



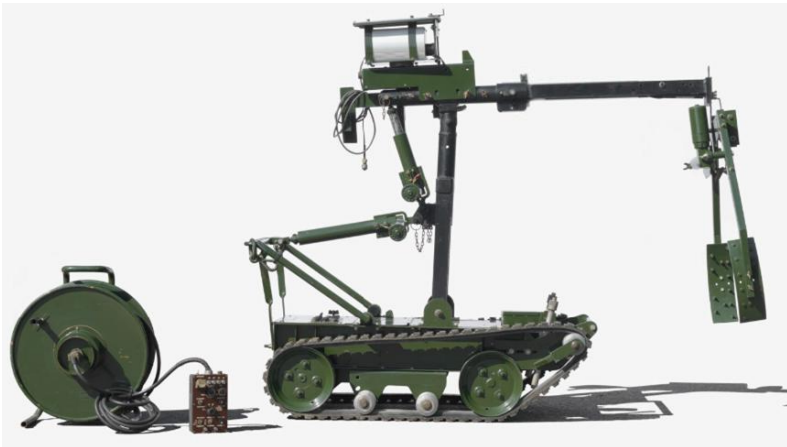
Defence Academy
of the United Kingdom

Artificial Intelligence

Opportunities and Risks
for Defence & Wargaming

Military use of AI

- Robots...
- See Wikipedia:
Lethal Autonomous
Weapons...



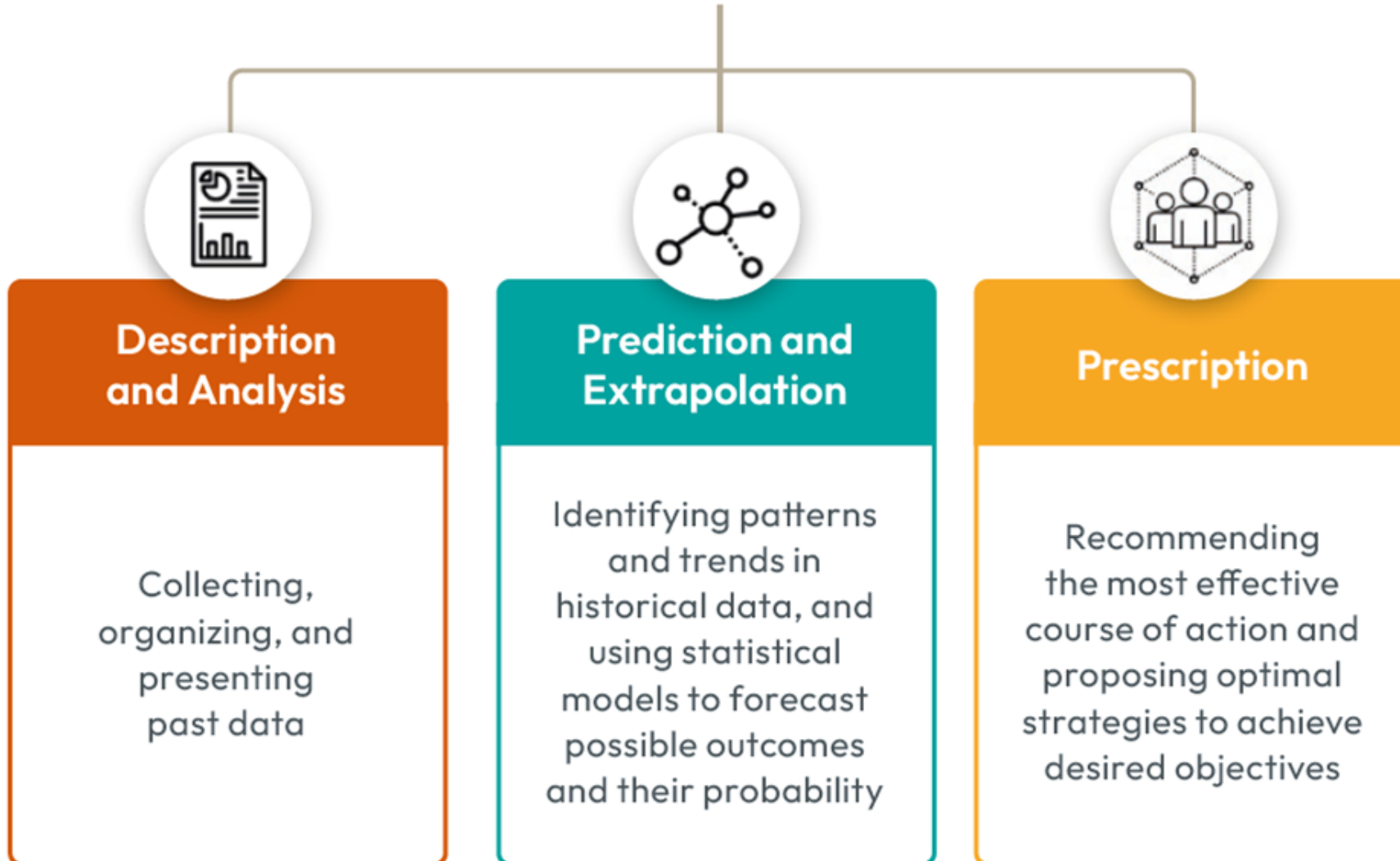
Military use of AI

- Decision Support...
- Decision Advantage...
- Etc...



Military use of AI

Types of AI DSS



Example Data

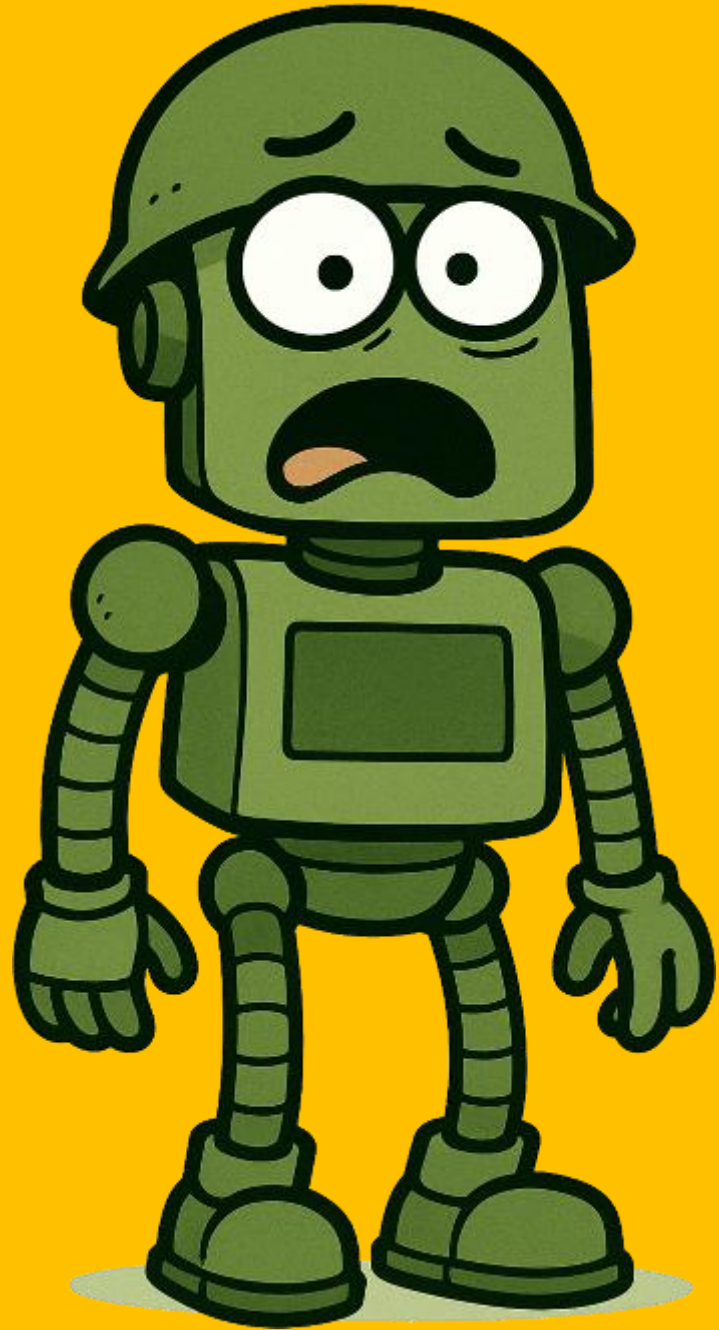
- The UK has the Tactical Engagement System for live training.
- It consists of 2 parts:
 - The Direct Fire Weapon Engagement System (SAAB).
 - The Area Weapons Effects *Simulator*.
- The MOD paid to keep *all* the data on the SAAB system. Locations, facing, motion, shots, hits, hit locations, timings, meteorological data, etc... For the past 30 years...

The UK Tactical Engagement System – Dismounted Infantry



The UK Tactical Engagement System – Armoured Gunnery





**AI doesn't know
your data
is shit**

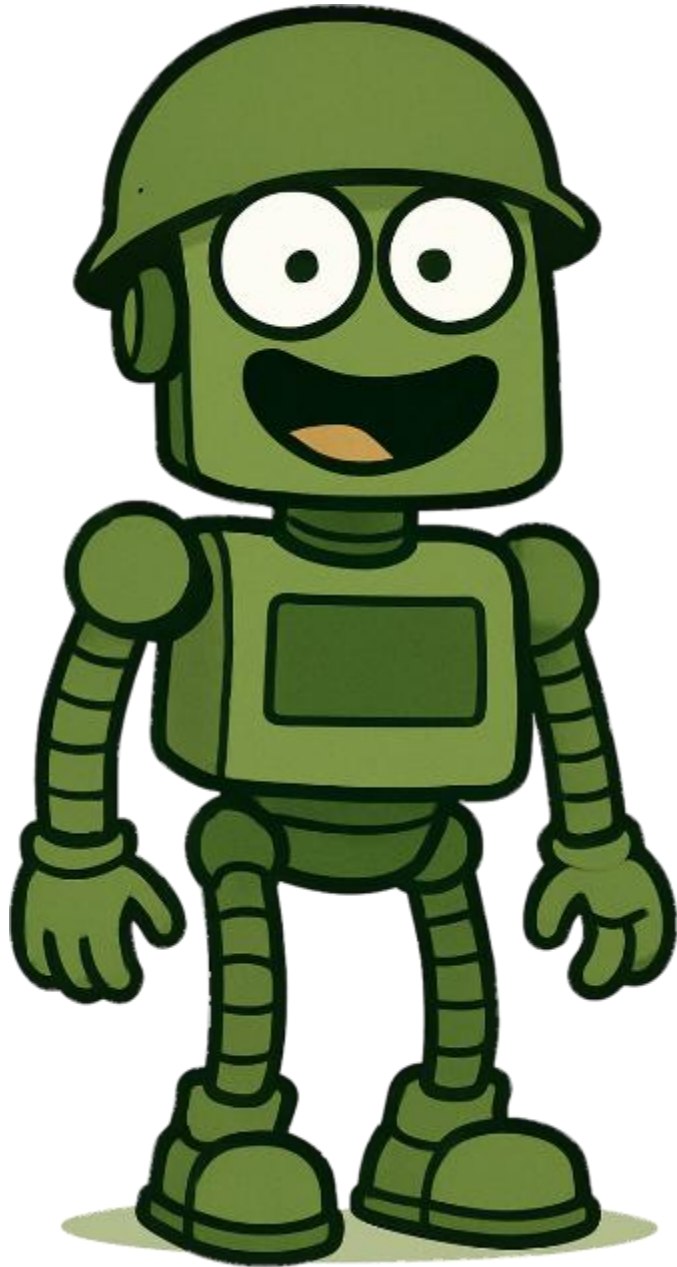


Analytics And Data Science

If Your Data Is Bad, Your Machine Learning Tools Are Useless

by Thomas C. Redman





Opportunities

- Process vastly more data in much shorter timescales.
- Can identify potential targets based on algorithmic data.
- Optimise logistics in order to service targeting opportunities.
- Use human/machine pairing to get better situational awareness.
- Can analyse situations and recommend COAs based on data.

- In theory, can help facilitate ethical and legal decisions...
- Help with humanitarian missions (locations, minefields, resources, etc).

Example uses of AI for Defence.

- Palantir MetaConstellation Tool. A commercial project that aggregates data from all sorts of inputs like commercial satellites, heat sensors, and drone footage.
- Project Maven. A Pentagon project using AI to process data from many sources, identify potential targets, display information through a user interface, and transmit human decisions to weapon systems.
- Kropyva. A Ukrainian project referred to as "Uber for Artillery".
- Lavender and Where's Daddy? Israeli Intelligence and Targeting.



REQUESTS

- Vehicle Detections**
8 Tasks, 1 issue IN PROGRESS
- Airplane Detections**
14 Tasks UPCOMING
- Facility Activity**
3 Tasks, 1 issue AWAITING
- Wildfire Detections**
8 Tasks AWAITING

[View all](#)

NAMED AREAS OF INTEREST

- Tomonsk Military Base**
13 Requests 3
- Medeleto Airfield**
11 Requests 1
- Woodland Ntl Park**
8 Requests
- Kerevstkai International Airport**
3 Requests
- Ubestrev Port**
13 Requests

[View all](#)

NOTIFICATIONS

- Spike in activity at Port of NJ**
3 minutes ago
- Unusual airplane activity at Komstyv Airb...**
31 minutets ago

[+ New Request](#)



[Get Started](#)

Palantir Examples

- Gotham: Threat Analysis and Intelligence Collection.
- Foundry: Strategic Operations and Data Fusion.
- Apollo: Direct software connection for real-time updates and correction.

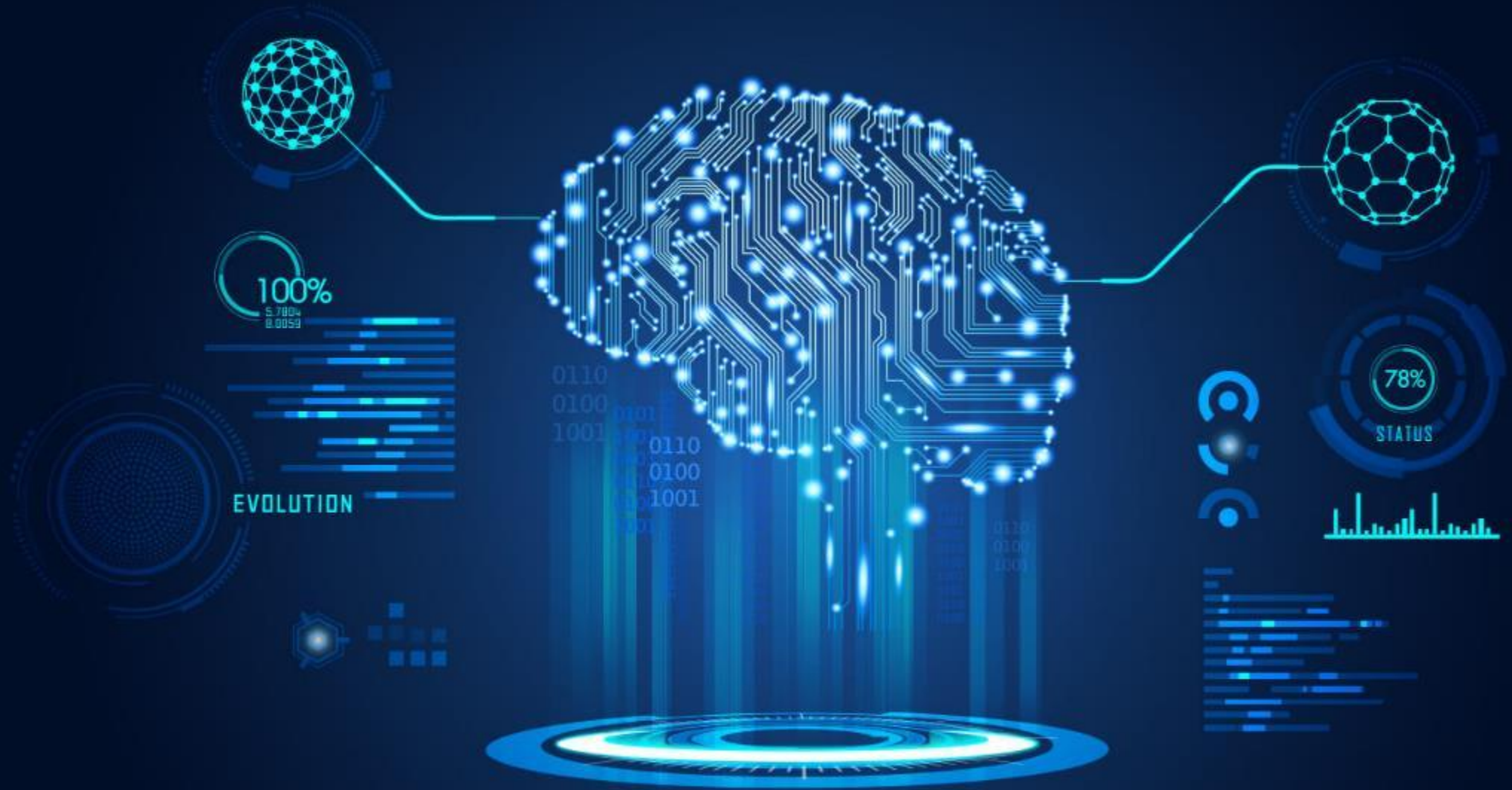
But:

- It is all proprietary AI – a “Black Box” targeting system...
- Collection, Processing, Targeting Authority, and Execution Accountability.

Experience in Iran:

- 31 May: Palantir Mosaic (with IAEA), flags an Iranian stockpile 50% spike.
- 6 June: USA and Israel Attack.
- 18 June: IAEA: “no proof of a systematic weapons program”.

The wargaming question:



Could we run COAs through an AI to get the answer?

Friction

"It is friction that differentiates real war from war on paper."

"Everything in war is very simple, but the simplest thing is difficult. The difficulties accumulate and end by producing a kind of friction that is inconceivable unless one has experienced war."

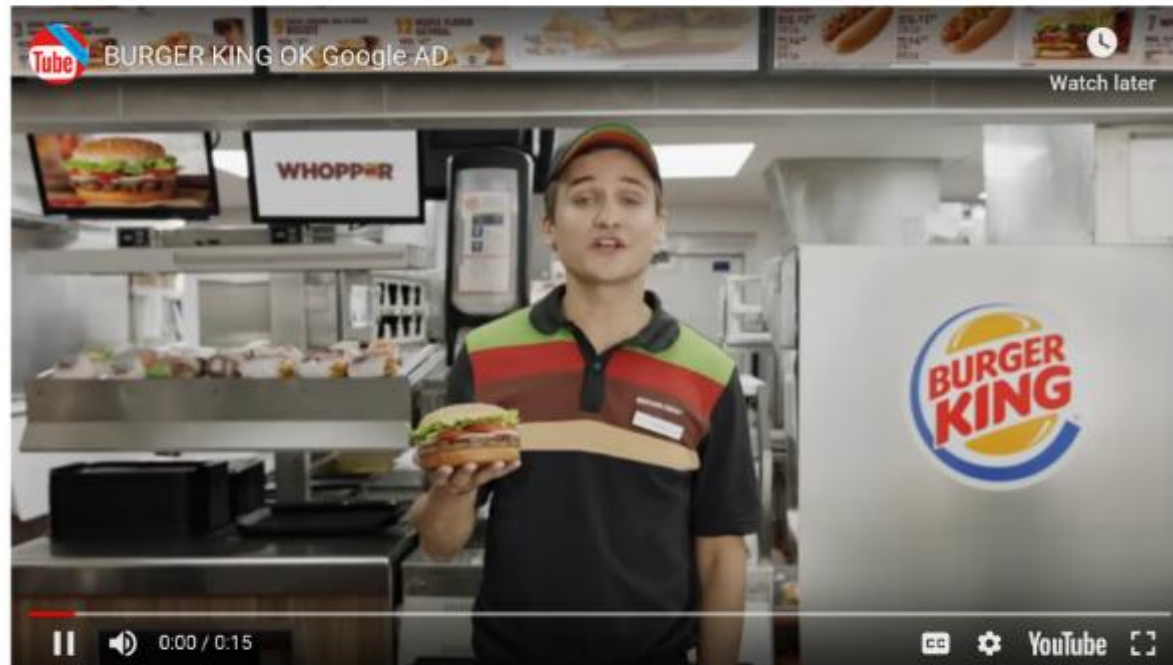


Constructive Simulation Systems (and others)

- **Where do they get the data?**
 - **The Internet...**
 - **Open Street Map...**

Burger King just became the first brand fail on Google Home

Yesterday, Burger King US ran a 15-second spot that ended with the question: 'OK Google, What is the Whopper Burger?'



Unfortunately, Burger King created the ad without Google's input and the 'OK Google' command triggered the device to read off a description from Wikipedia that had been pre-edited by the Burger King marketing team.

AI, and Machine Learning Optimisation

- **UK Higher Command and Staff Course.**
 - **International Course.**
 - **40 x Colonels and 1-Star Officers.**
 - **Planning exercise for HADR intervention - Somalia**
-
- **Solutions were widely varied, and MUCH better for that...**

Optimisation

- Predictability and subsequent focus...



Optimisation

- Fragility...
- Single point of failure...



MAGAZINE • FORTUNE 500

The case of the missing toilet paper: How the coronavirus exposed U.S. supply chain flaws

BY JEN WIECZNER

May 18, 2020 1:30 PM GMT+1

Problems with *AI in itself*:

▪ Bias and Language.

- <https://www.bloomberg.com/graphics/2023-generative-ai-bias/>
- <https://medium.com/readyai-org/breaking-the-language-barrier-unleashing-the-full-potential-of-generative-ai-systems-56bf4d6d7ba8>

▪ Dangers to Mental Health.

- [Artificial intelligence has psychological impacts our brains might not be ready for, expert warns - ABC News](#)

▪ Security.

- <https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-2e2023.pdf>
- <https://bdtechtalks.com/2025/06/23/anthropic-agent-misalignment/>

▪ Poisoning the Well.

- [Data Poisoning: How AI Models Are Corrupted - ReHack](#)

▪ It doesn't work (in a lot of business cases)

- <https://fortune.com/2025/08/18/mit-report-95-percent-generative-ai-pilots-at-companies-failing-cfo/>

▪ Contributing to Global Warming.

- <https://www.cbsnews.com/news/artificial-intelligence-carbon-footprint-climate-change/>

▪ Stealing other People's IP and Livelihood.

- <https://hbr.org/2023/04/generative-ai-has-an-intellectual-property-problem>
- <https://www.bigissue.com/news/employment/ai-job-losses-employment-uk-ippr/>

▪ Traumatizing Coders and Developers.

- <https://time.com/6247678/openai-chatgpt-kenya-workers/>

▪ Senior Officers.

- https://www.rand.org/pubs/research_reports/RR2250.html (Over-valued simulations)



Problems with *AI for Defence*

▪ It is Expensive

- GPT-4 cost \$100M to train.
 - <https://www.forbes.com/sites/katharinabuchholz/2024/08/23/the-extreme-cost-of-training>
 -

▪ It is a Black Box

- Why should I kill this person?
 - <https://umdearborn.edu/news/ais-mysterious-black-box-problem-explained>
 -

▪ It is based on out-of-date information

- 10 April 1998 problem (Gerry Adams goes from Terrorist to Politician).
- Data Drift.
 - <https://davegoyal.com/data-drift-in-production-why-static-ai-assumptions-fail/>
- AI can't handle clocks and dates.
 - <https://www.azoai.com/news/20250316/AI-Fails-at-Basic-Time-and-Date-Tasks-e28094-Heres-Why-Ite28099s-a-Big-Deal.aspx>



Problems with *AI outputs*:

▪ Identifying the Wrong Target.

- [Report: U.S. marked AI Jazeera journalist a terrorist – POLITICO](#)
- [IDF Reportedly Using AI system, "Lavender," to target militants in Gaza, Sparking Debates on the Future of AI Warfare. - The Debrief](#)

▪ Failure of Original Thought.

- <https://medium.com/@axel.schwanke/generative-ai-never-truly-creative-68a0189d98e8>
- <https://www.nature.com/articles/s41598-025-93794-9>

▪ Failure of Forecasting (<https://www.metaculus.com/>):

- <https://sourcesandmethods.blogspot.com/2024/07/how-good-ais-make-tough-choices.html>

*"Our findings from entering GPT-4 into real-world forecasting suggest that even this state-of-the-art LLM has **unimpressive forecasting** capabilities.*

*Despite being prompted with established super-forecasting techniques and best-practice prompting approaches, GPT-4 was **heavily outperformed by the forecasts of the human crowd.***

*It did not even outperform a no-information baseline of predicting **50% on every question.**"*



George S Patton

If everyone is
thinking alike,
someone
isn't thinking.

So – Let's experiment?



Or
Wargame

- Let's pretend we have a *really good sim* and it is an accurate model.
- Let's pretend AI can *put an ORBAT on a map, the map is accurate and up to date, and we can move it realistically.*
- Then let's train an AI to produce "the best plan" – ignoring the fact that the enemy might have ideas of their own...
- We have use someone else's AI because we can't afford our own...
- So, what is stopping the enemy from doing the same thing?
- Optimisation = predictability = single point of failure.
- ... the results *might* be different each time, but *only because Als roll dice...*

AI Agents - Commanders and Generalship

- Warfare is inherently messy, unpredictable, and context-dependent. Command decisions require judgment, intuition, and an understanding of the political, moral, and human dimensions of conflict—capacities that AI lacks.
- Warfare demands *abductive* reasoning and judgment—not just pattern recognition.
- Defense planners should stop chasing the fantasy of AI commanders and instead focus on realistic, supportive applications where AI's strengths can assist (like pattern recognition) human decision-makers.

Baselining and the Scientific Method?

- Poking fun at AI is intellectually lazy.
- I've been in uniform since 1978.
- I have changed my position in the last 3 years.

But...

- I don't see clear objectives.
- I don't see comparative studies.
- I don't see Balance of Investment reports.
- I don't see proper thinking, just *“shiny toy syndrome”*

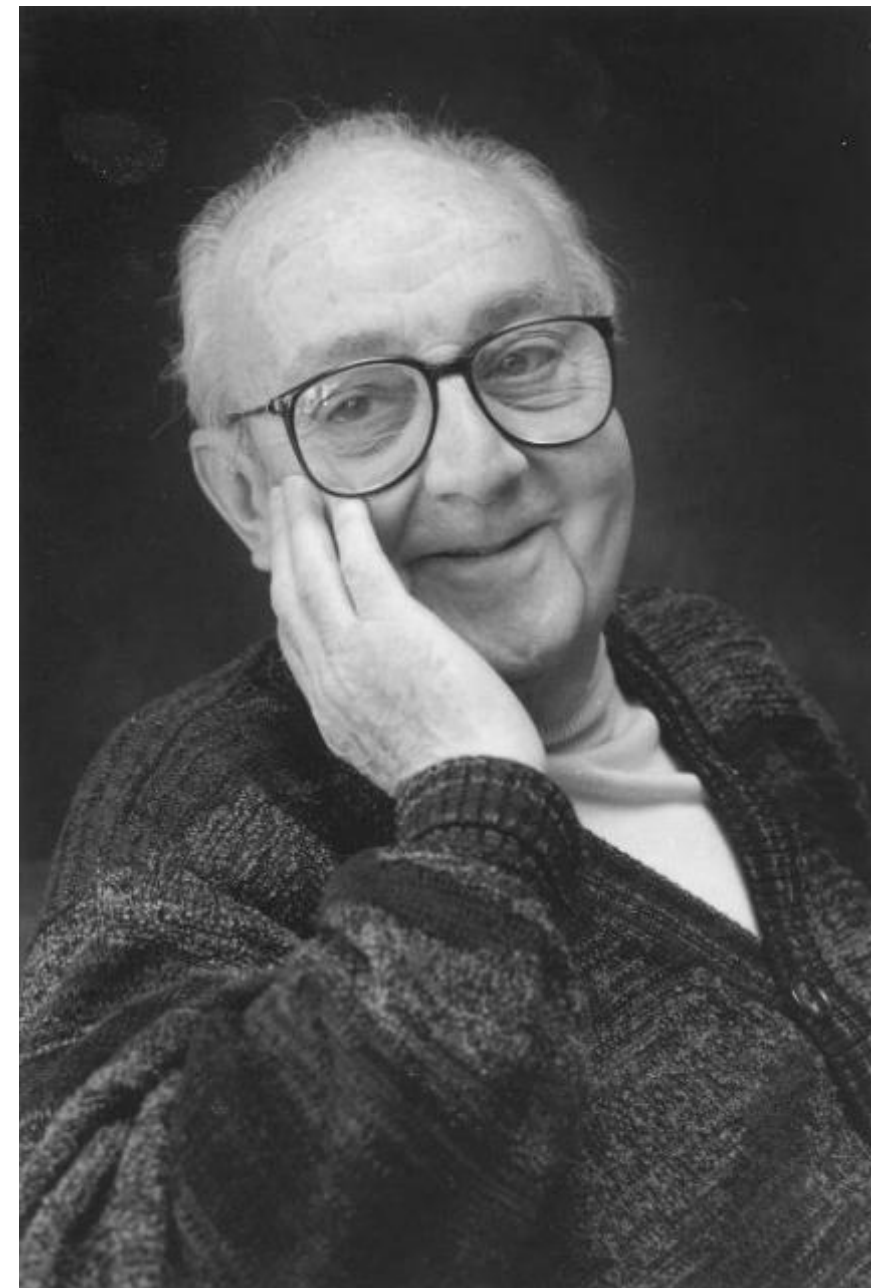
All Models are Wrong

...all models are wrong, you cannot obtain a "correct" one by excessive elaboration.

On the contrary we should seek an economical description of the phenomena.

The ability to devise simple but evocative models is the signature of a great scientist, and over-elaboration and over-parameterization is the mark of mediocrity.

George E. P. Box, 1976



The Marines want to get rid of their tanks. Here's why.

March 26



Marine Corps M1A1 Abrams tank gunners will be able to program when main gun rounds explode. (Lance Cpl. Holly Pernell)

A series of [wargames](#) conducted between 2018 and 2019 helped inform the Corps' decision to divest of tanks and outmoded units and equipment that will have trouble surviving in fight with peer adversaries like China, according to a Marine Corps force redesign [report](#).

Builder.ai Collapses: \$1.5bn 'AI' Startup Exposed as 'Actually Indians' Pretending to Be Bots

Story by Vinay Patel • 1d • ⌚ 3 min read



But who is to say the AI is wrong?

A person wearing a white jacket and dark pants stands with their back to the camera in a field of tall grass. In the background, there is a line of evergreen trees under a hazy, overcast sky. The text 'KEEP PANICKING.' is overlaid in white, bold, sans-serif font in the center of the image.

KEEP
PANICKING.

The Human Element.

*"The human element has always been important in war, and **despite the technology available to both sides, the human element is undoubtedly the most significant feature in war.**"*

Col Trevor Dupuy.

In the end – it is down to *people*.

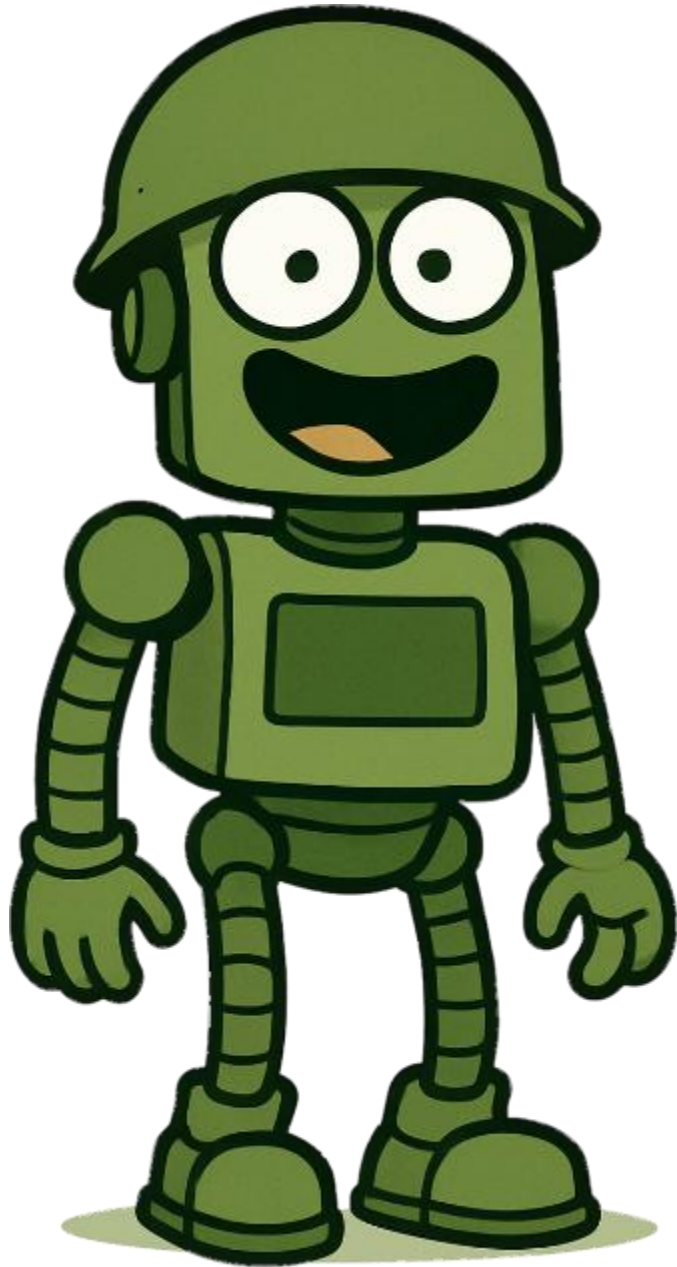


U.S. Marines Outsmart AI Security Cameras by Hiding in a Cardboard Box

JAN 30, 2023

PESALA BANDARA



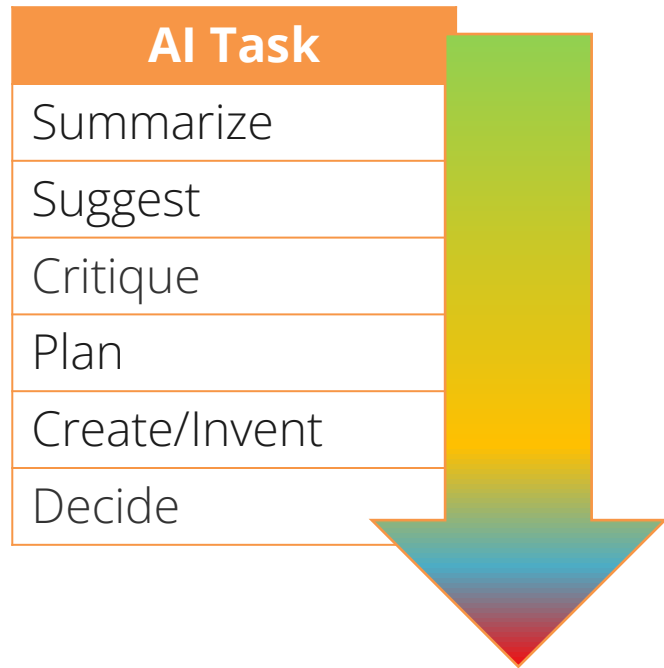


Opportunities – Really...?

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Actionable Guidance from AI Cautionary Tales



As your tasks move “down” the workflow, exercise additional caution...

- LLMs can hallucinate – check your sources
- Do not rely on LLMs to create complete sets. It is good at making some suggestions; bad at exhaustive combinatorics.
- Beware of LLM fawning – your ideas are not always good, but it will tell you they are.
- AI can suggest ways to break down projects into tasks, but lacks the expertise to know what’s missing from those plans or how your context differs from the typical.
- AI can make a first draft, but your expertise is needed to introduce the novelty that makes the work original.
- AI should never be tasked with making a decision that requires legal or moral accountability. It cannot take responsibility for its actions.



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