

CAN AI HELP WITH WINTER OPERATIONS OR IS IT JUST HYPE?

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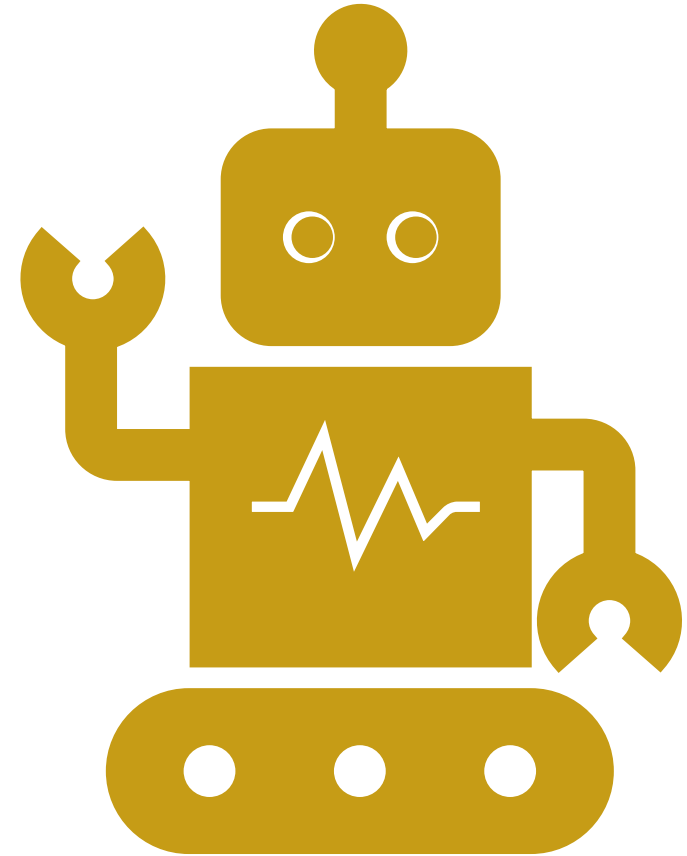
OUTLINE

What is AI?

Examples of AI used in winter operations

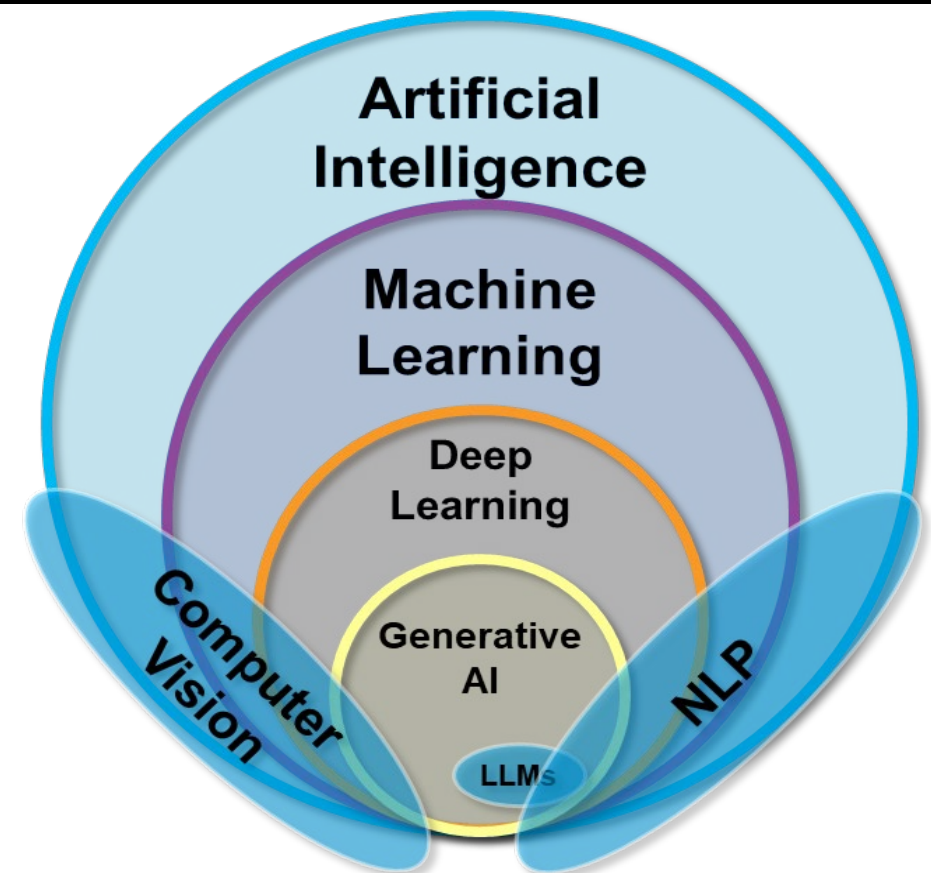
Best Practices

Using it!



WHAT IS AI?

- Machines achieving human-level intelligence
- ML is about extracting patterns from data.
- DL is a type of ML for finding patterns in unstructured data using Neural Networks.
- Generative AI generates new text, audio, images, video, or code.
- Large Language Model (LLM) – Generative AI for text
- Natural Language Processing (NLP) – enables understanding & generation of human language
- Computer Vision – allows machines to interpret visual data



Source: Esri, Inc.

REDUCING COGNITIVE LOADS

Basically, in vehicle automation

Many times operators have to do multiple tasks basically at once

We can use automation, combined with geolocation, to reduce some of the cognitive loading

GEO-FENCING

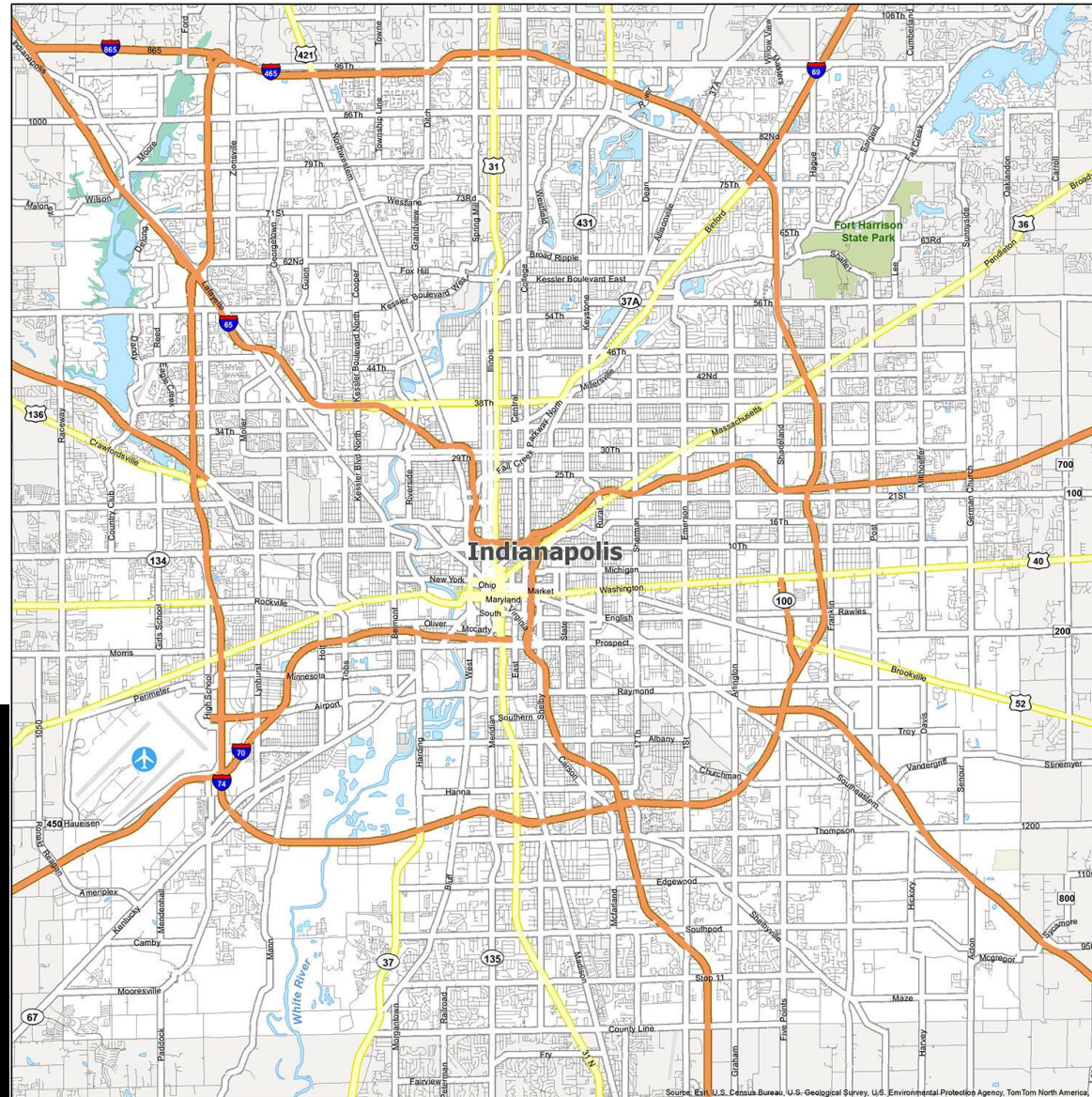
Used on I-465 ring road around Indianapolis

Only want to apply liquids on bridges and underpasses

By using geo-fencing to switch liquids on and off, they limit the load on the operator

53 miles long, 35 intersections, lots of other bridges and underpasses





OTHER EXAMPLES

Dynamic routing of various sorts

- Sweeping, painting, garbage collection, snowplowing

Automated deployment of equipment

- Mowing attachments around guardrails

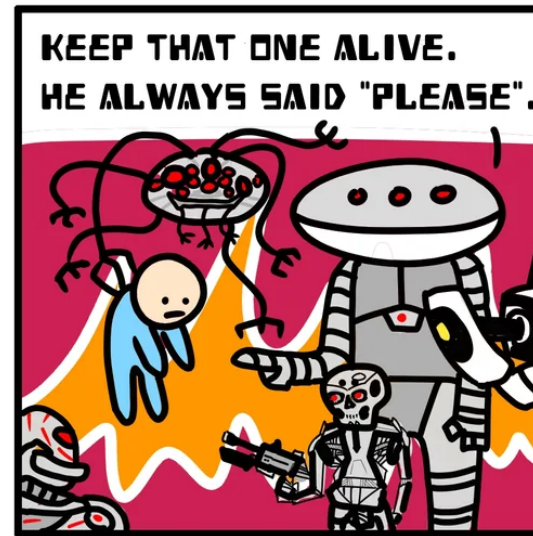
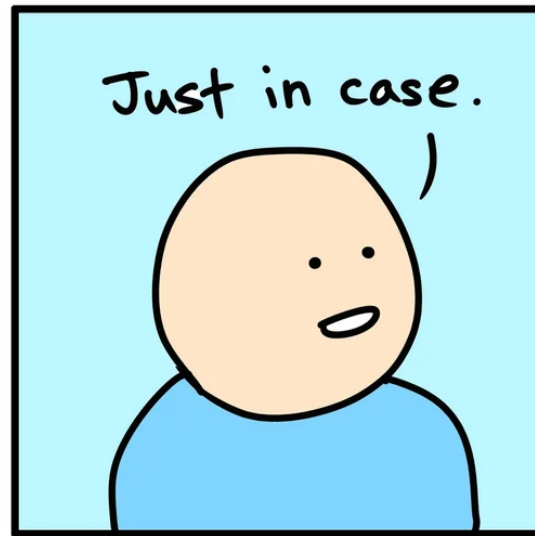
“Tethering” of vehicles in multi-vehicle type situations

- Shadow vehicles with no operator on board

SO, WILL AI REPLACE US?

Not likely in the next couple of decades, but...

Workers who use AI, and multiply their impact by doing so, will replace workers who do not use AI...



What kinds of best practices?



Prompt Refinement

Use acronyms to remember to enhance prompt clarity and effectiveness.



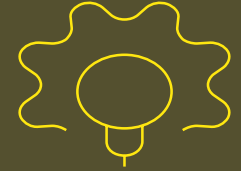
Verify Output

Check AI-generated answers and sources to ensure accuracy.



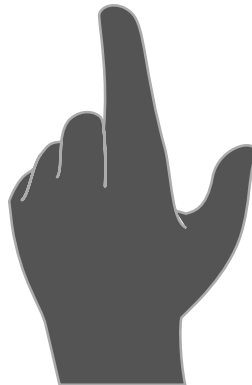
Check for Bias

Be aware of potential biases in AI-generated images.



Continuous Learning

Stay updated and reflect on AI usage for improvement.



USING IT IN WINTER OPERATIONS

Compare the fuel efficiency of different plow truck models

Develop an emergency response checklist for severe winter storms

Develop a citizen-friendly guide on how to clear driveway aprons

LET'S GO TO THE AI AND SEE...

The moment of truth...

CONCLUSION AND QUESTIONS



Lots of new stuff available these days

Some of it has great potential

But it only has value if it addresses our
specific issues/pain points

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