

AI, ML... AND ME

HOW TO MAKE WORLD A BETTER PLACE

Are you able to decouple to create?

Provocative thinking, transformative insights, tangible outcomes

What is AI?

“Machines showing capabilities that are typically associated with human intelligence”

Wikipedia



Learning

Learn over time without direct intervention



Perception

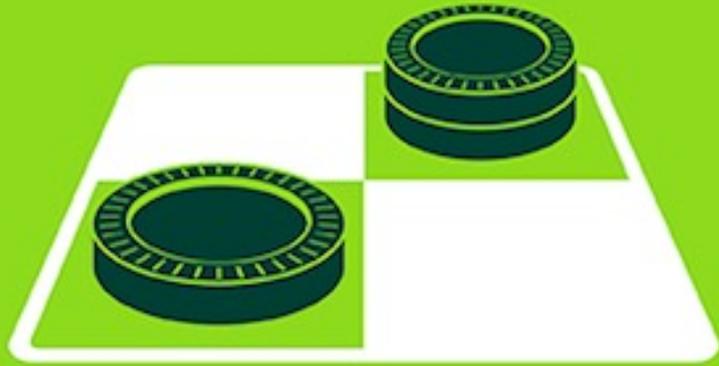
Interpret meaning of data including text, voice, images



Cognition

Form conclusions with imperfect data

ARTIFICIAL INTELLIGENCE



MACHINE LEARNING



DEEP LEARNING



1950's

1960's

1970's

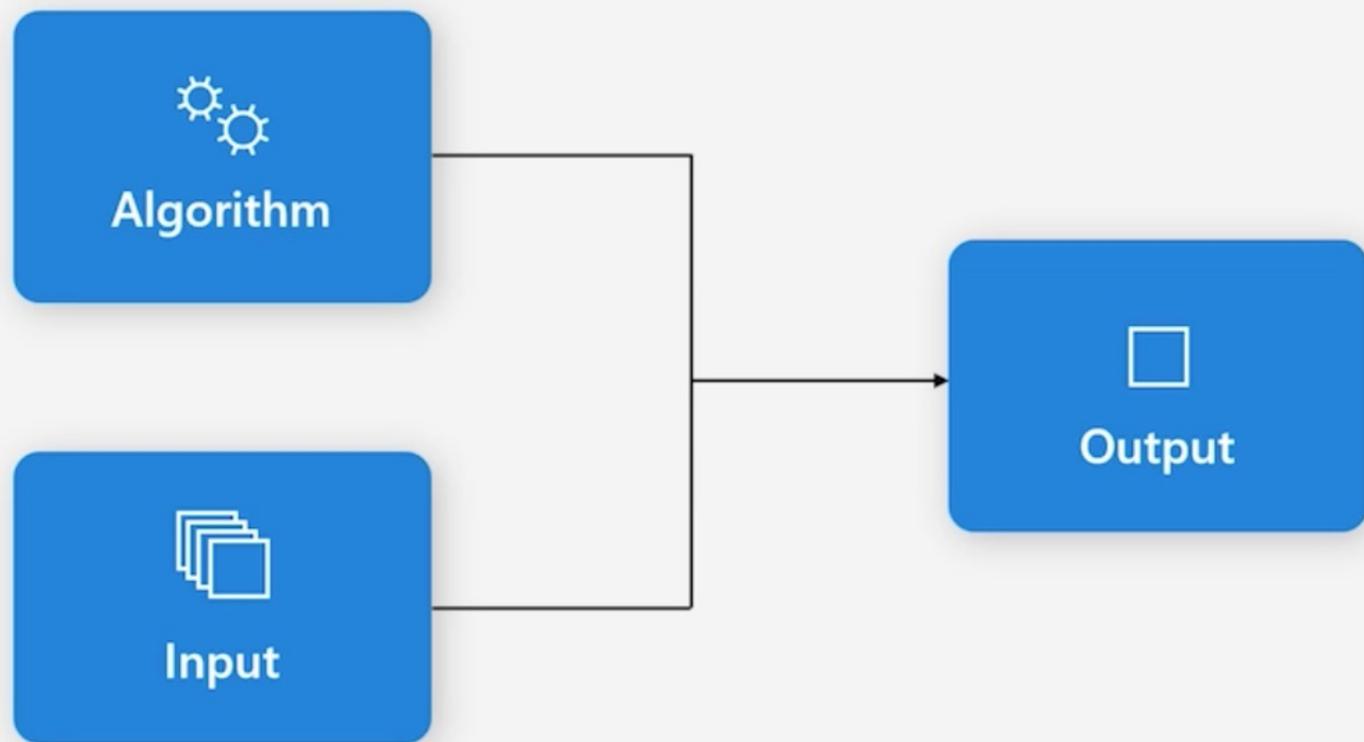
1980's

1990's

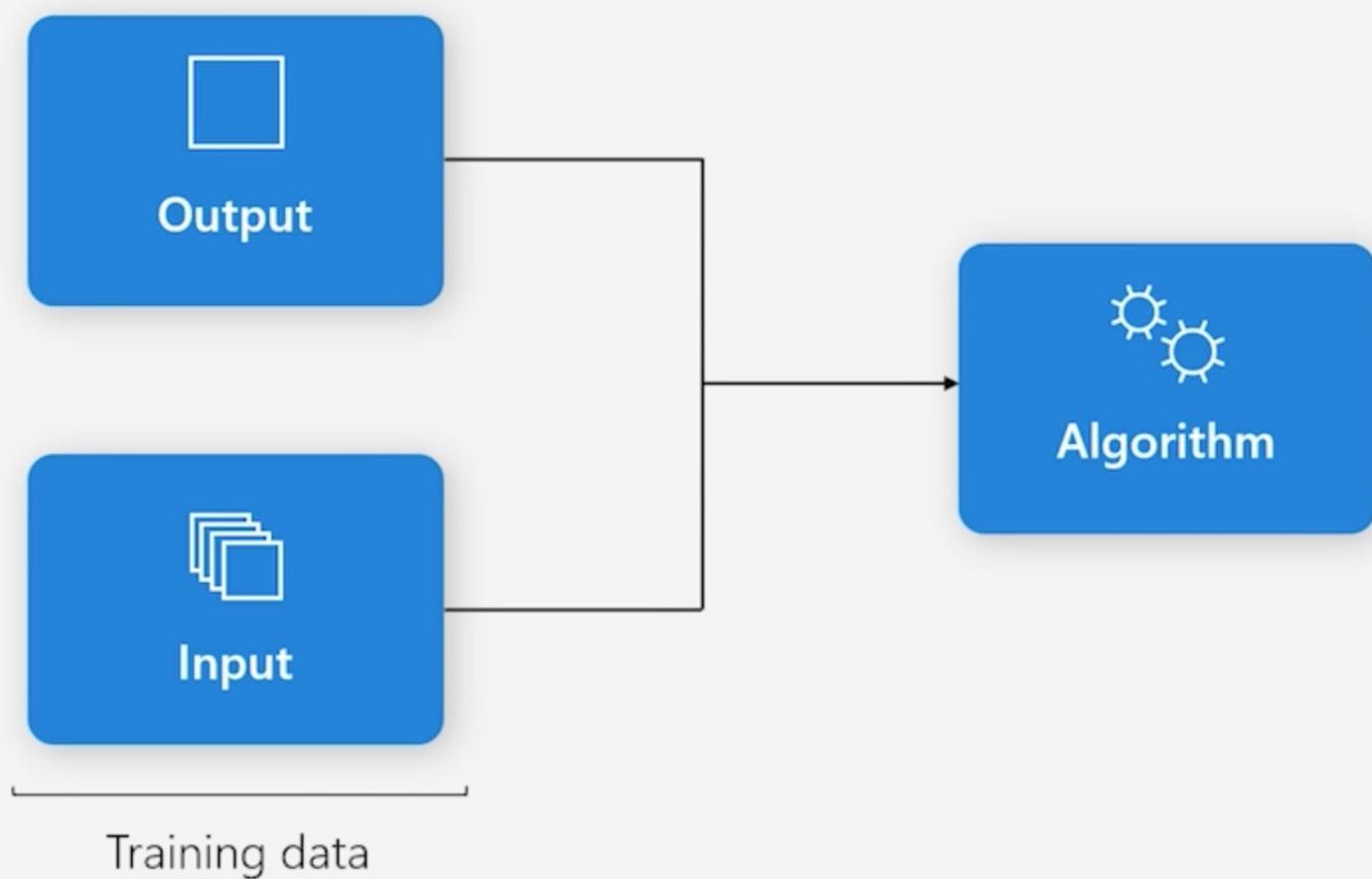
2000's

2010's

Software development



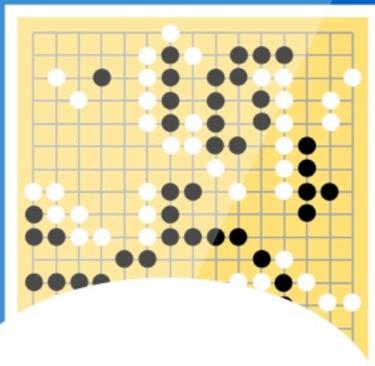
Machine learning



Google DeepMind Challenge Match



Lee Sedol



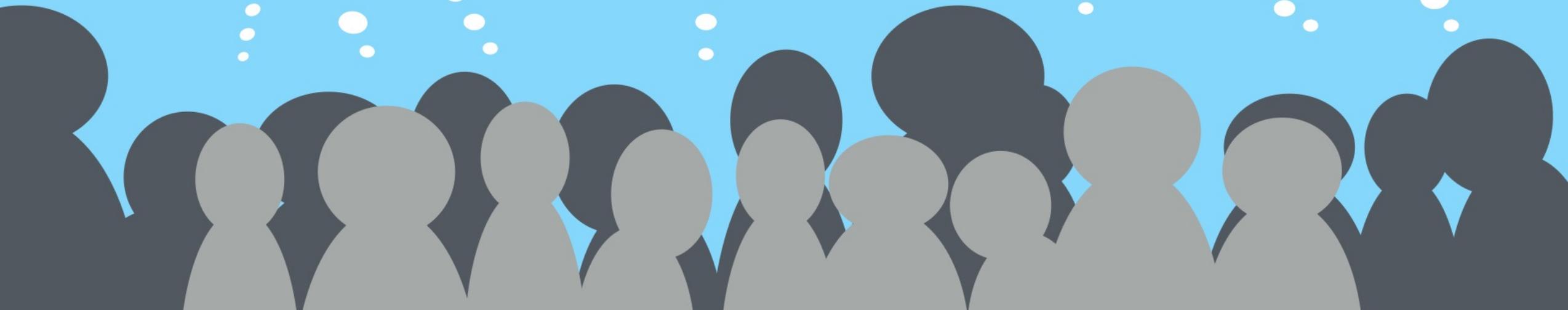
AlphaGo

AI...

AI...

AI...

AI...



Levels of Artificial Intelligence

Artificial Super Intelligence

AI that exceeds human intelligence

Kurzweil Singularity event

Artificial General Intelligence

AI that is equal to human intelligence

Turing Test

Artificial Narrow Intelligence

IBM Watson, Deep Blue

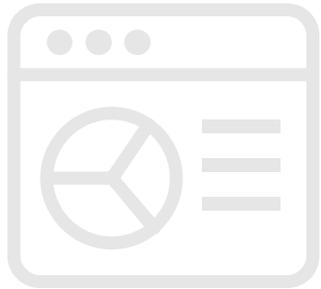
Alexa, Siri, Cortana

Learning Analytics
Chat bots

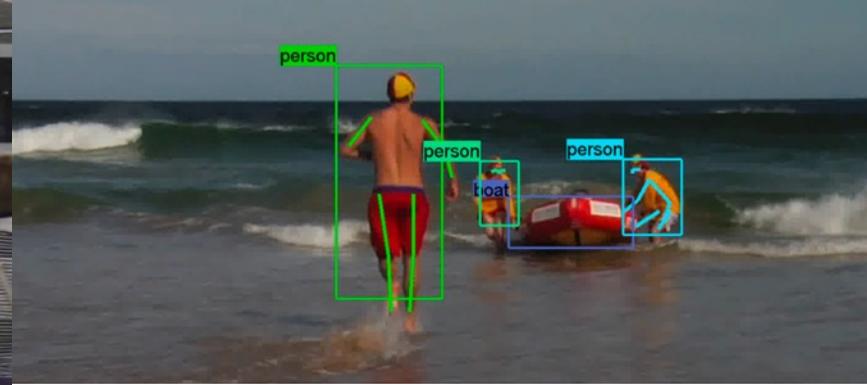


THE SEVEN DEADLY SINS OF AI PREDICTIONS - MIT

COMPUTER VISION, ML, IOT, TRANSACTIONS DATA DISTRIBUTED LEDGER



DATA COLLECTION DATA ANALYTICS





**ML DECISION
MAKING**



REACTION



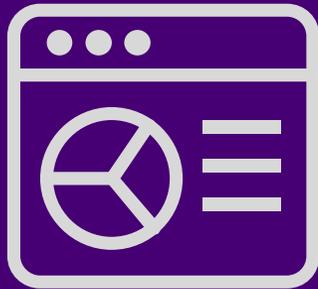


EXTENDED REALITY VIRTUAL ASSISTANTS



INTERACTION

**COMPUTER VISION,
IOT, TRANSACTIONS DATA
DISTRIBUTED LEDGER**



**DATA COLLECTION
DATA ANALYTICS**

DECISION MAKING



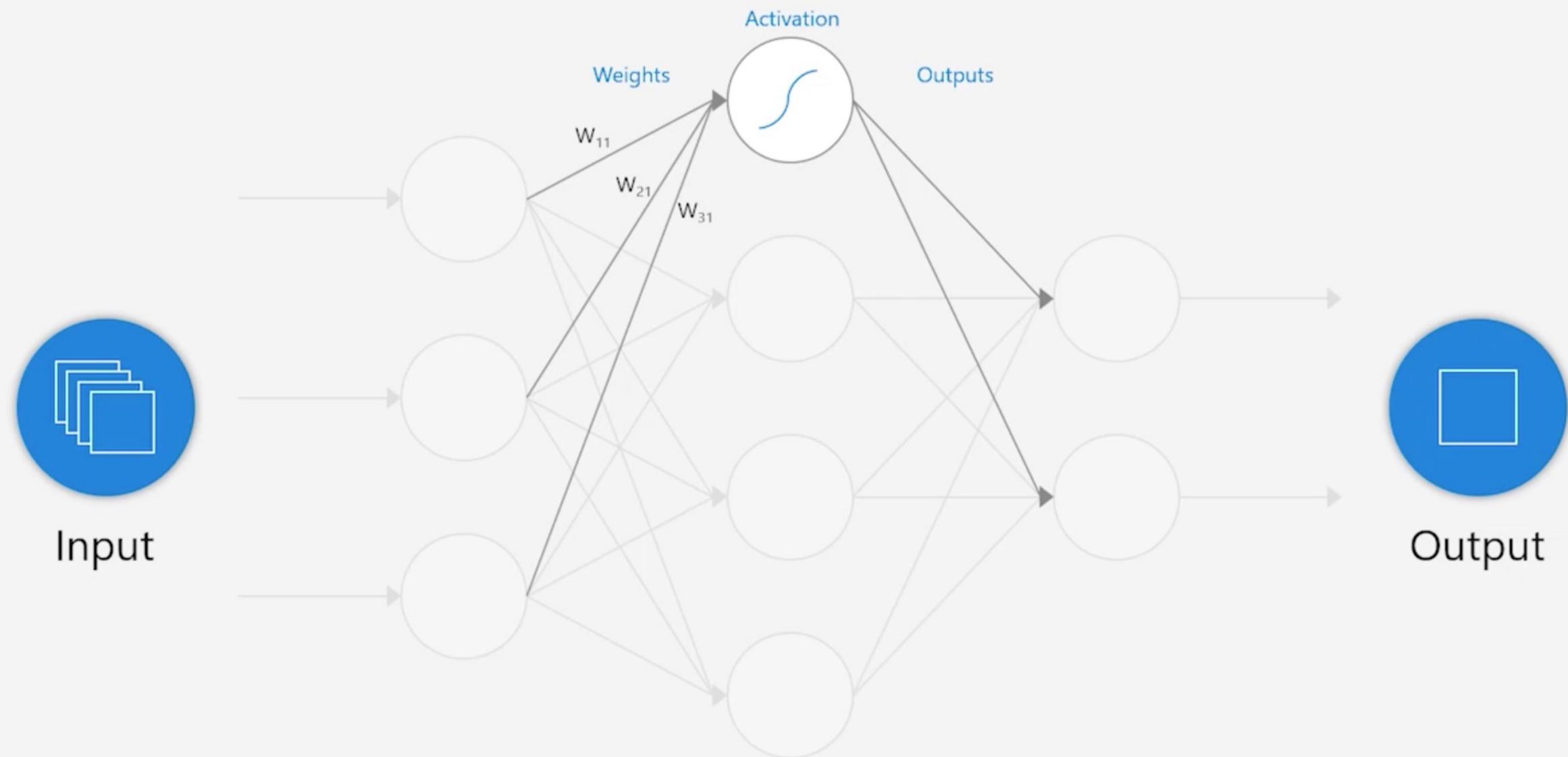
REACTION

**EXTENDED REALITY
VIRTUAL ASSISTANTS**



INTERACTION

Artificial neural networks



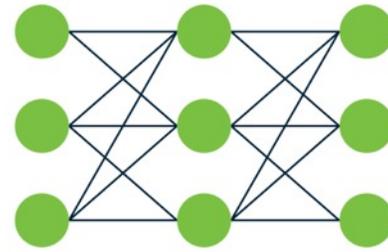
Machine Learning



Input



Feature extraction



Classification

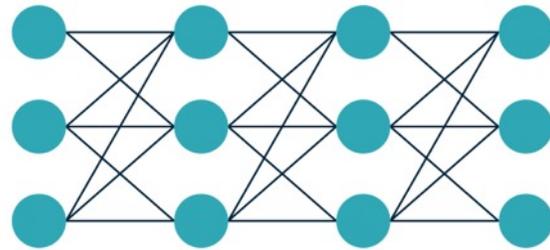


Output

Deep Learning



Input

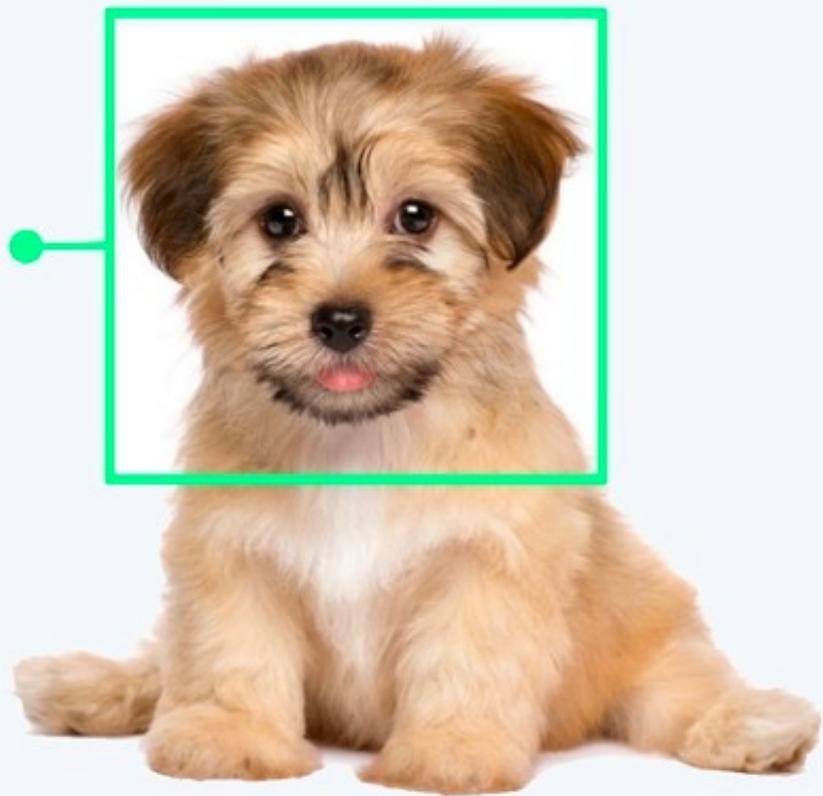


Feature extraction + Classification



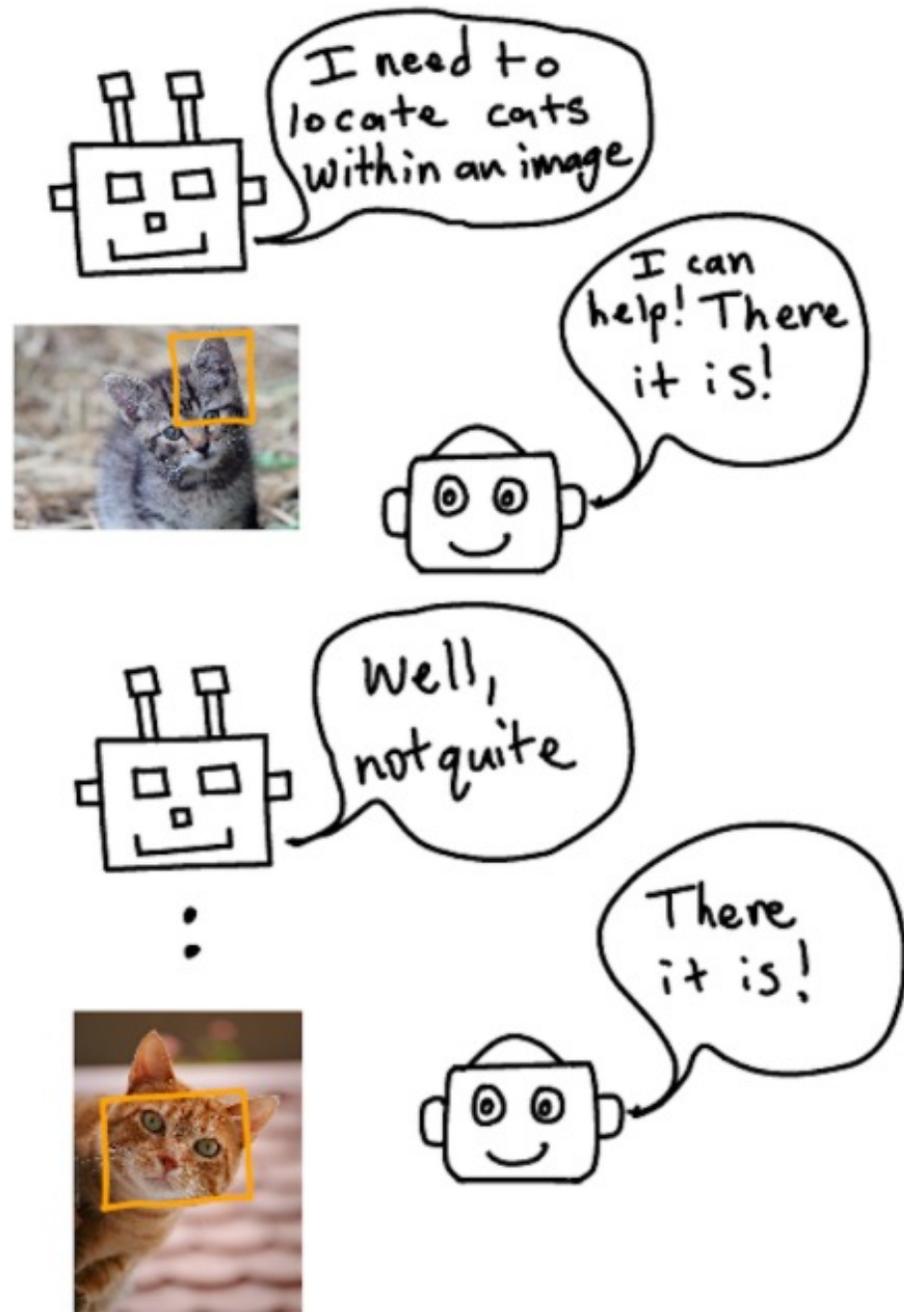
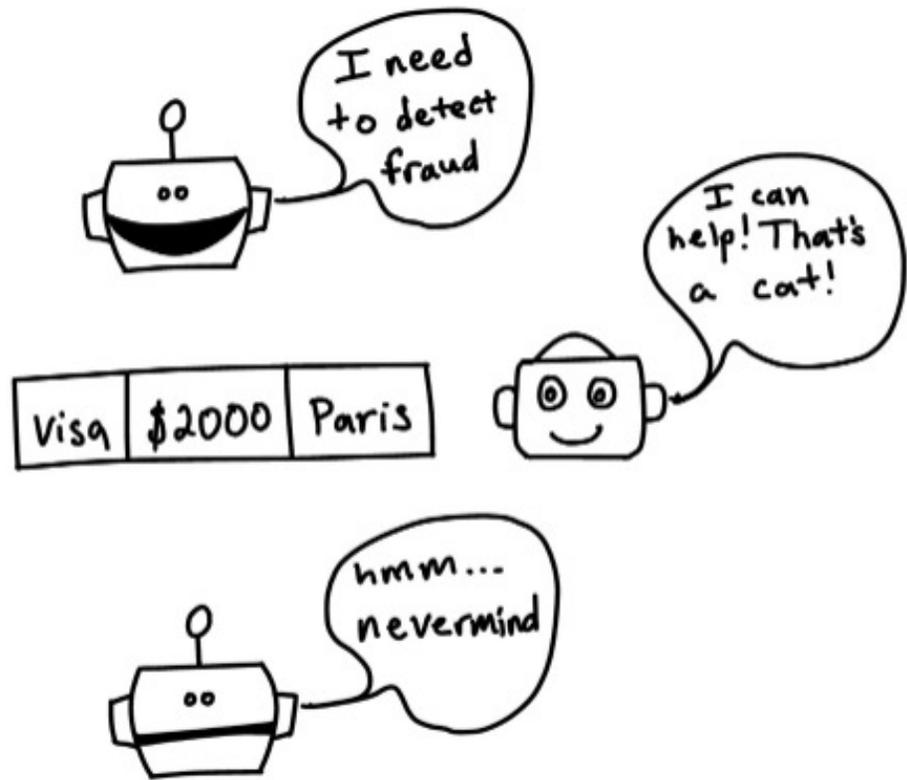
Output

Dog



Cat

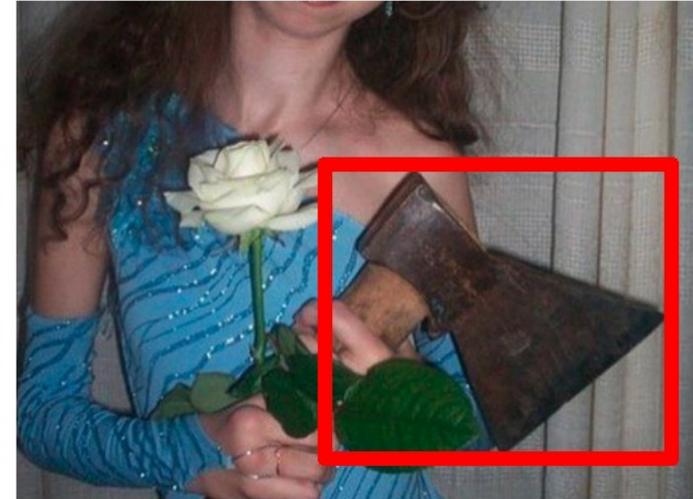




DATA HUNGRY

HOW TO TEACH BY EXAMPLE

In Machine Learning projects, we need a training **data set**. It is the actual **data set** used to train the model for performing various actions.

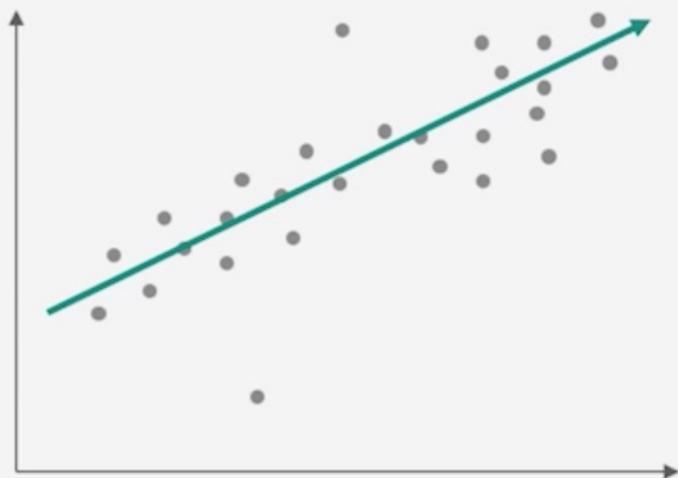


Input: Picture from Instagram

Output: Bounding box around the handbag(s)

What does a model do?

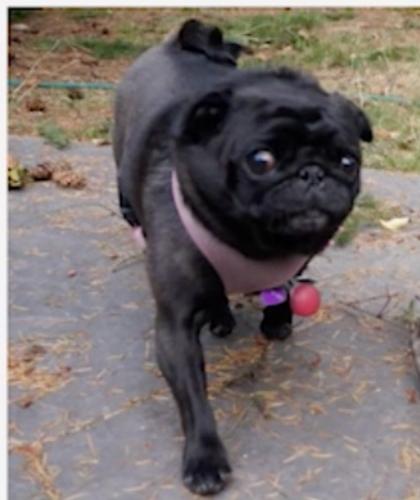
Regression



$$F(x) = mx + b$$

Learn m & b from the data

Classification



Dog
.78

Cat
.04

Tiger
.001

Clustering

- Segmenting customers
- Arranging articles into categories
- Discovering similar items

Building models



Prepare data

- **Feature work**
- **Algorithm selection**
- **Hyperparameter tuning**

Build & train

- **Model competition**
- **Building ensembles**

Deploy

- **Model deployment**
- **Model monitoring**
- **Model retraining**

HOW TO FAIL

01

SHINY THINGS DISEASE
AND RUN TO
OVERPROMISE

02

FRAGILE VS AGILE
NO PLAN STARTING
THE JOURNEY

03

DATA GARBAGE:
BIAS AND NOT ONLY

04

NOT SURE HOW TO
MEASURE SUCCESS

OVERPROMISE

DO NOT ASSESS, ... INVESTIGATE, ...
ASK QUESTIONS, ... UNDERSTAND

01. HOW TO UNDERSTAND IF AIRCRAFT IS FULL ?

FEASIBILITY



01. OVEREXPECTATION ?

FEASIBILITY



DO NOT PLAN
JUST DO IT.

02. NO PLAN TO FAIL EARLY

A NICE JOURNEY TO FAIL BIG

1



*FIND USE
CASE*

2



Express the problem to be solved from business and technical perspective. Define target metrics

3



*Check around
and analyze*

4



*DATA
Collection and
processing*

5



*Experiment
and implement*

6



*Validate your
results*

7



DEPLOY

8



*Track, monitor
and improve*

DO NOT PAY ATTENTION TO DATA

TAKE WHATEVER IT IS THERE.



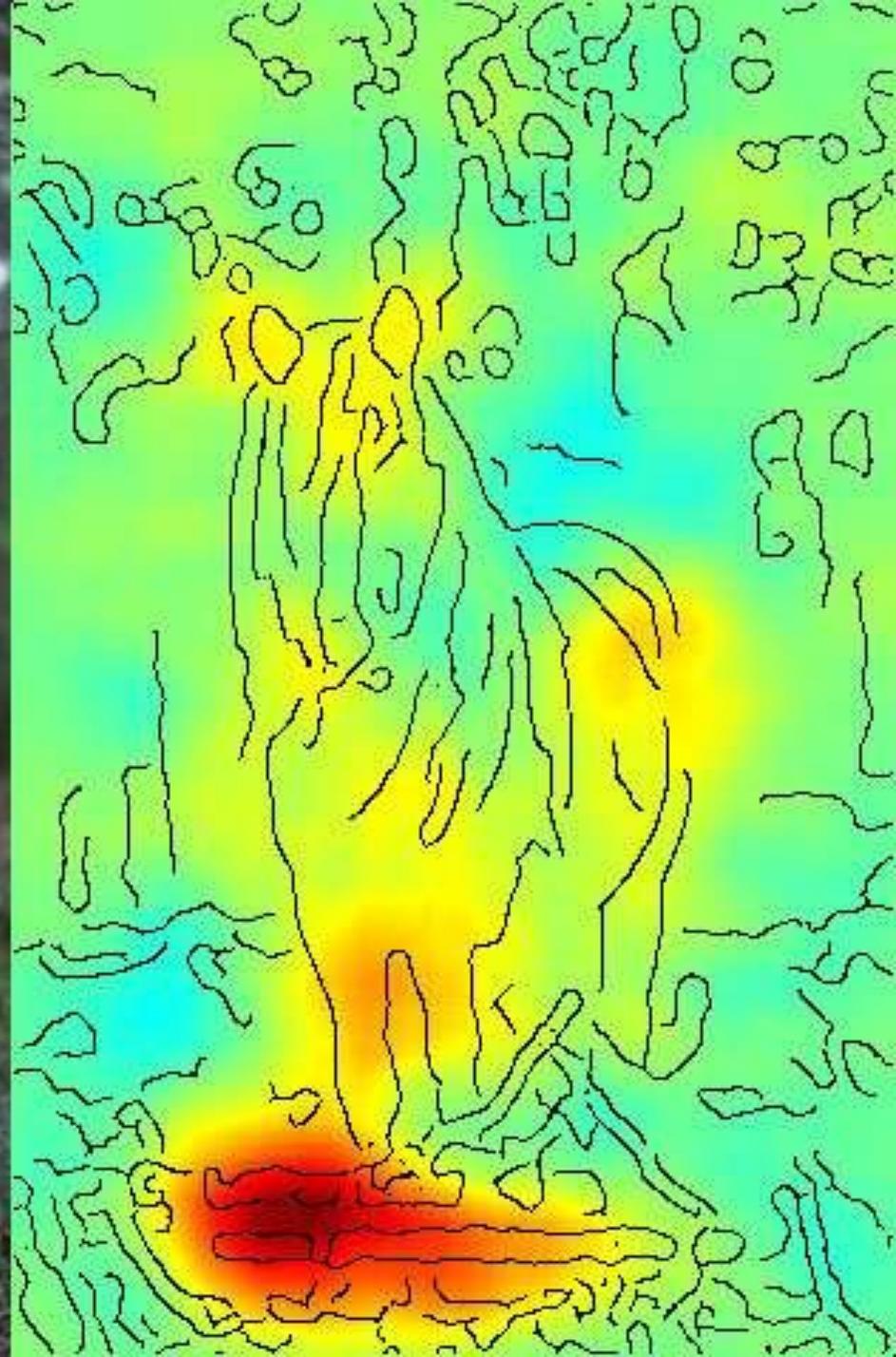
ETHICS IN ARTIFICIAL INTELLIGENCE IS ABOUT NOT MISUSING THE BAD DATA

All data has an opinion.

**INTERPRETABILITY
AND
TRANSPARENCY**



C. Lothar Lenz
www.pferdefotoarchiv.de



DISCRIMINATION IN AI

**DO THESE NEW MODELS HARM
A SPECIFIC SUBSET OF THE
POPULATION OR
UNINTENTIONALLY USE
PRACTICES THAT MARKET
REGULATORS HAVE DEEMED
ILLEGAL?**

Mirrored World

Unlocking the Power of Massive, Intelligent,
Digital Twins



To gain the insights and greater agility that the mirrored world promises, you first need a strong data foundation.

When intelligent twins are connected in mirror environments, they are a powerful way to turn data into actionable, big-picture insights. But incomplete or incorrect data will lead to false conclusions.



I, Technologist

The Democratization of Technology



The power to create technology solutions is entering the hands of people across the enterprise.

Natural language processing, low-code platforms, and robotic process automation (RPA) are just a few of the capabilities and services making technology more accessible.



From Me to We

A Multiparty System's Path Through Chaos



Without an ecosystem strategy, businesses fail to realize the full potential of their digital investments.



**“THE BEST WAY
TO PREDICT THE
FUTURE IS TO
CREATE IT.”**

- PETER DRUCKER

