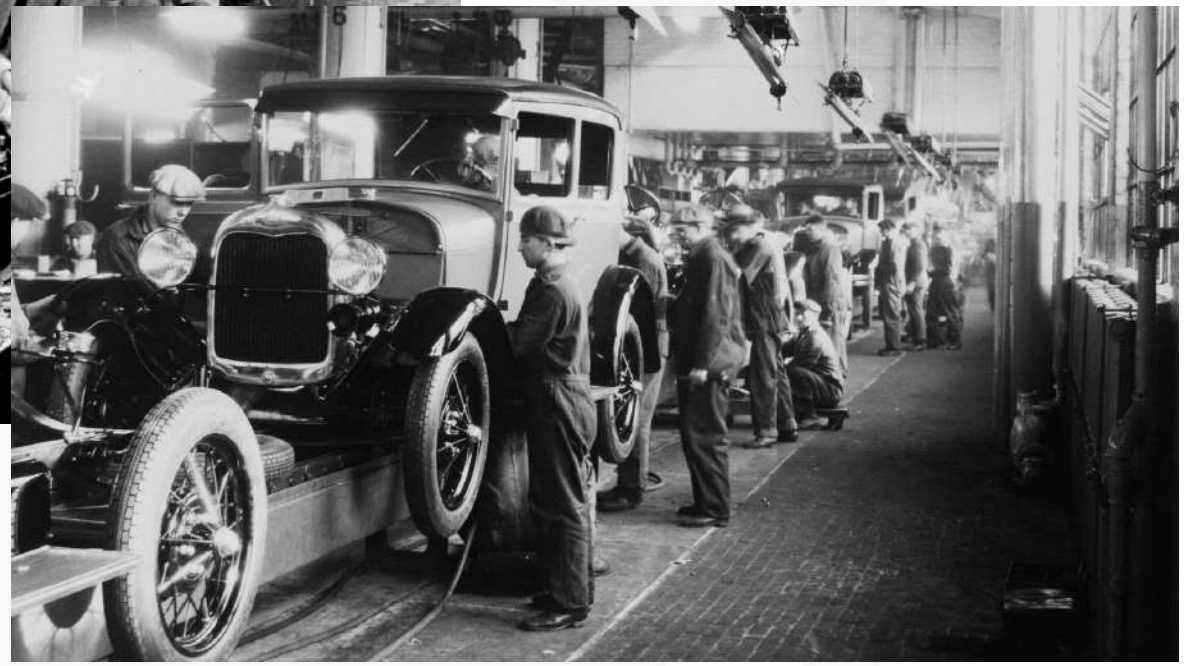
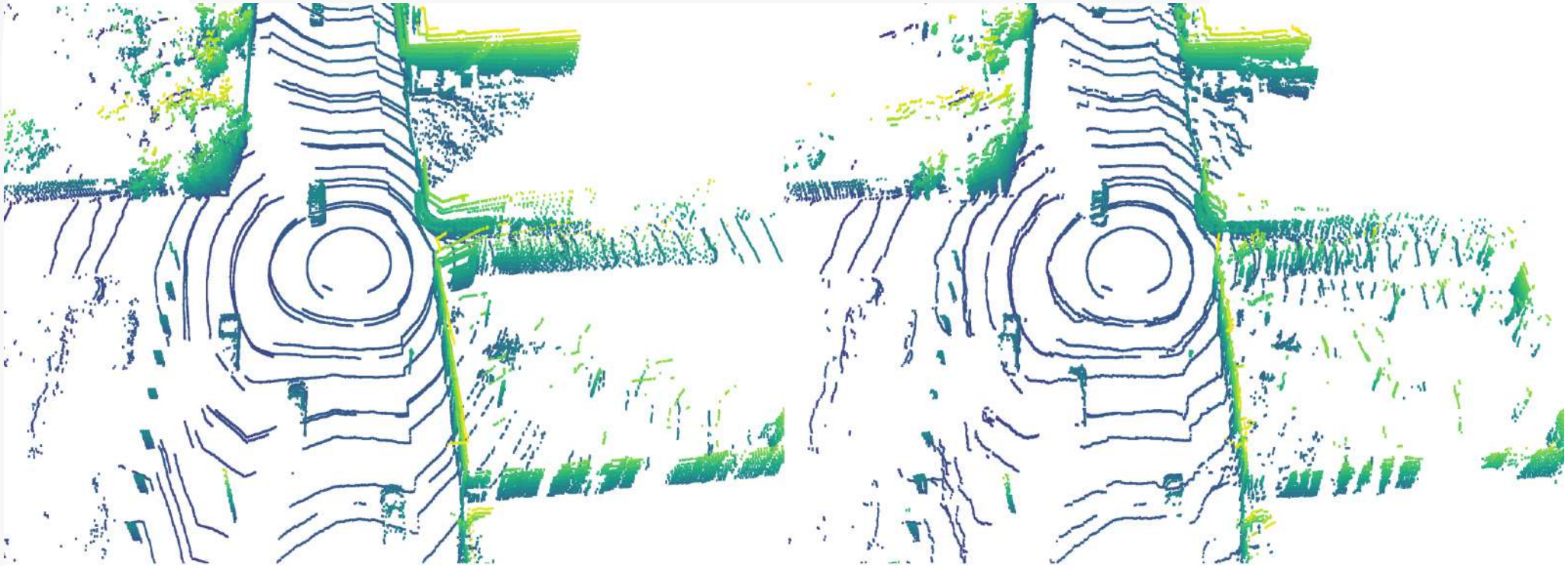


Reimagine work to get real value from AI

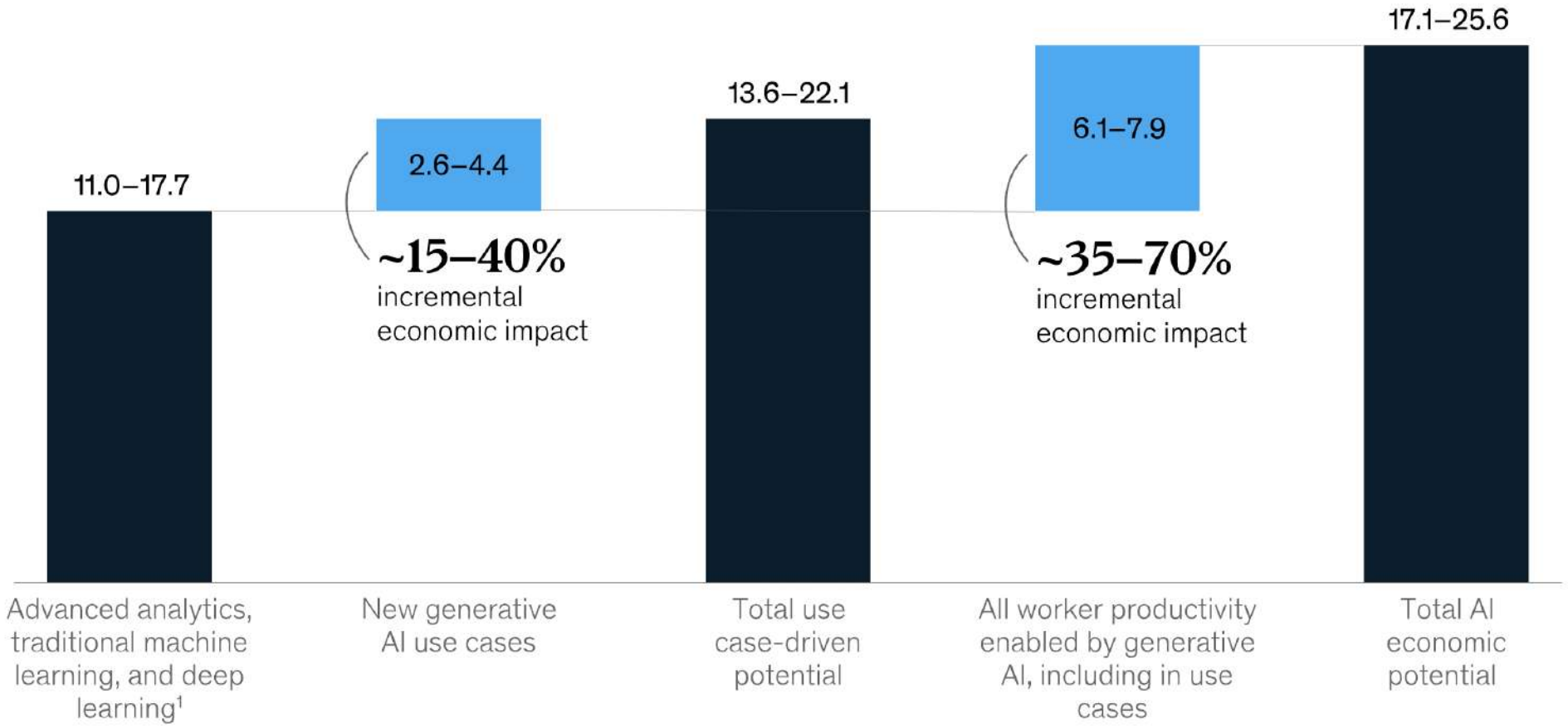


the future: “world models”



the future: “world models”

global GDP and AI sovereignty



Source: McKinsey Global Institute, 2024

AI sovereignty and national autonomy

MUCHAS GRACIAS

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