The Simple Economics of Artificial Intelligence

May 2019

Avi Goldfarb
University of Toronto, Creative Destruction Lab, and NBER

Based on the book *Prediction Machines* with Ajay Agrawal and Joshua Gans

A.I. in Healthcare: Hype, Fear, Hope

The Wrong Kind of AI?

Daron ACEMOGLU
MIT
Pascual RESTREPO
Boston University

Artificial Intelligence and the Future of Labor Demand

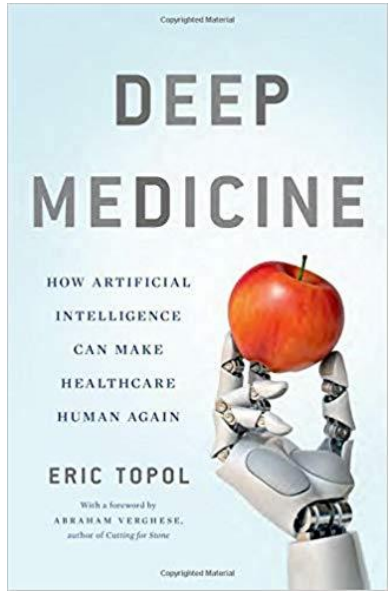
THE NEW YORKER

ANNALS OF MEDICINE

A.I. VERSUS M.D.

What happens when diagnosis is automated?

By Siddhartha Mukherjee March 27, 2017



• **HEALTHCARE:** The situation in healthcare is very similar. Though there has been more effort devoted to introducing digital technologies into healthcare, the focus has not been in creating new tasks (in fact, some of the uses of AI, for example in radiology, are very much in the mold of automation). New, adaptable AI applications that collect information can significantly empower nurses, technicians and other healthcare providers to offer a wider range of services and more real-time health advice, diagnosis and treatment. The benefits in terms of greater labor demand and productivity are very similar to the education case.

The New York Times

Warnings of a Dark Side to A.I. in Health Care

Scientists worry that with just tiny tweaks to data, neural networks can be fooled into committing "adversarial attacks" that mislead rather than help. Joan Cros/NurPhoto, via Getty Images

Rotman Chair in Artificial Intelligence and Healthcare Named at the University of Toronto.

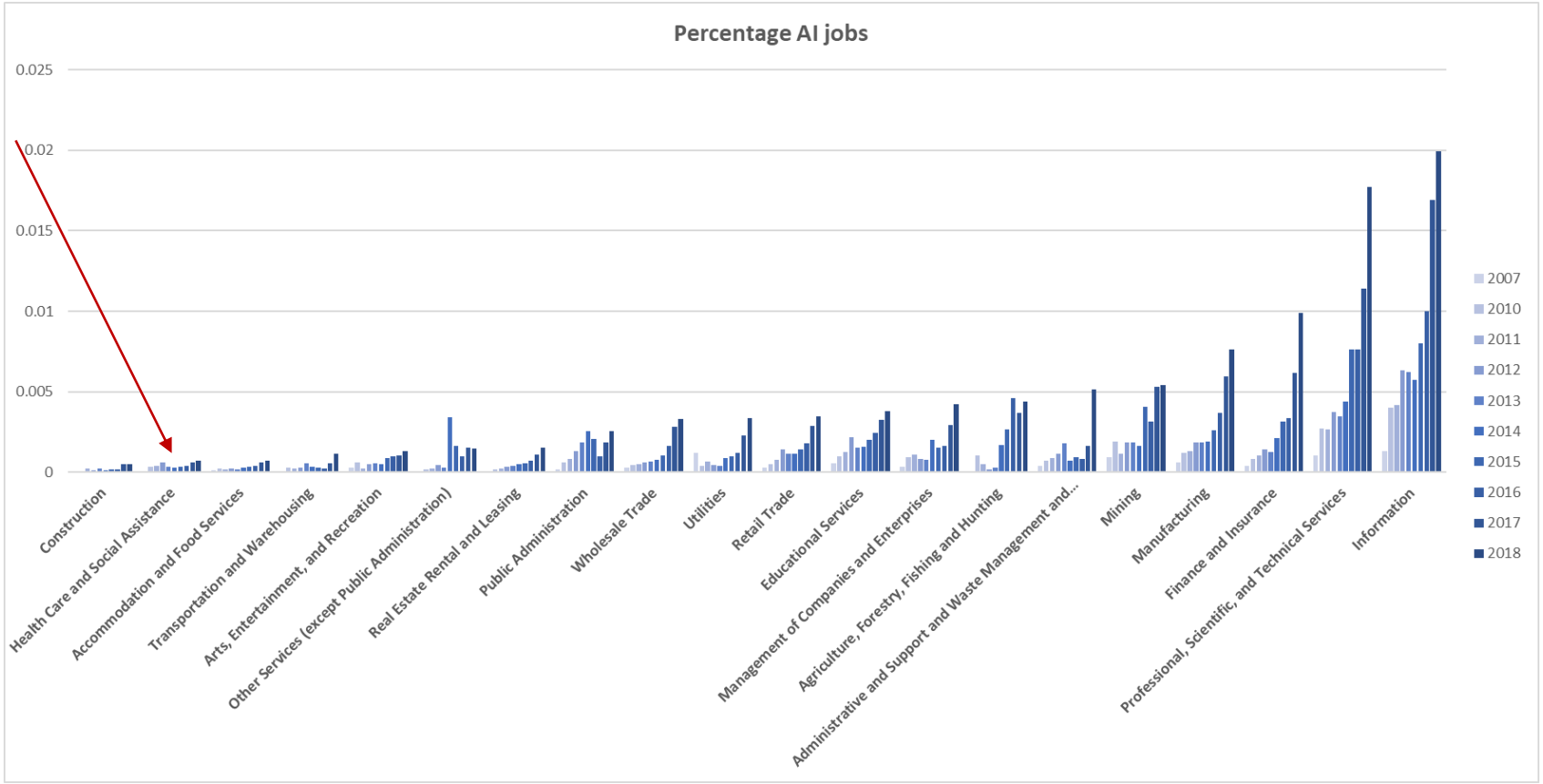
Media Centre > News Releases > **Rotman Chair in Artificial Intelligence and Healthcare Named at the University of Toronto.**

October 24, 2018

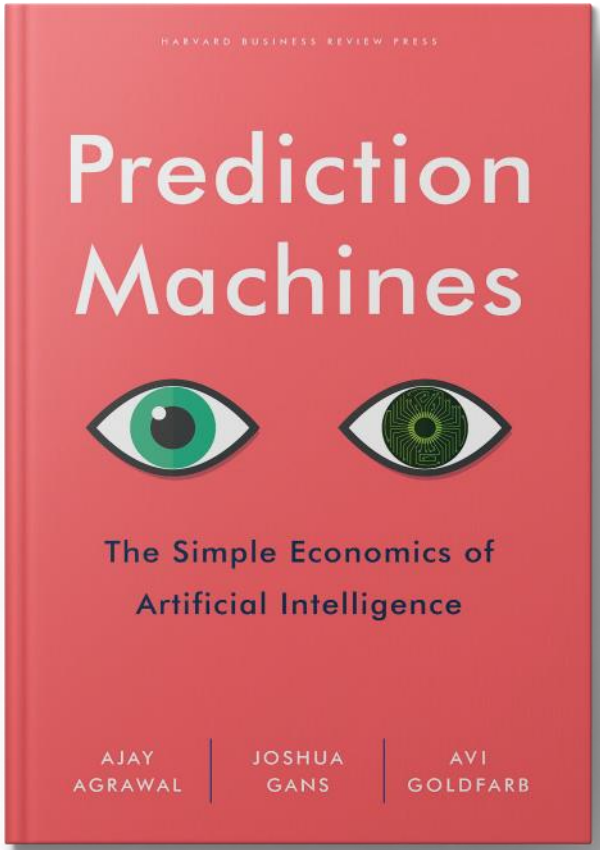
Toronto – A professor of marketing at the University of Toronto's Rotman School of Management will be the first holder of the Rotman Chair in Artificial Intelligence and Healthcare.

Prof. Avi Goldfarb will be the first holder of the chair, which was established earlier this year by a generous gift from the Rotman family. The gift provided funding

A.I. in Healthcare: Lagging



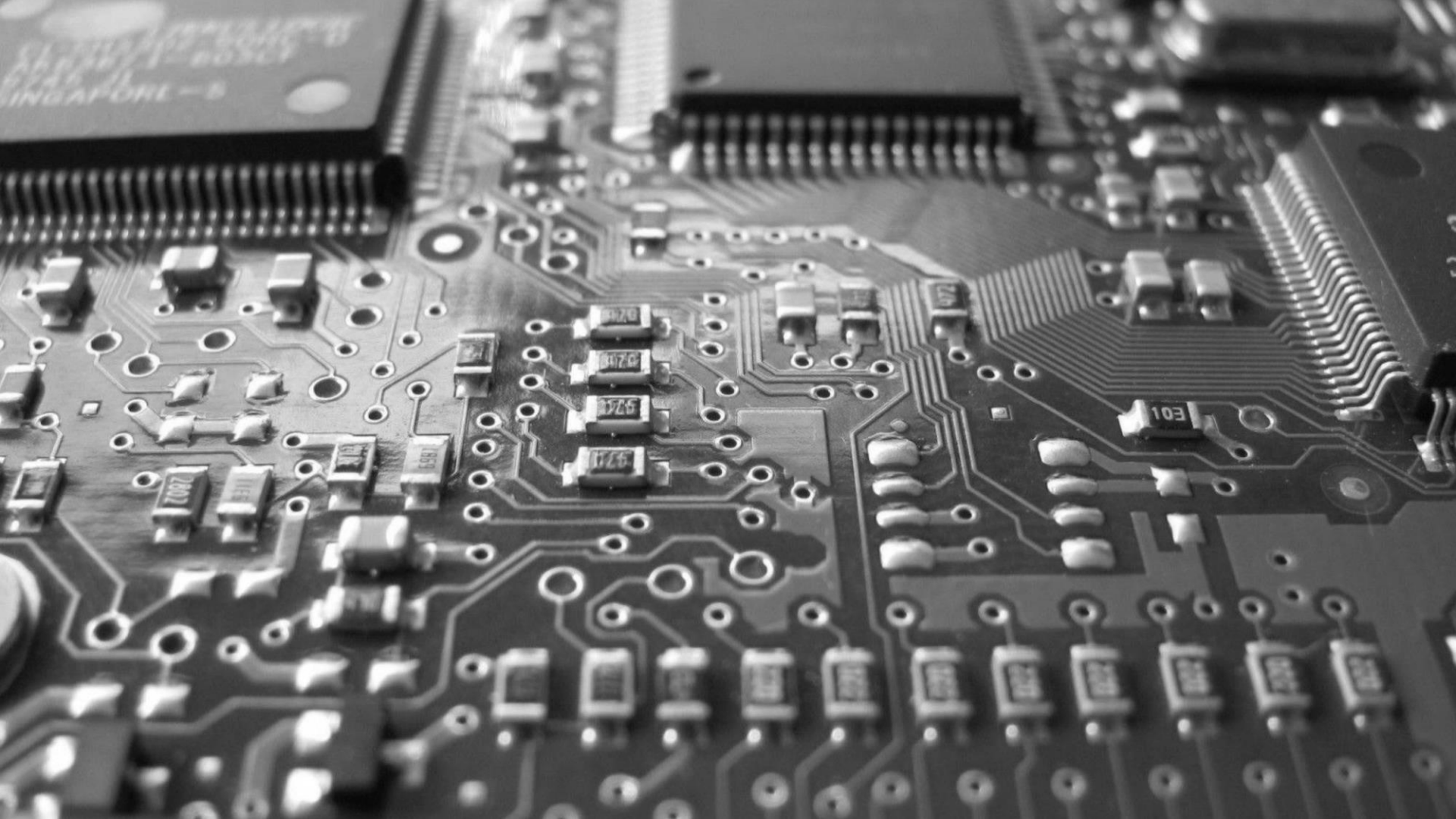
What is Artificial Intelligence?


HARVARD BUSINESS REVIEW PRESS
Prediction Machines
The Simple Economics of Artificial Intelligence
AJAY AGRAWAL
JOSHUA GANS
AVI GOLDFARB

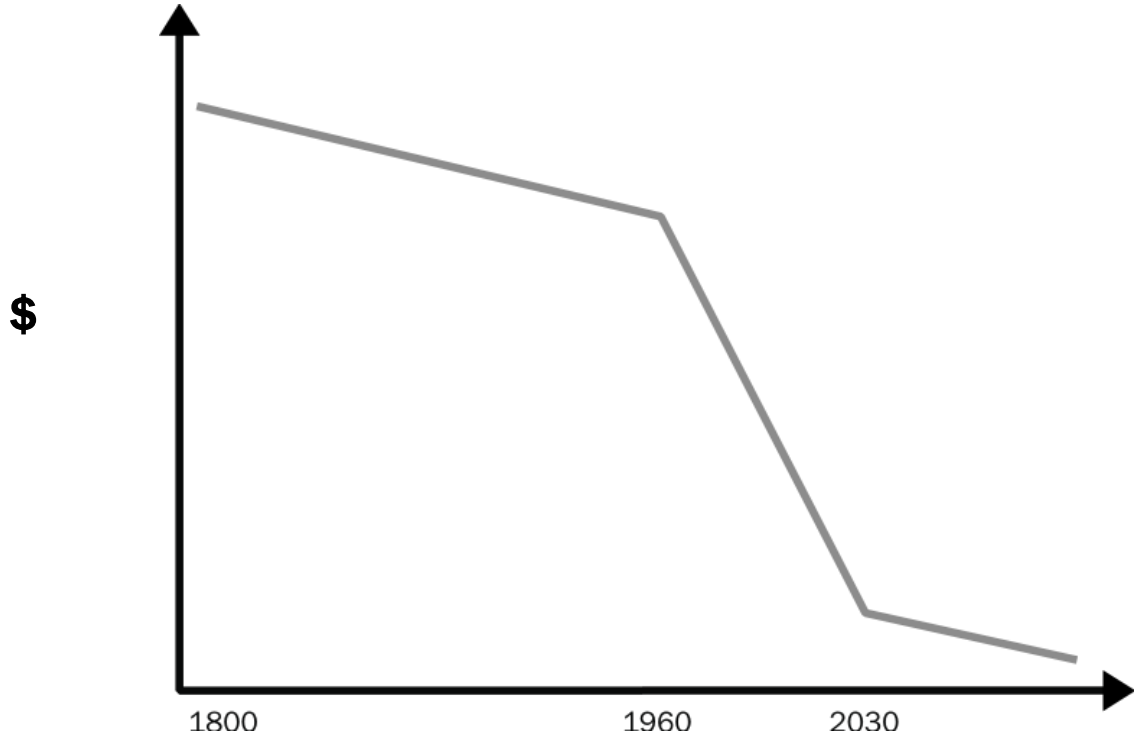
PREDICTION:
Using information that you *do* have to generate information that you *don't* have

1995?

New Economy



Semiconductors



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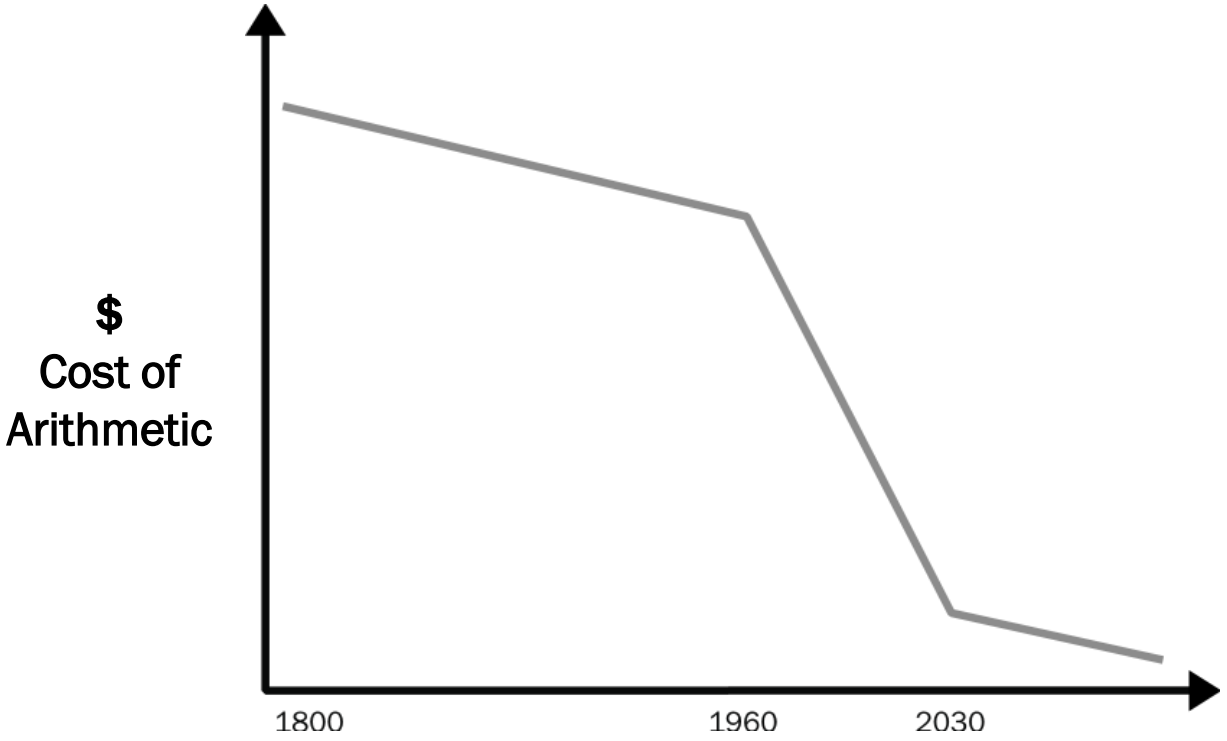
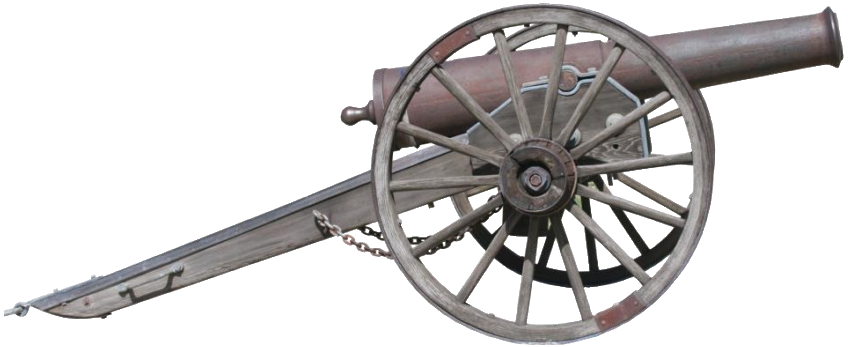
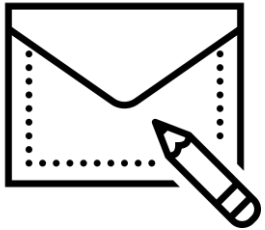
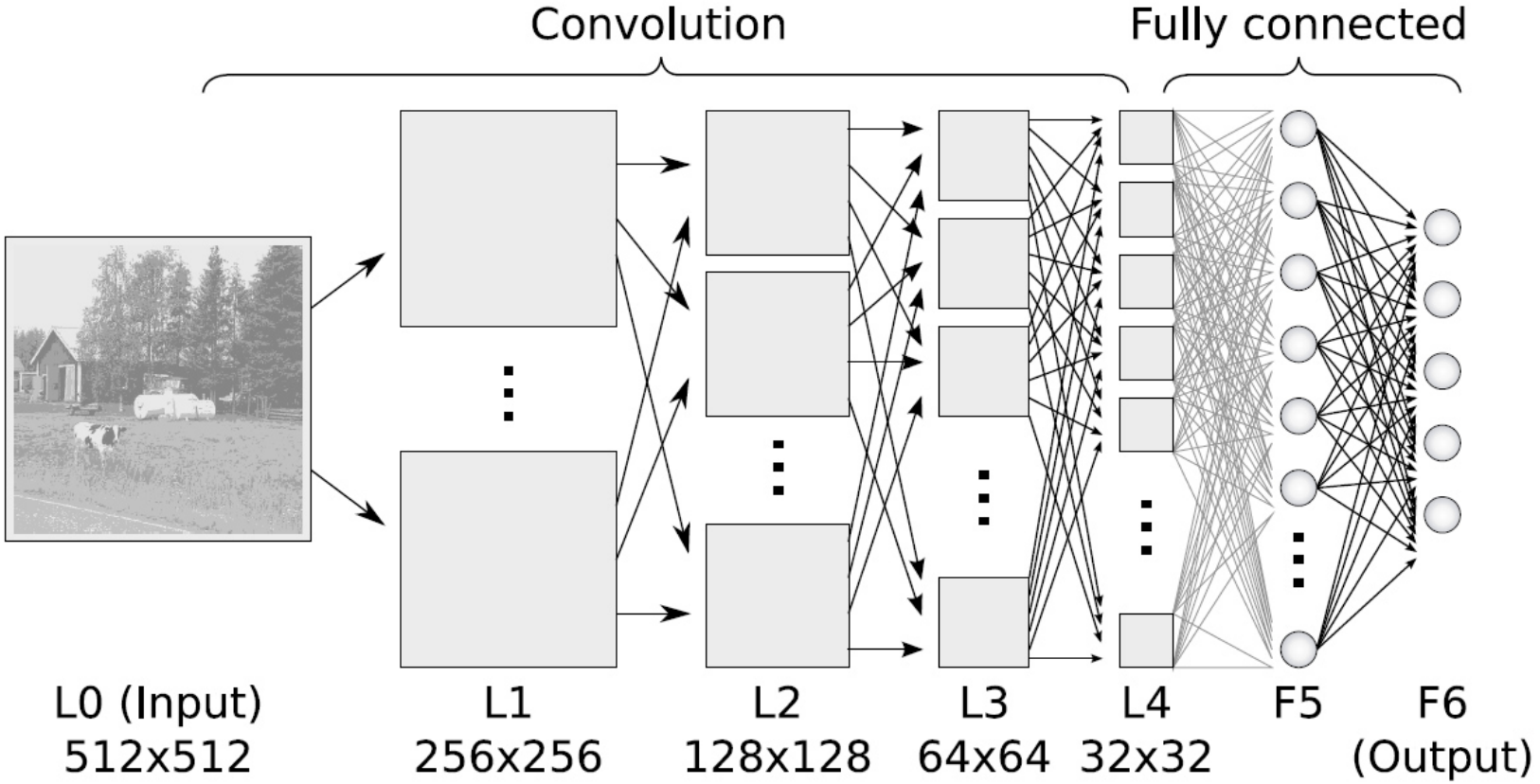


Expanding Range of Use of an Input



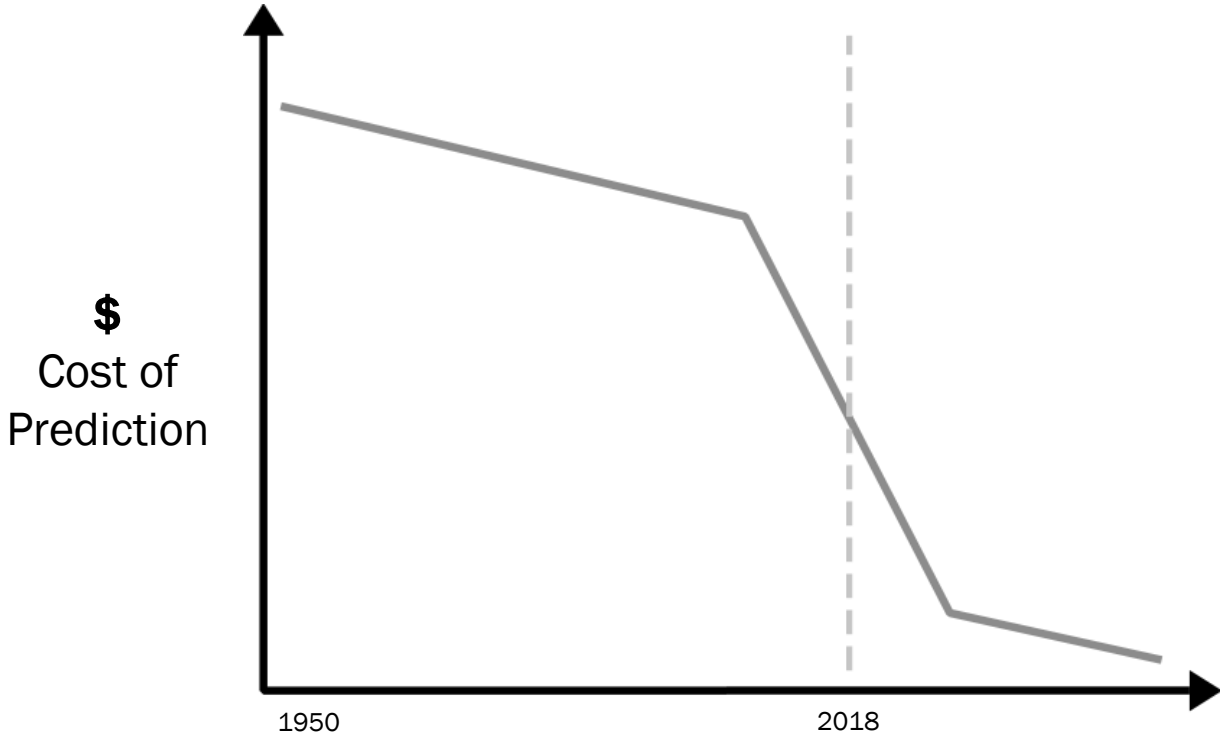
Expanding Range of Use of an Input





Source: https://www.ais.uni-bonn.de/deep_learning/

Artificial Intelligence



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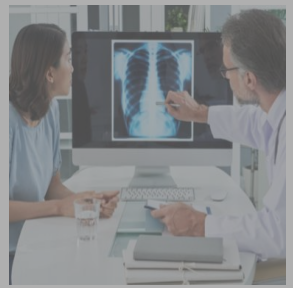
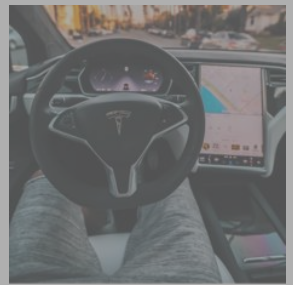


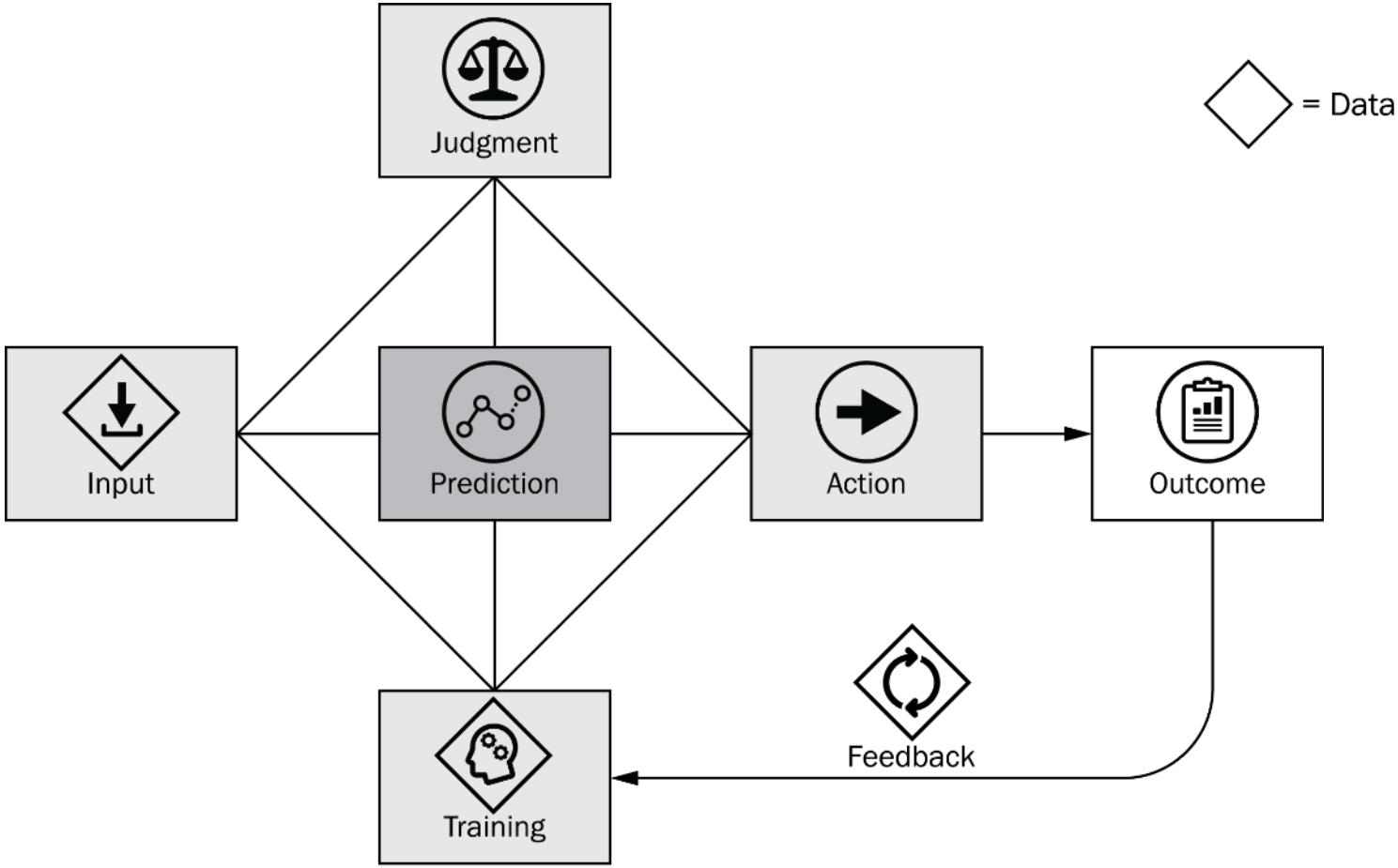


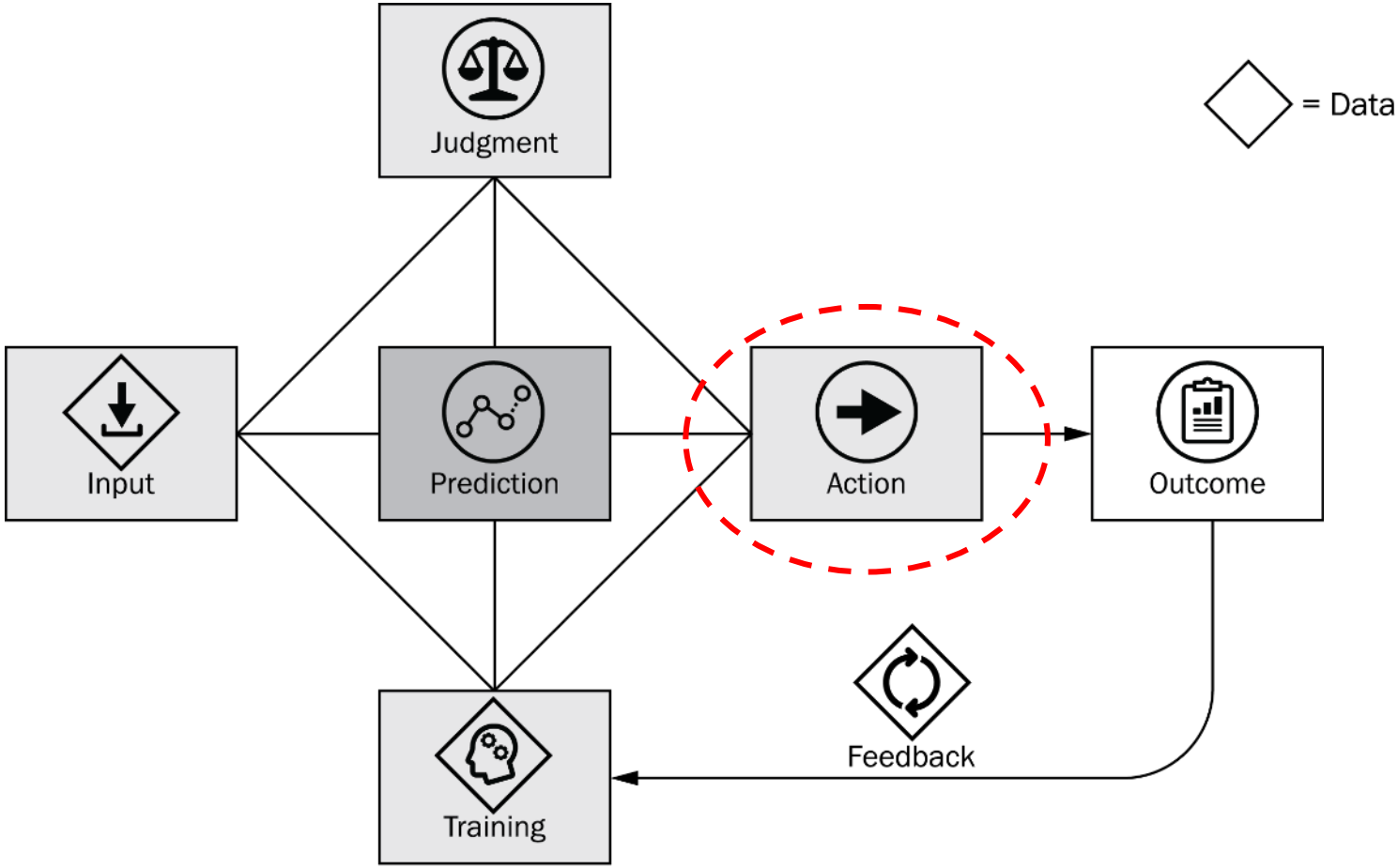
The Changing Value of Other Inputs

Prediction is valuable because it is an input into decision-making

Decision-making is everywhere

Prediction ≠ decision-making


Judgment
= Data
Input
Prediction
Action
Outcome
Feedback
Training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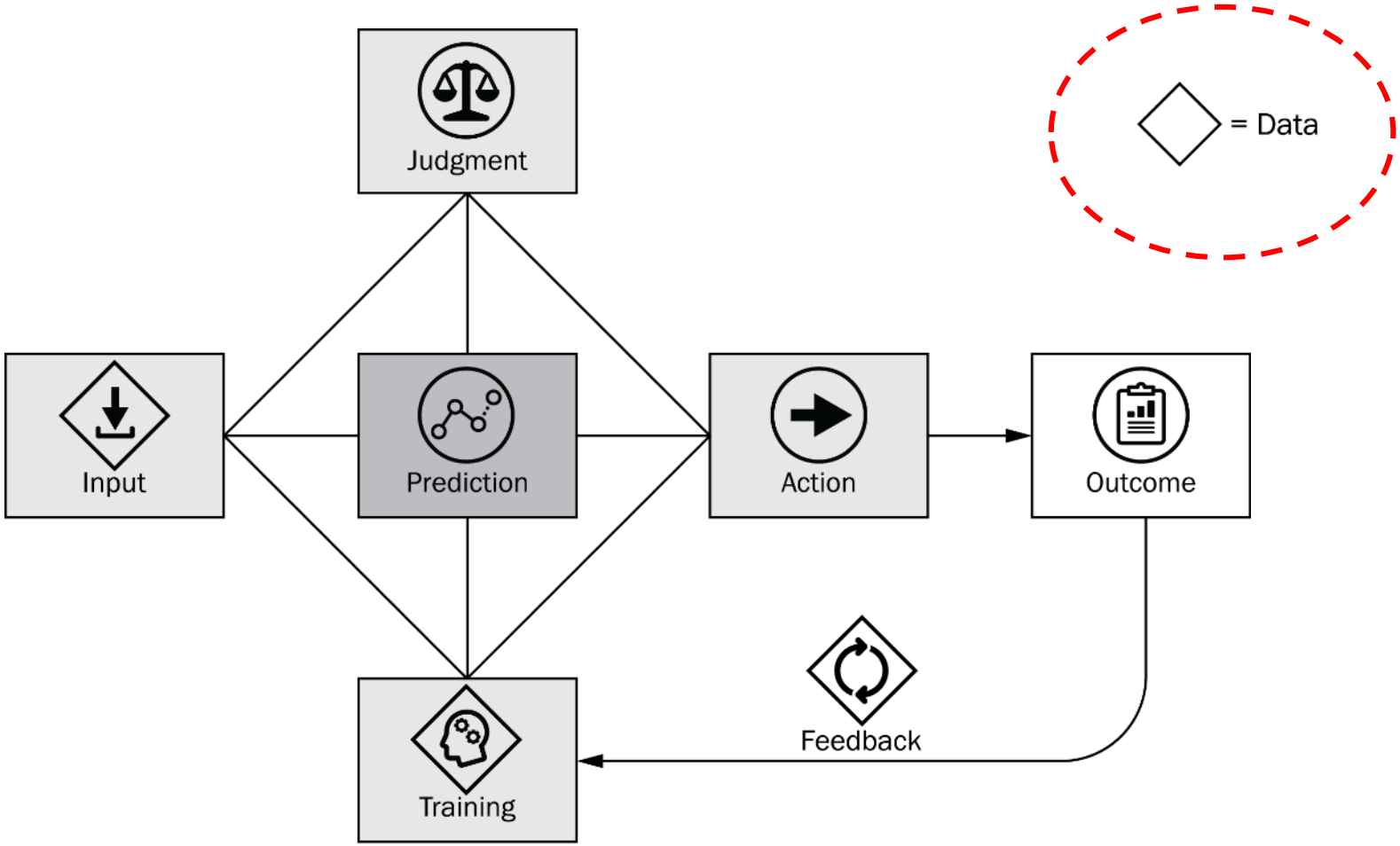
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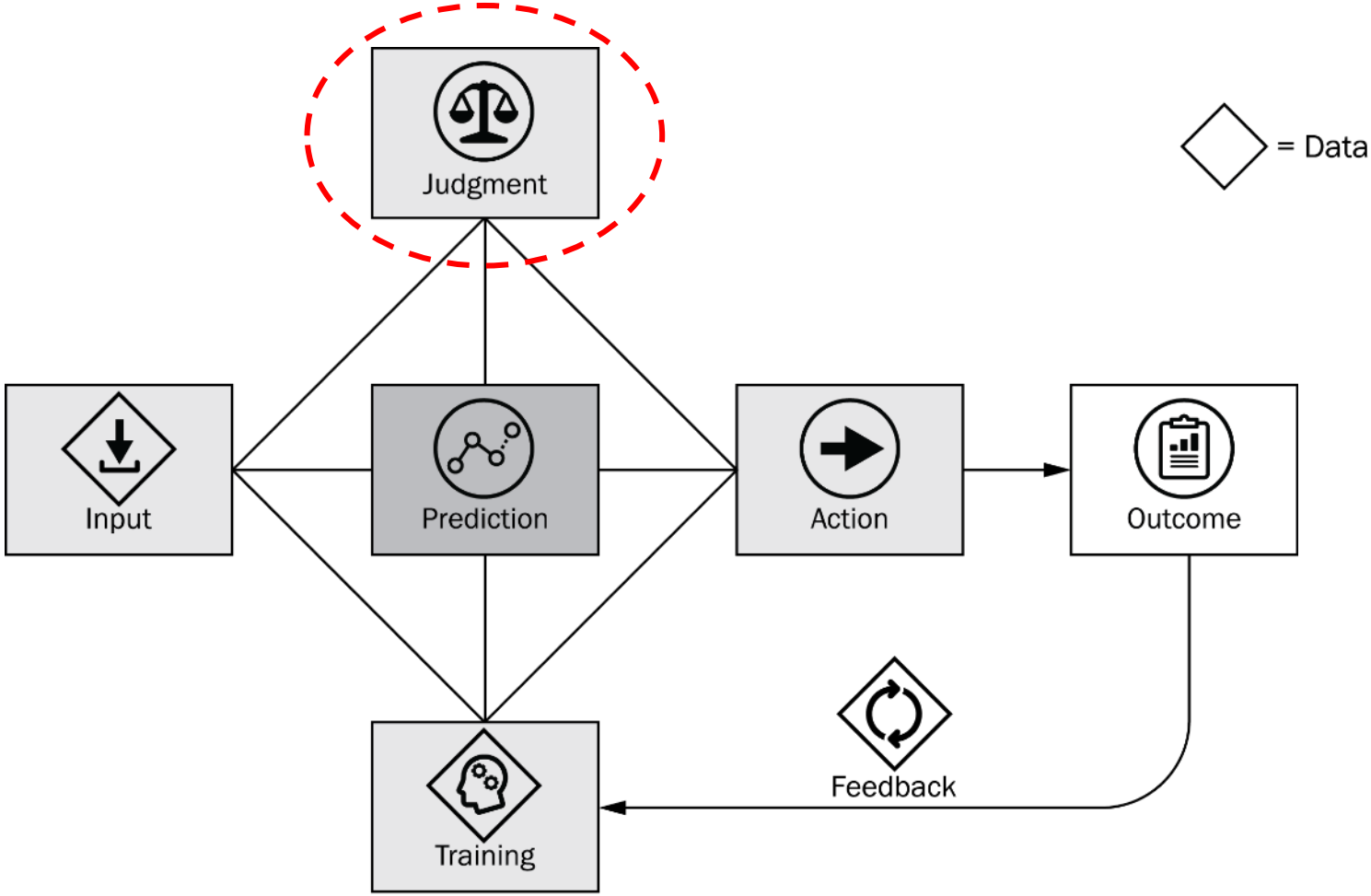
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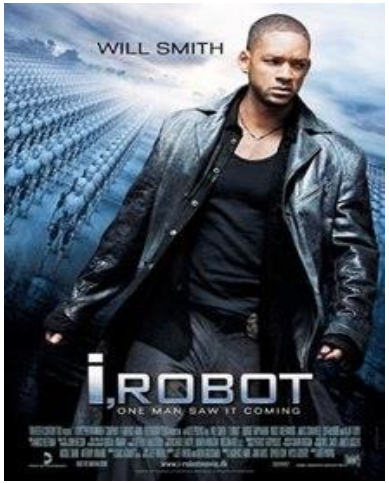
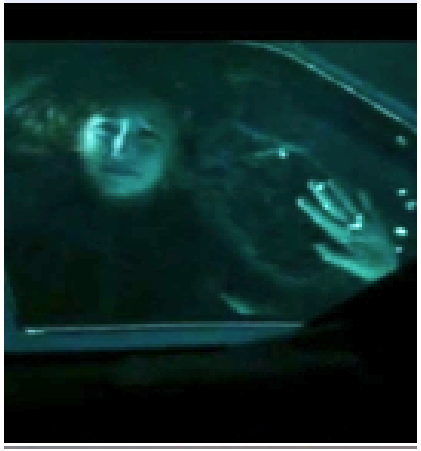
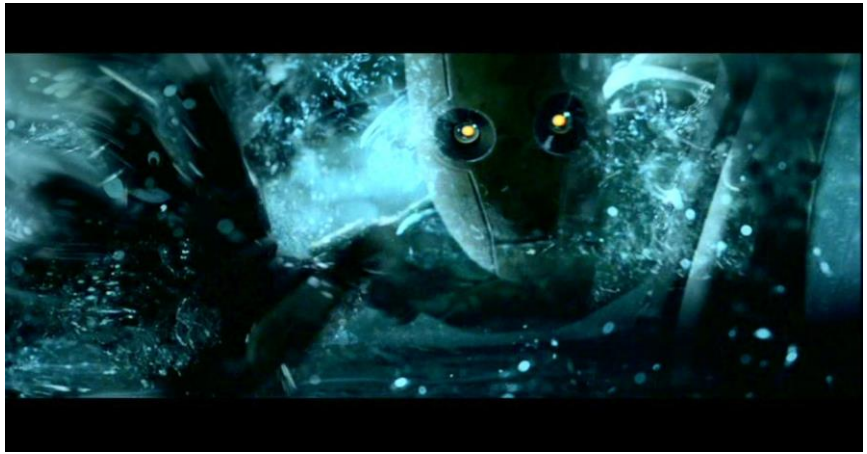
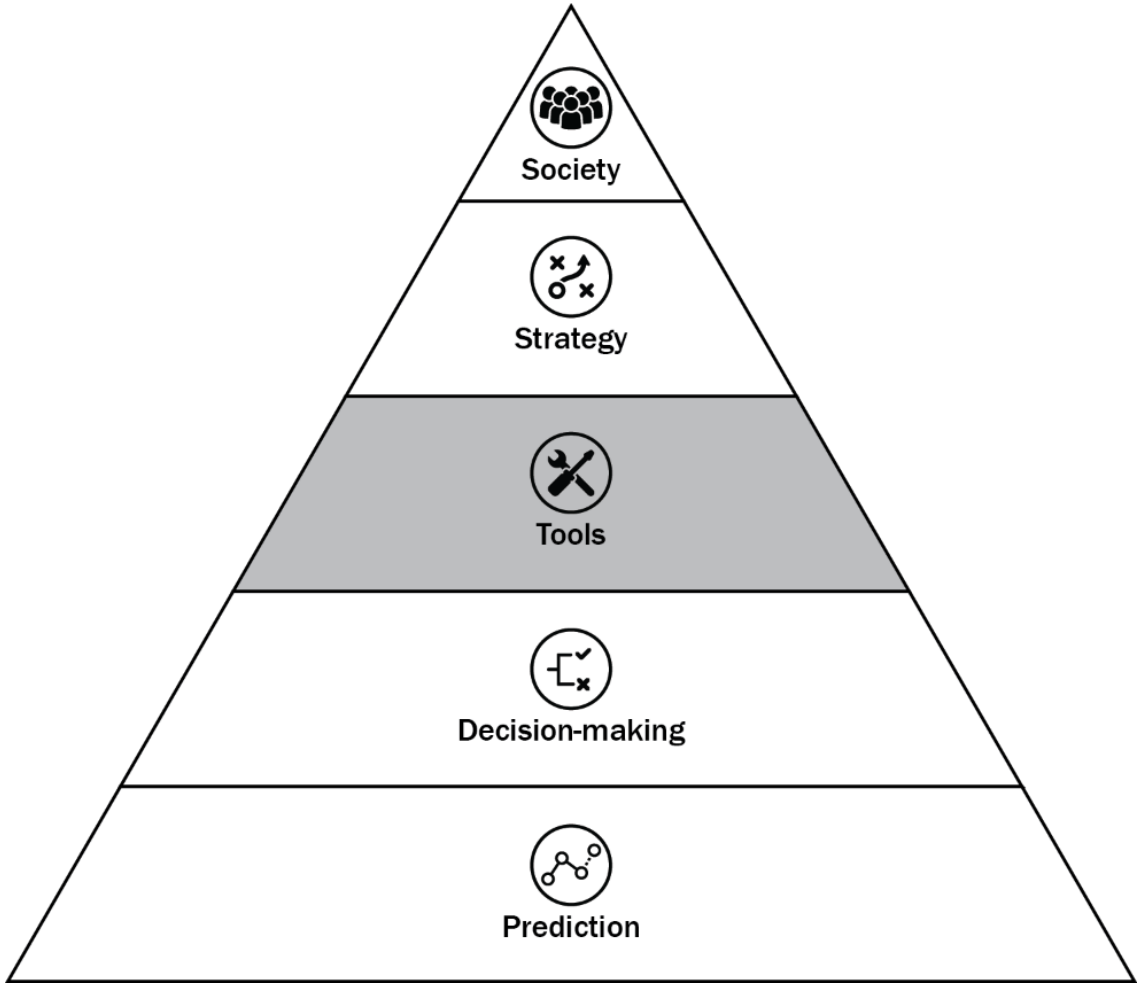
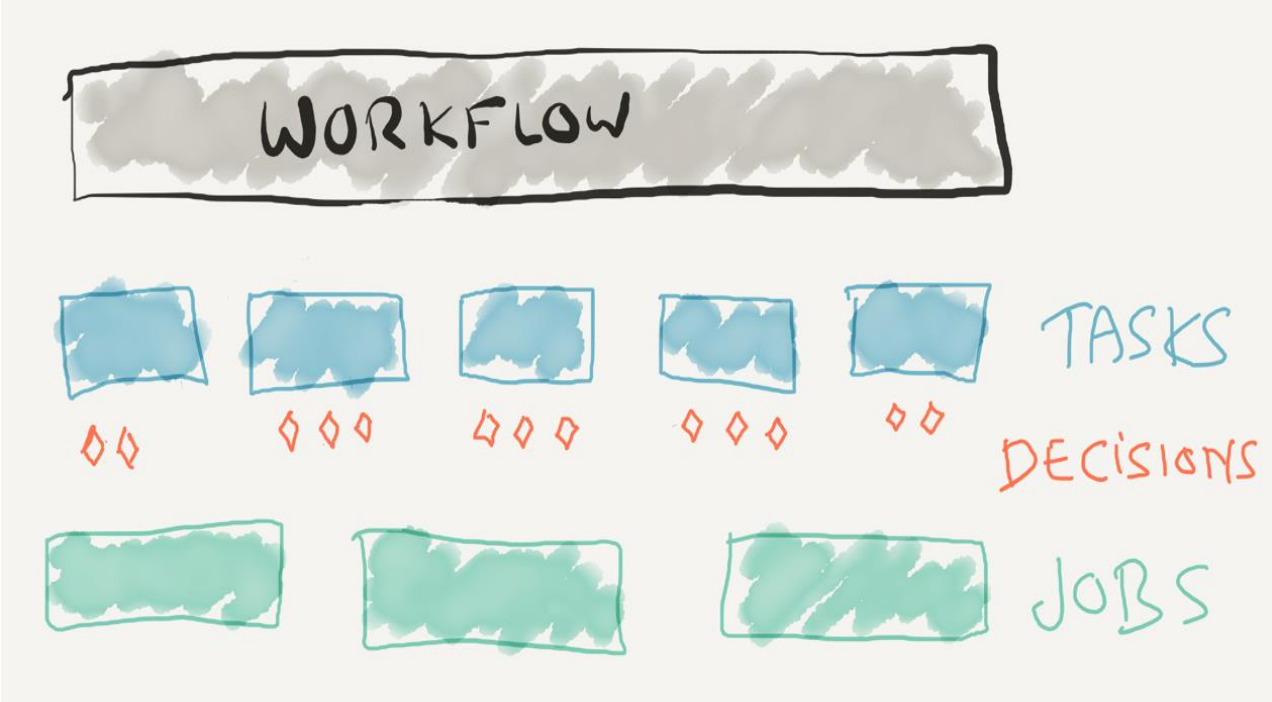
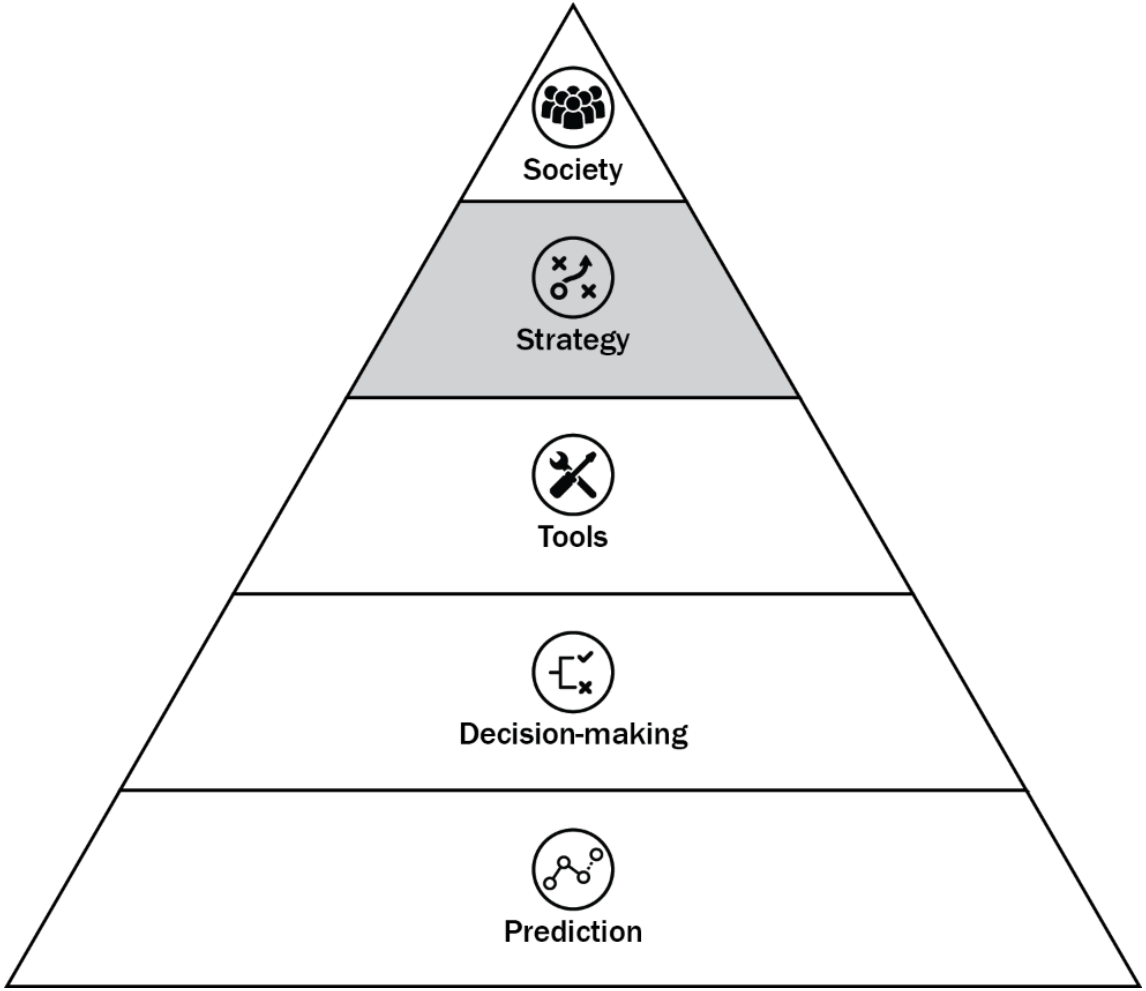

WILL SMITH
I, ROBOT
ONE MAN SAW IT COMING






Society
Strategy
Tools
Decision-making
Prediction


WORKFLOW
TASKS
DECISIONS
JOBS


Society
Strategy
Tools
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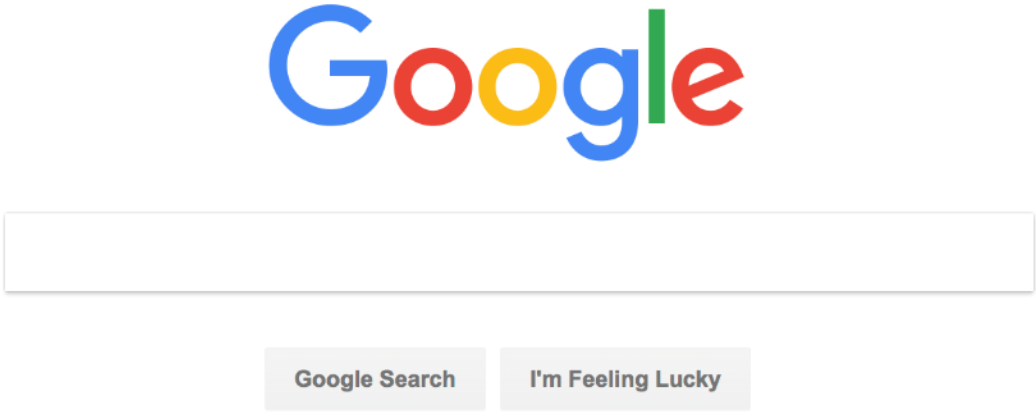
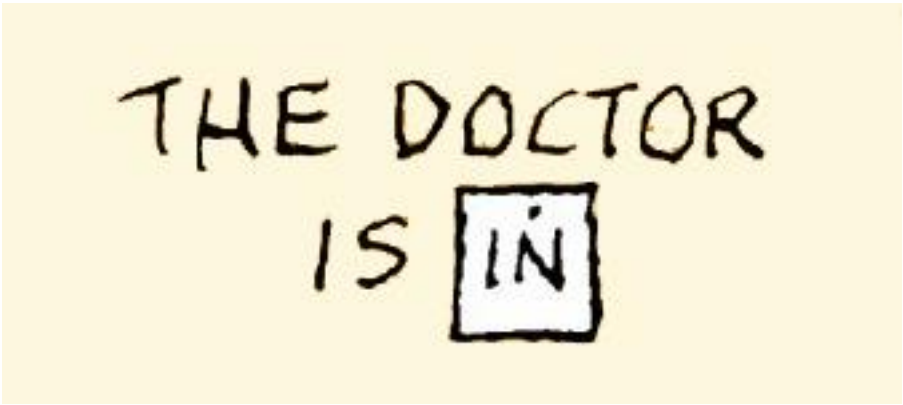
Prediction

Tool => Strategy



MASTER VOLUME
–
+
INPUT SELECTOR


THE DOCTOR
IS IN

Thank you