



Bringing AI into Clinical Research: A Hands-On Workshop



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A Systems Engineering Perspective

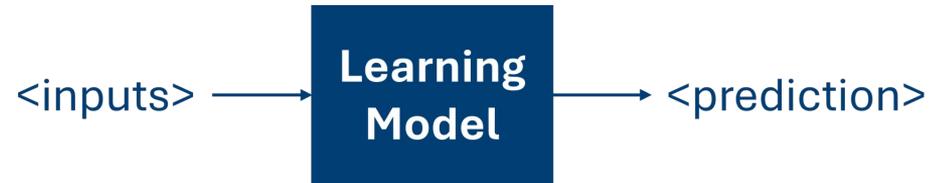
Christian Cabrera-Jojoa, Assistant Research Professor

How do we build AI-systems now?

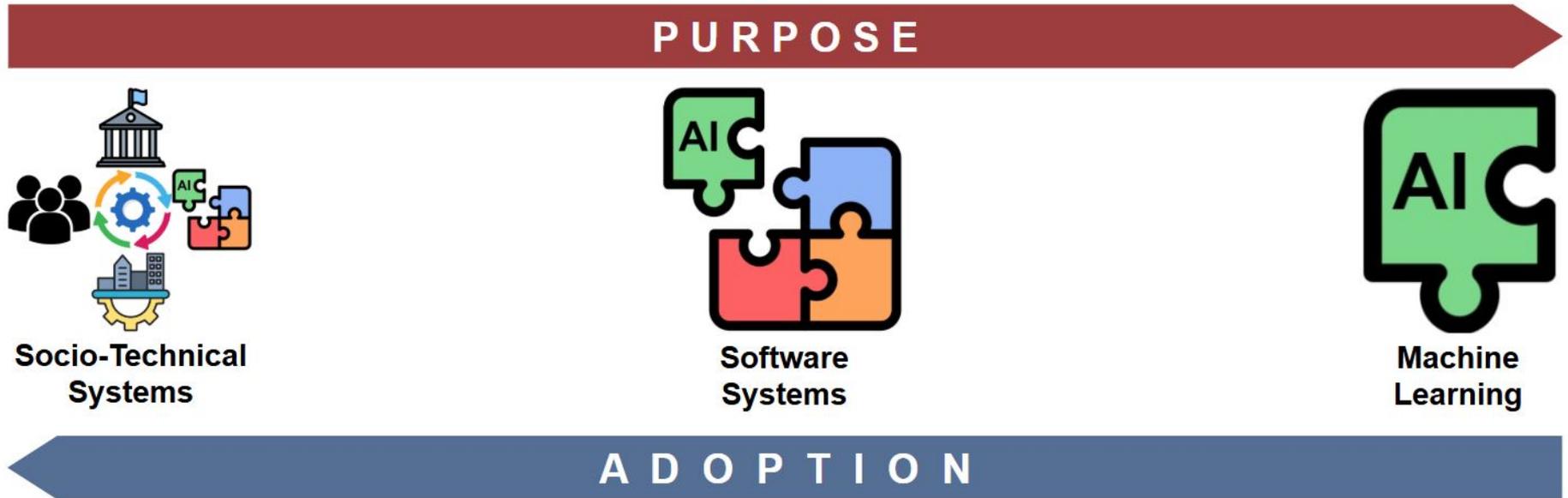


<https://xkcd.com/1838/>, CC BY-NC 2.5 , via XKCD

The “Technocentric” View



The ML Adoption Process



The ML Adoption Process

PURPOSE



A D O P T I O N

The **systems engineering** approach is better equipped than the ML community to facilitate the adoption of this technology by **prioritising the problems** and their context before any other aspects.

The Systems Perspective

PURPOSE



Socio-Technical
Systems



Software
Systems



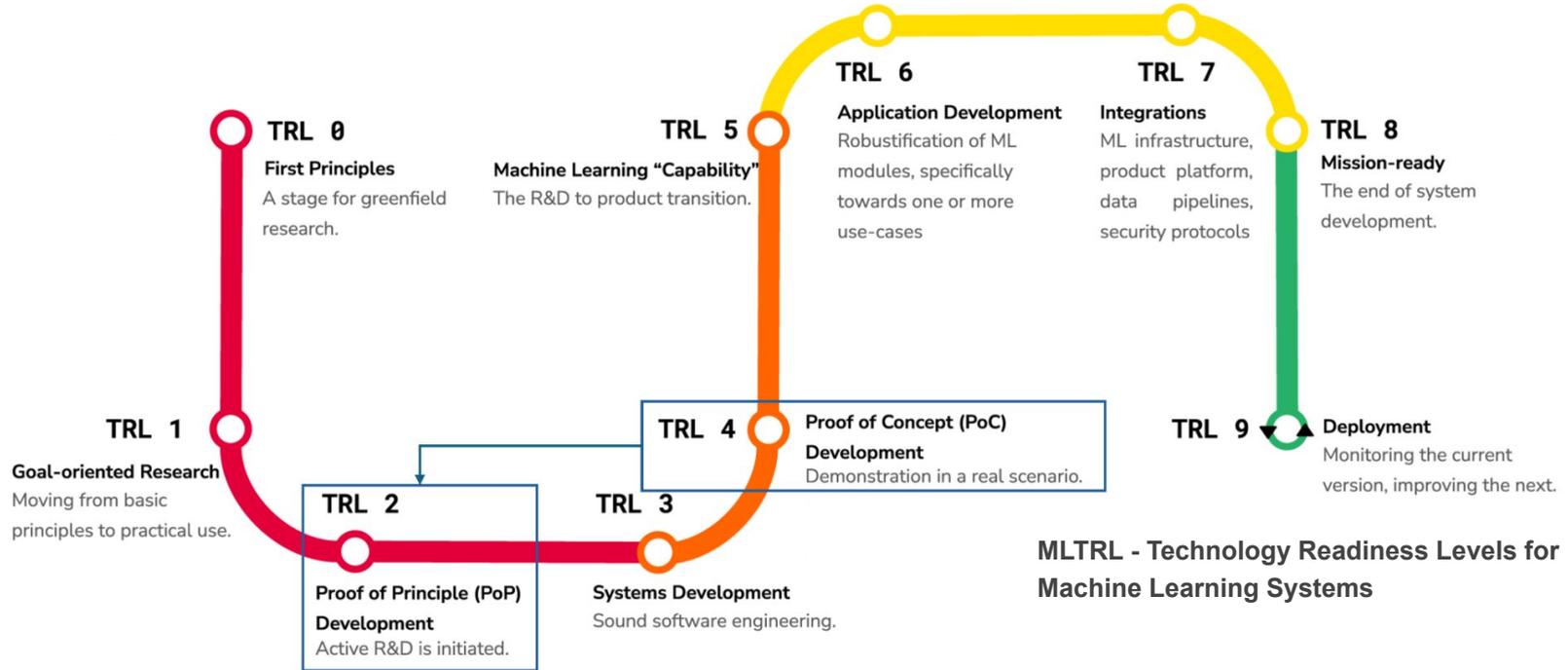
Machine
Learning

A D O P T I O N

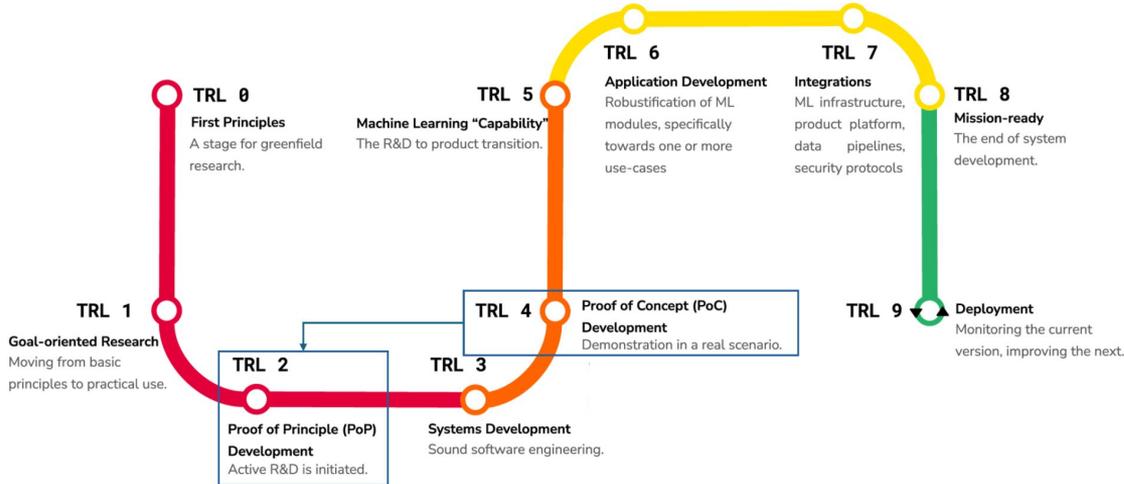
The **systems perspective**

- Requirements elicitation and HCI
- AI systems methodologies
- AI systems architectures
- Self-sustaining software systems

AI Systems Methodologies



AI Systems Methodologies



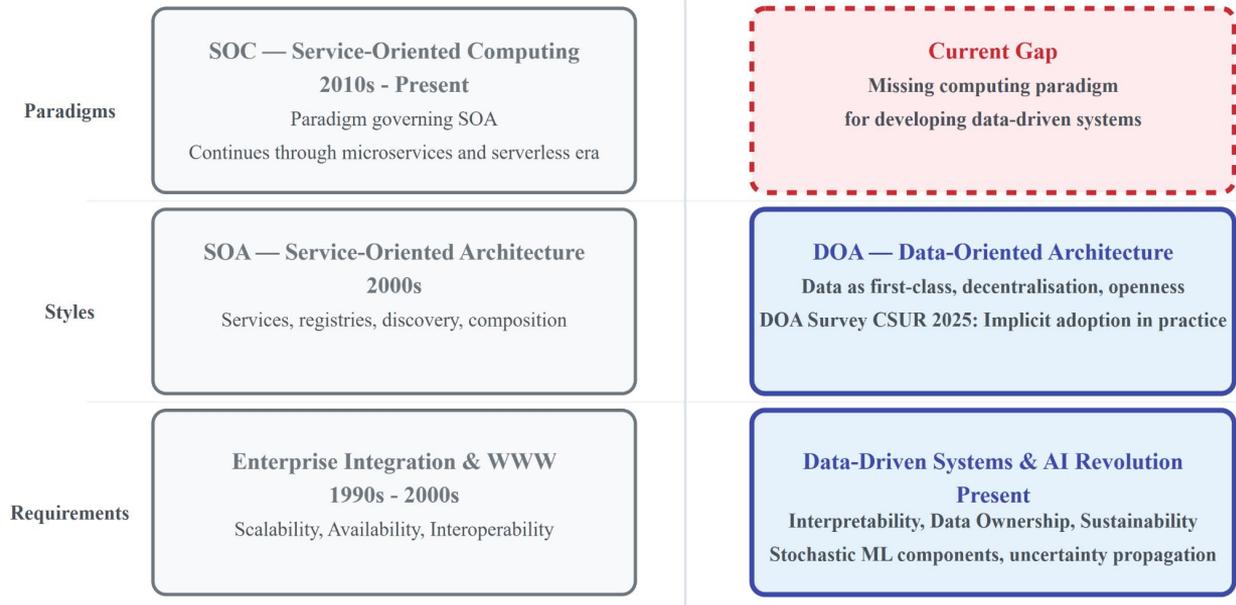
Research Questions

To what extent current methodologies meet healthcare domain requirements?

Do we need a particular methodology to develop healthcare AI systems?

AI Systems Architecture - DOCS

Parallel Evolution: Service Oriented (left) and Data Oriented (right)



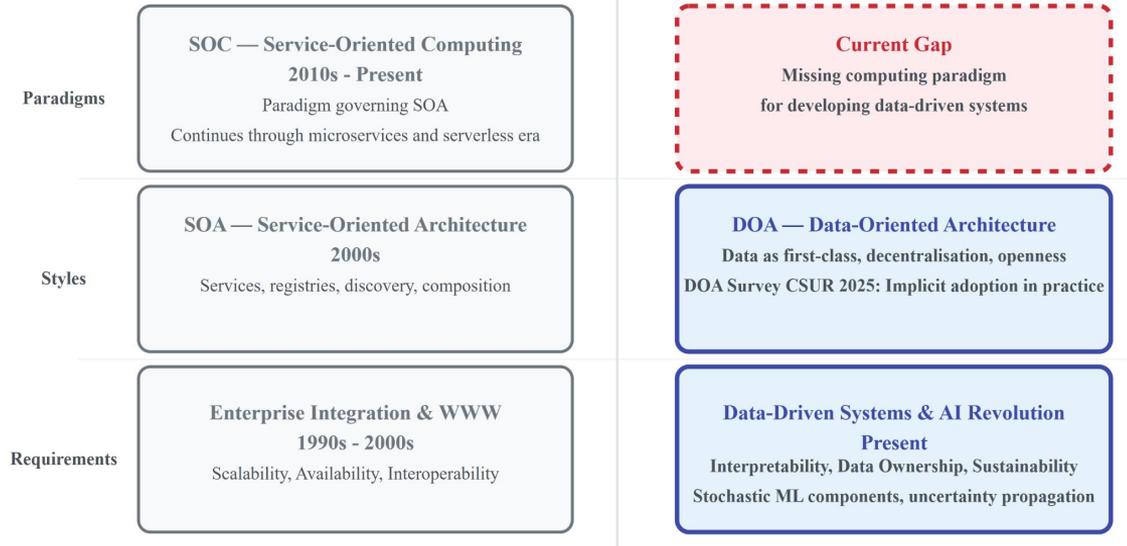
AI Systems Architecture - DOCS

Parallel Evolution: Service Oriented (left) and Data Oriented (right)

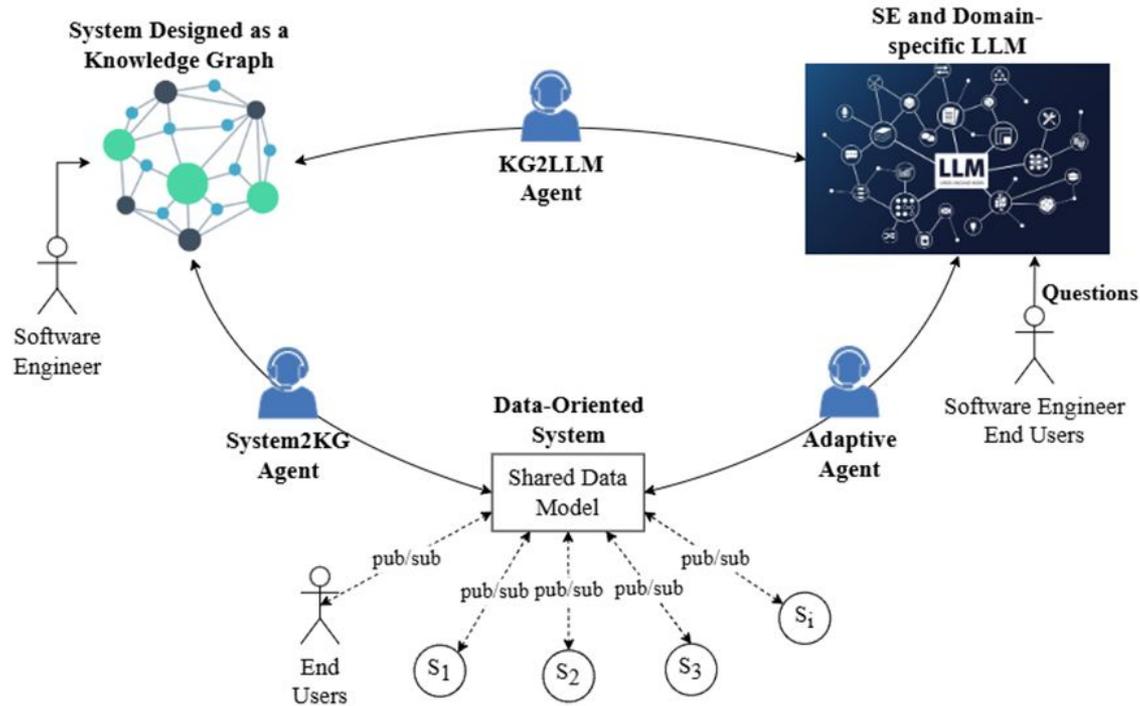
Research Questions

To what extent data-oriented architectures fit requirements from critical systems?

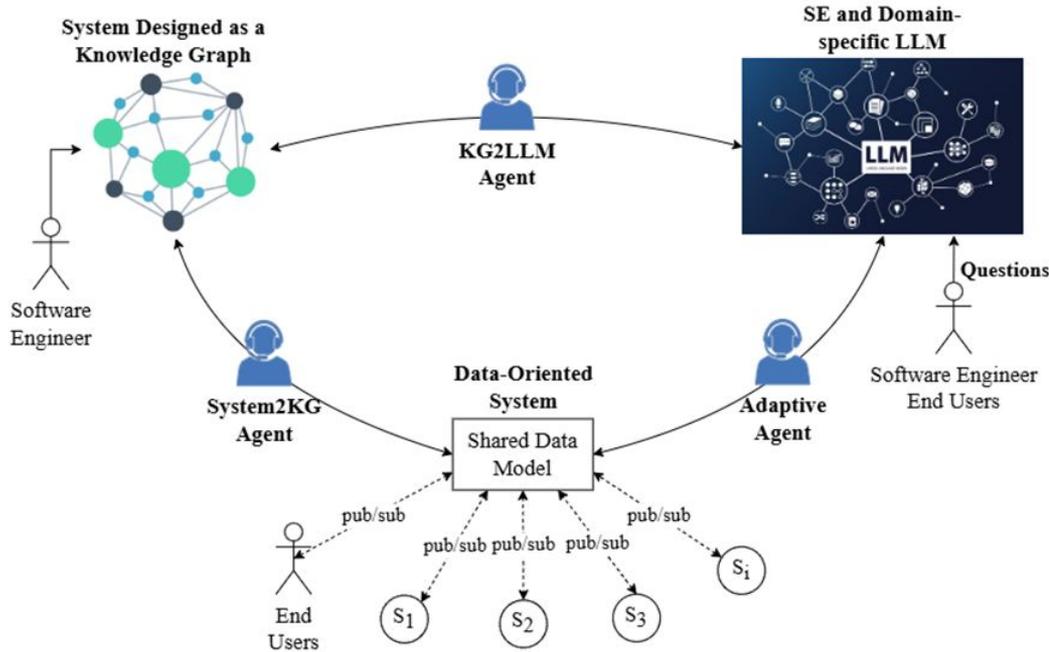
Can we generalise a data-oriented computing paradigm from our experiences in the healthcare domain?



Self-sustaining Software Systems (S4)



Self-sustaining Software Systems (S4)

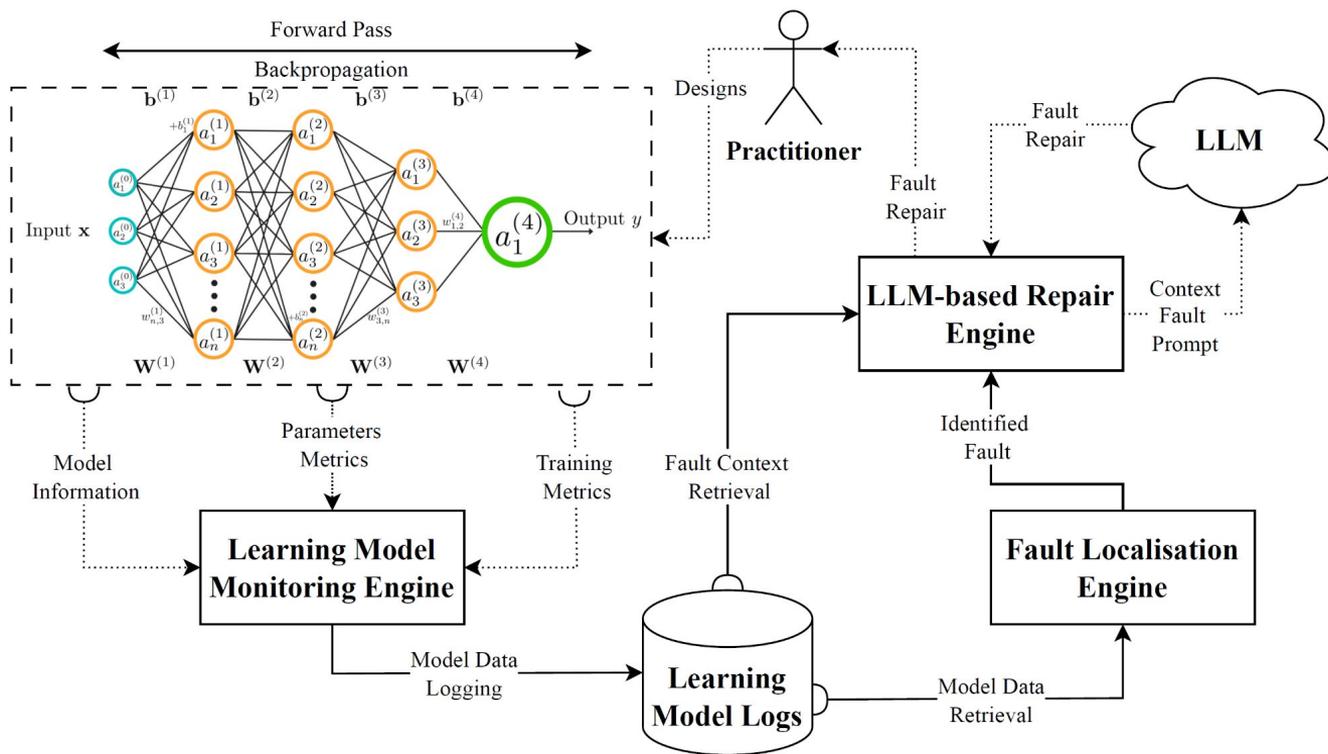


Research Questions

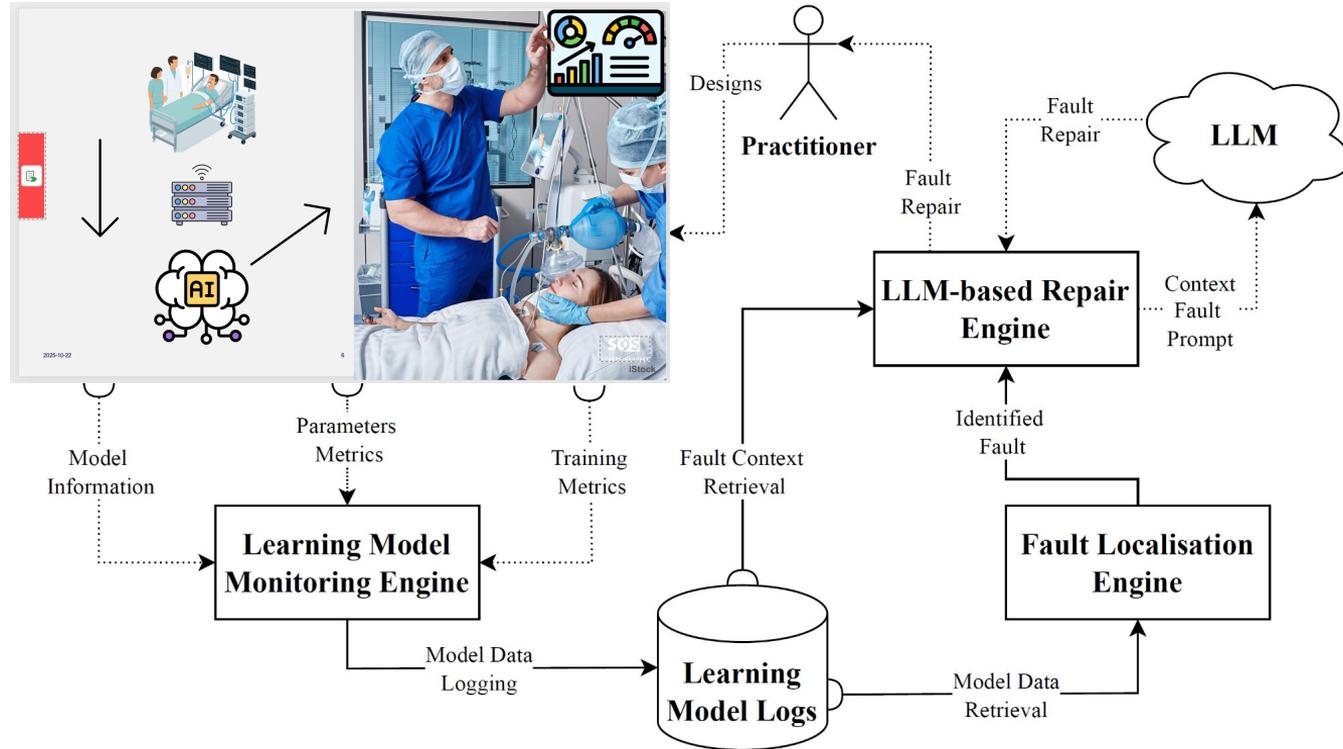
What are the self-sustaining requirements in the healthcare domain?

To what extent does our knowledge-loops approach fit these requirements?

The Systems Perspective in Action



The Systems Perspective in Action



Many thanks!