

“Machines make better doctors”
Nope.

Lara Hopley

Clinical Advisor, Digital Innovation

Waitemata District Health Board.



https://www.youtube.com/watch?v=ob_GX50Za6c



We have failed ...

Copyright 2011 Thomas G Murphy, MD –
JAMA June 20, 2012

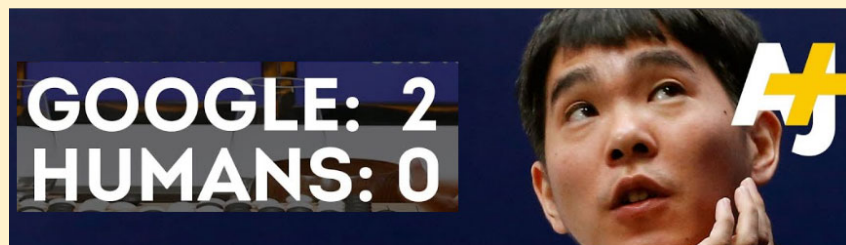
“AI will help us”



Deep Blue defeating Kasparov on May 11 1997



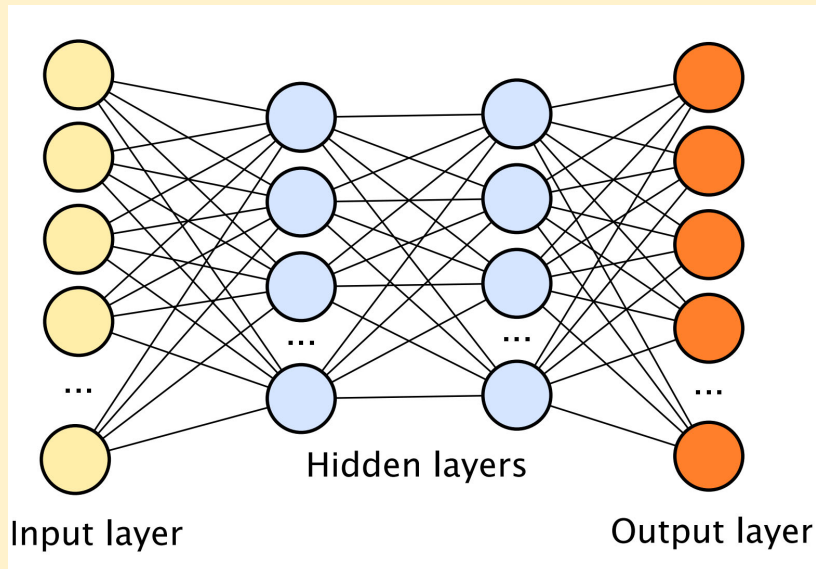
<https://www.theguardian.com/technology/2011/feb/17/ibm-computer-watson-wins-jeopardy>



<https://www.nytimes.com/2017/05/25/business/google-alphago-defeats-go-ke-jie-again.html>



“AI will help us”



<https://www.theverge.com/2018/7/26/17619382/ibms-watson-cancer-ai-healthcare-science>

| No it won't!

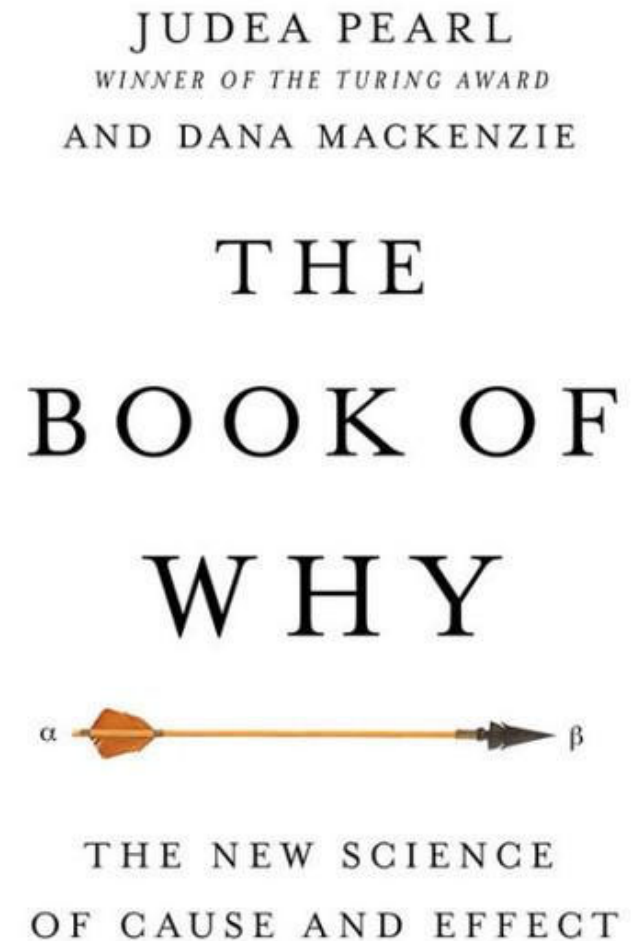
Current 'AI' is a one trick pony:

1. It's *just* nonlinear regression
2. It's data-hungry & shallow
3. Ideas don't transfer
4. It can't handle hierarchies
5. It can't do open-ended inference
6. It can't explain its "work"
7. It doesn't get *causation*.

(Marcus, 2018)

Good doctors do what AIs can't:

3. They lead and guide
2. They provide support and compassion
1. They work out and explain things



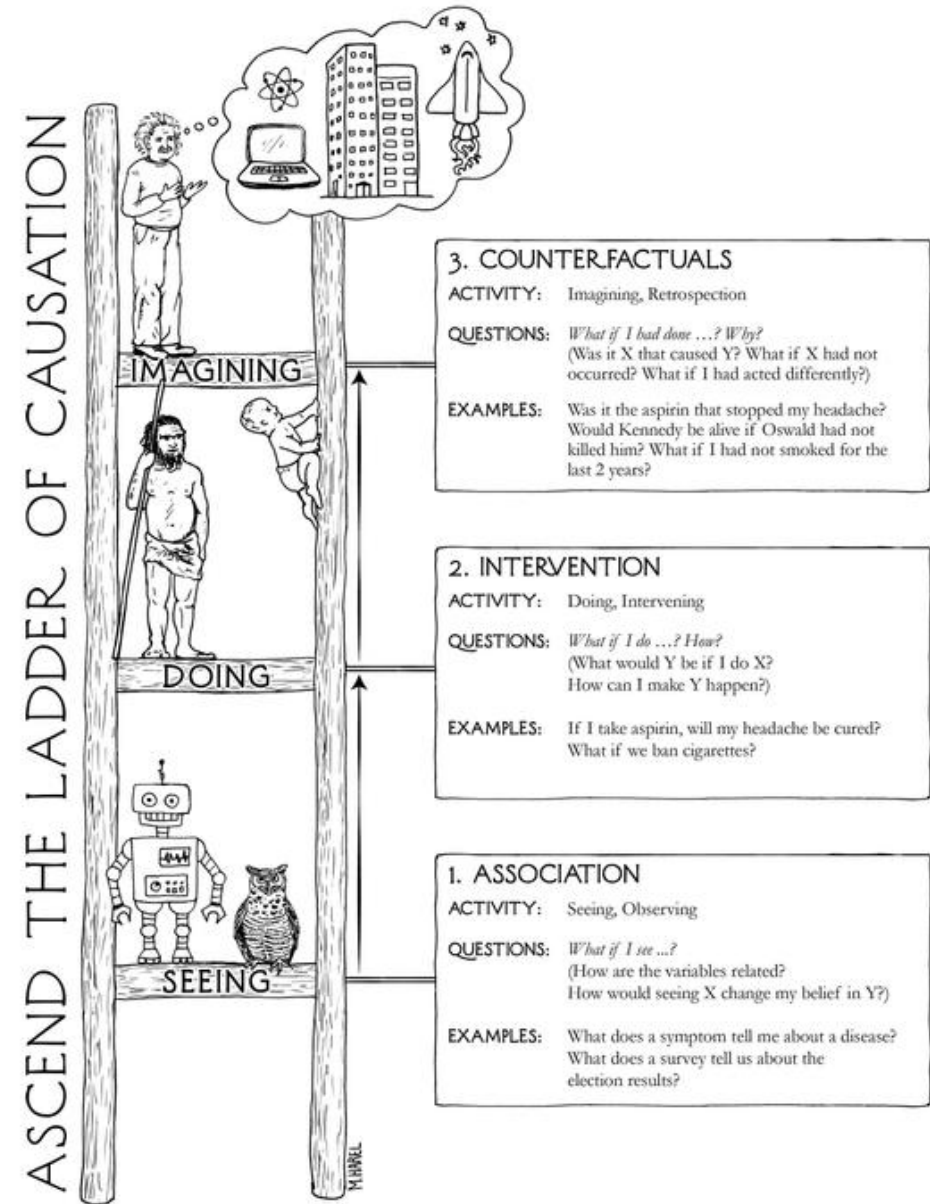
The three levels

3. Counterfactuals— “What if ... ?”

2. Causality—the ‘do’ calculus

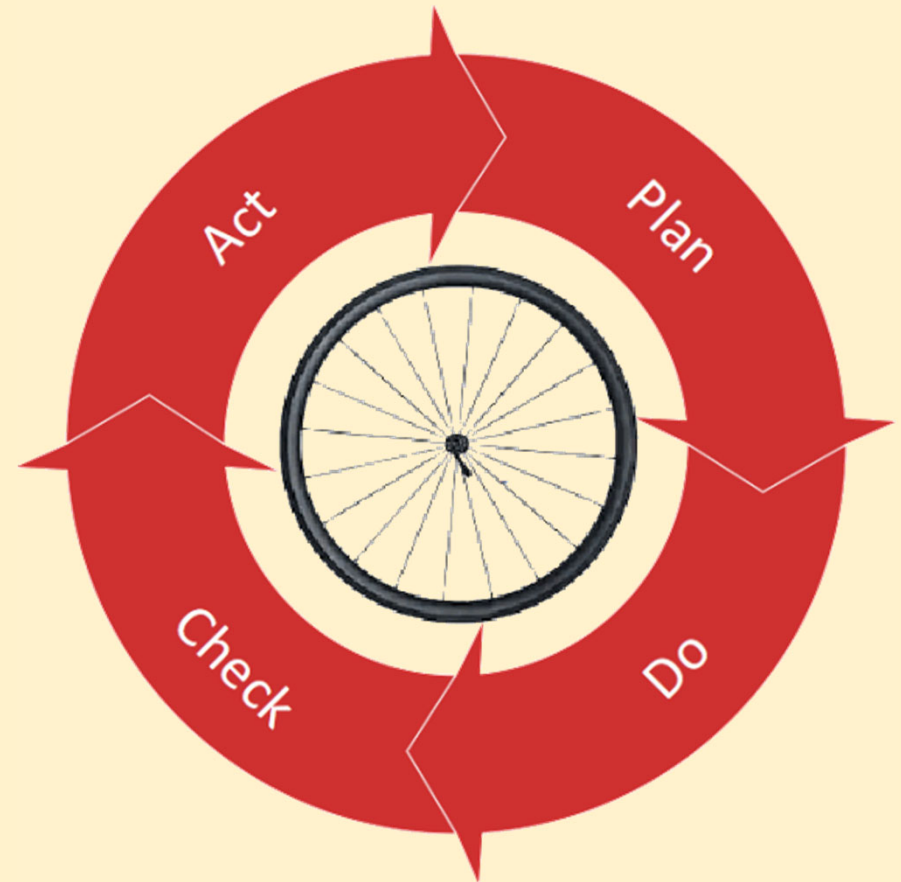
1. Association (see)

<http://bayes.cs.ucla.edu/WHY>



Good Medicine is Good Science!

1. Generate hypotheses
2. Test these *adequately**
3. Act, observe and repeat



https://en.wikipedia.org/wiki/Bicycle_wheel

“Machines make better doctors”

No. **Not yet!**



The End

