

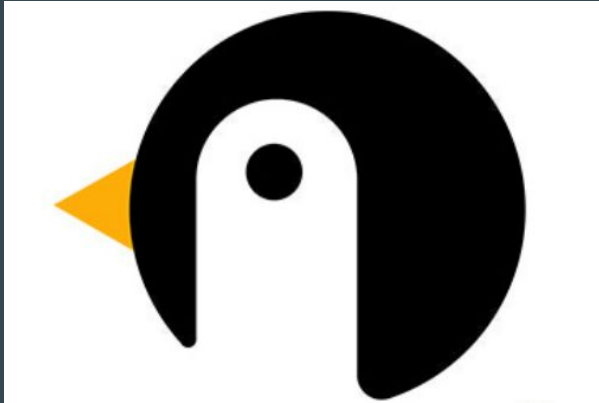
Who am I?



Yumio Saneyoshi

- Moved to Lexington last summer (2016)
- Founder of Penguin Coding School in Lexington (Oct. 2016)
- Experience
 - 15 years in Silicon Valley
 - Google Machine Intelligence team
 - Founder of Yahoo! Answers
 - Product executive at startups
- Education:
 - PhD Economics - Harvard University
 - BA from Williams College

Penguin Coding School - Lexington



- Teach computer programming to kids grades 4-12
- STEM enrichment activity
- Builds websites and games using real programming languages, not toys

www.penguincodingschool.com

QUIZ

MONDAY

7 DAY FORECAST

RAIN ■ RAIN/SNOW ■ SEVERE ■

72°

SEATTLE

88°

BILLINGS

92°

MINNEAPOLIS

78°

BOSTON

68°

SAN FRANCISCO

92°

SALT LAKE CITY

98°

DENVER

93°

96°

KANSAS CITY

97°

LOUISVILLE

68°

LOS ANGELES

96°

ALBUQUERQUE

109°

PHOENIX

98°

DALLAS

94°

HOUSTON

91°

NEW ORLEANS

MIAMI

74°

ATLANTA

92°

BOSTON

94°

NEW YORK

101°

WASHINGTON

93°

ORLANDO



CANCER RESEARCH





similar

A green double-headed arrow connects the can of Duff Beer at the top to a red t-shirt at the bottom. The word "similar" is written in green, lowercase letters to the left of the arrow.

recommend

A red arrow points from a red t-shirt towards Homer Simpson. The word "recommend" is written in red, lowercase letters above the arrow.

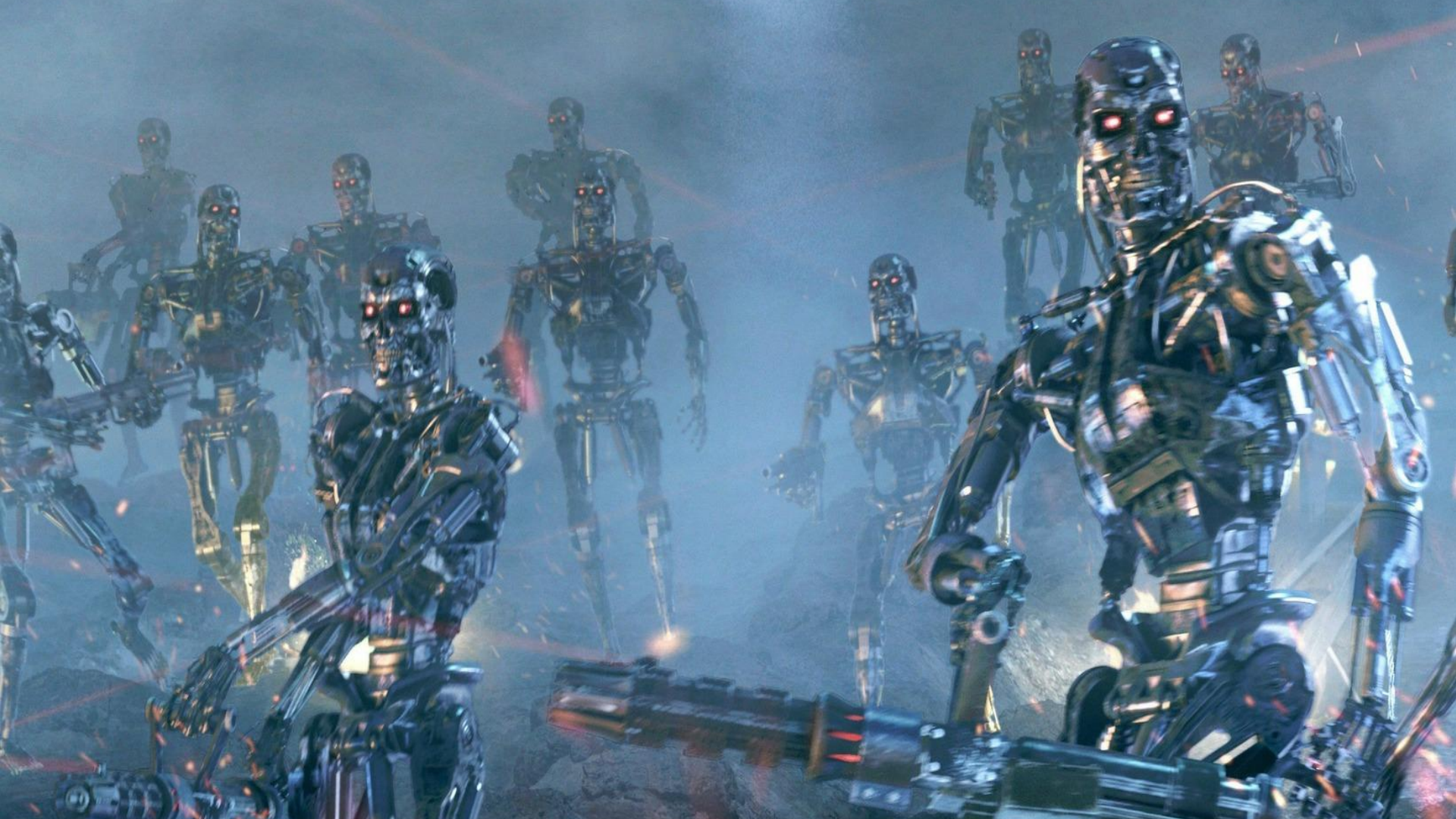




Digital Advertising

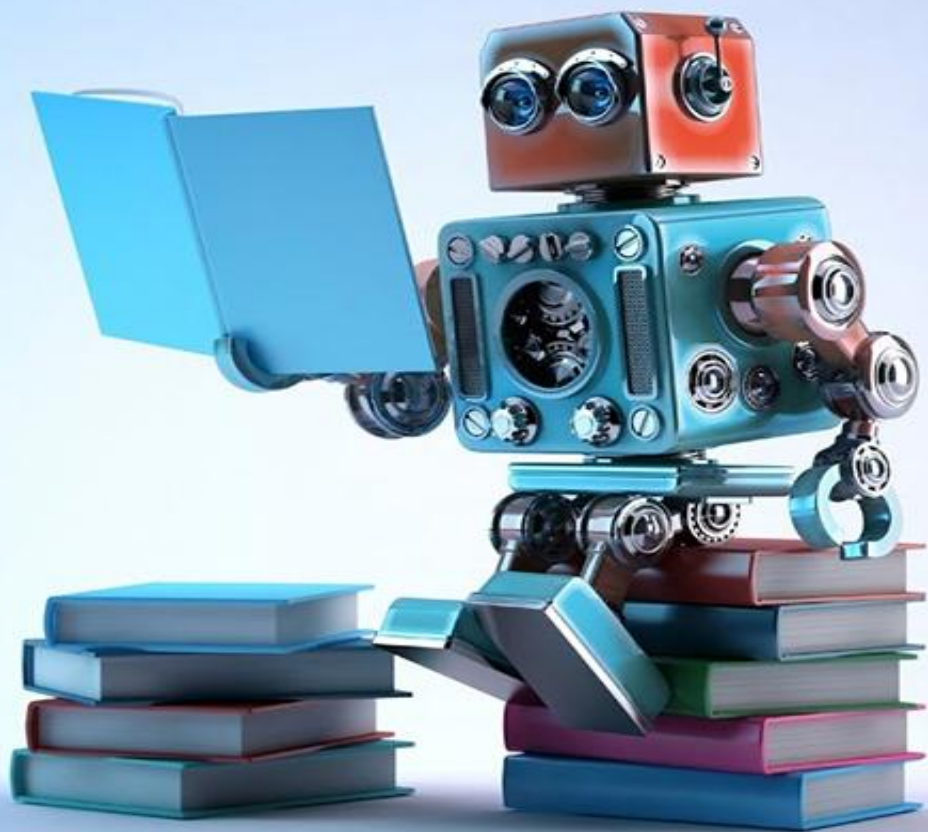






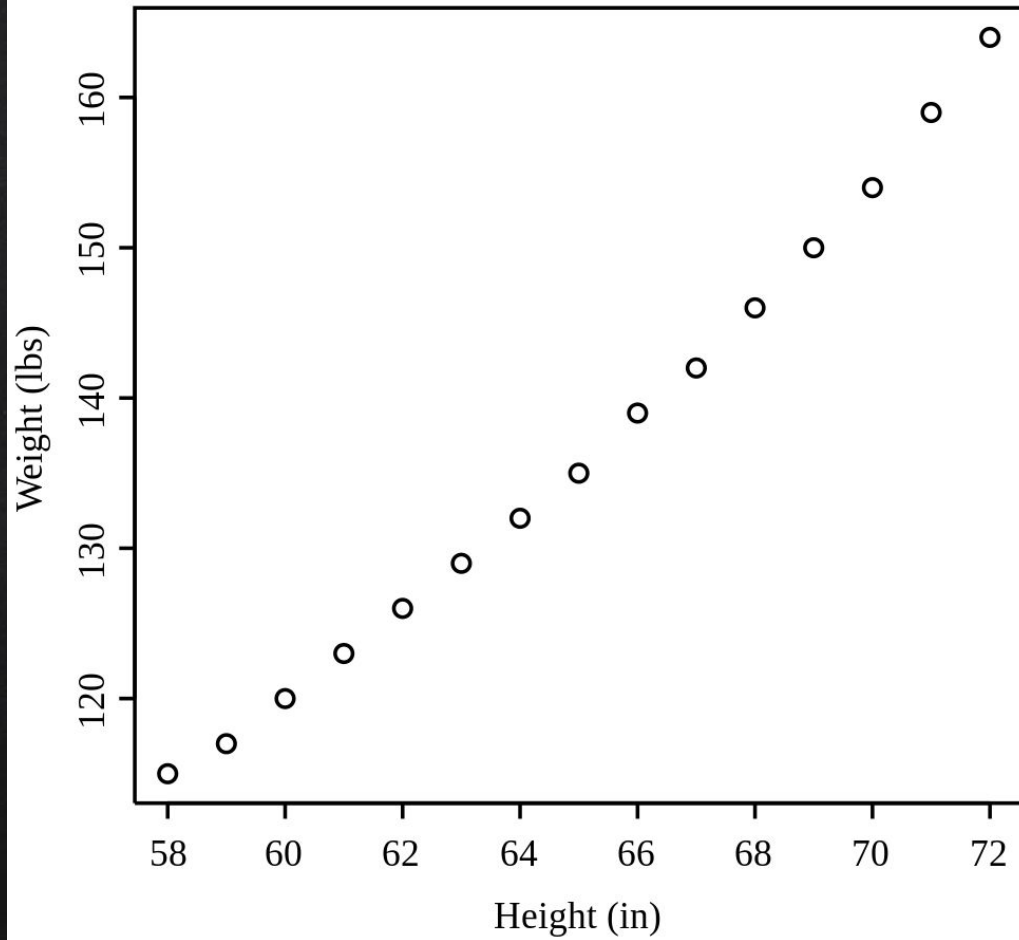
MACHINE LEARNING

WHAT IS MACHINE
LEARNING?

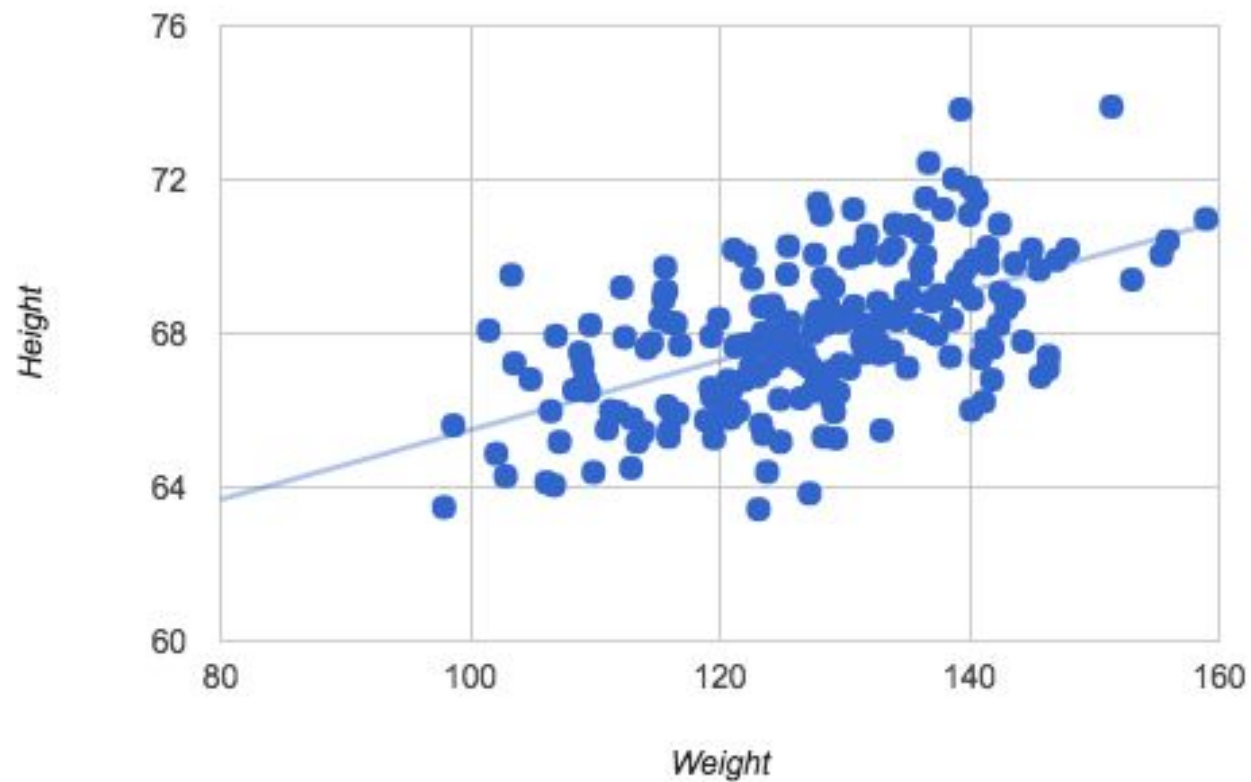


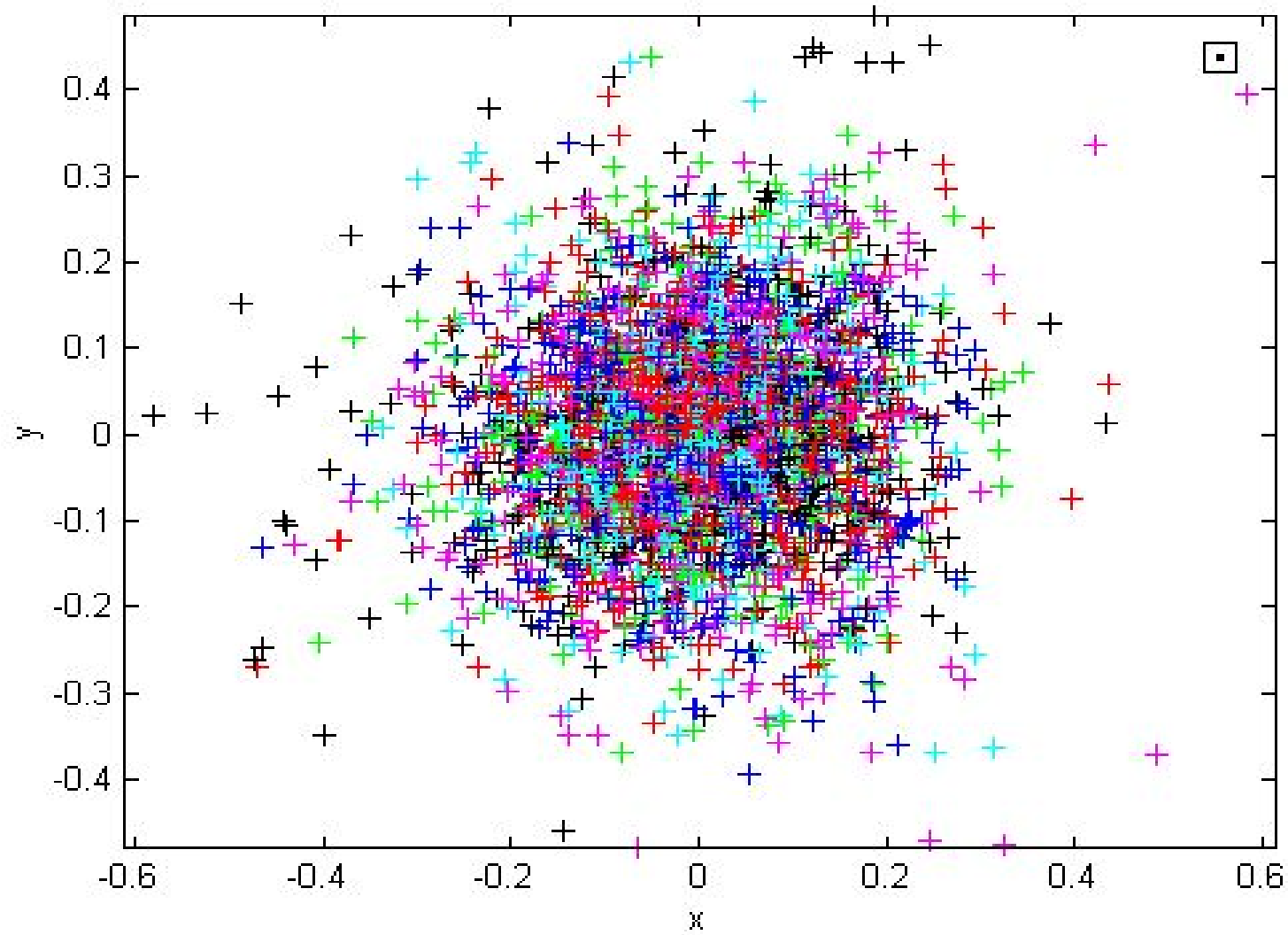
PATTERN MATCHING

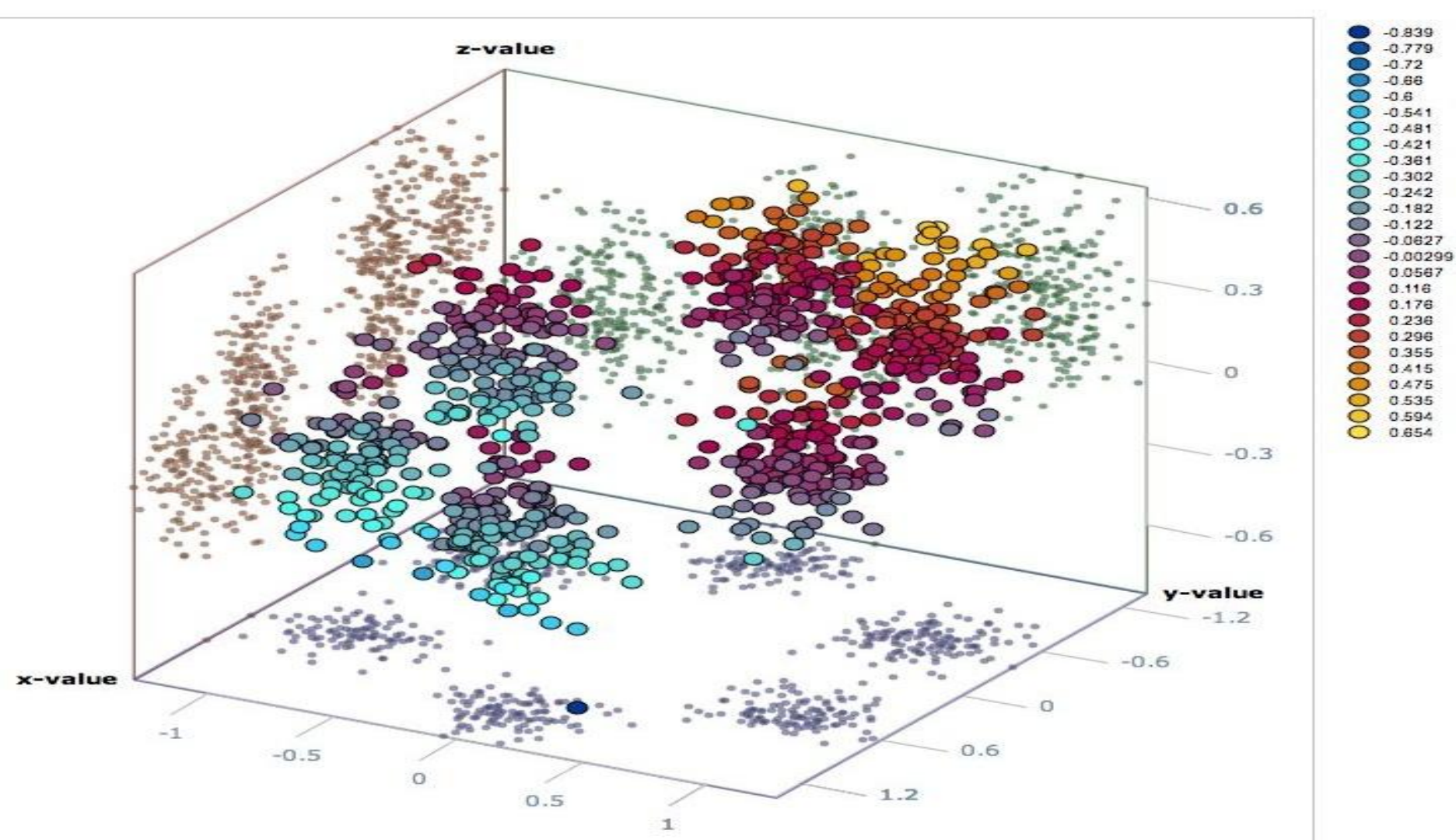
US women weight vs. height



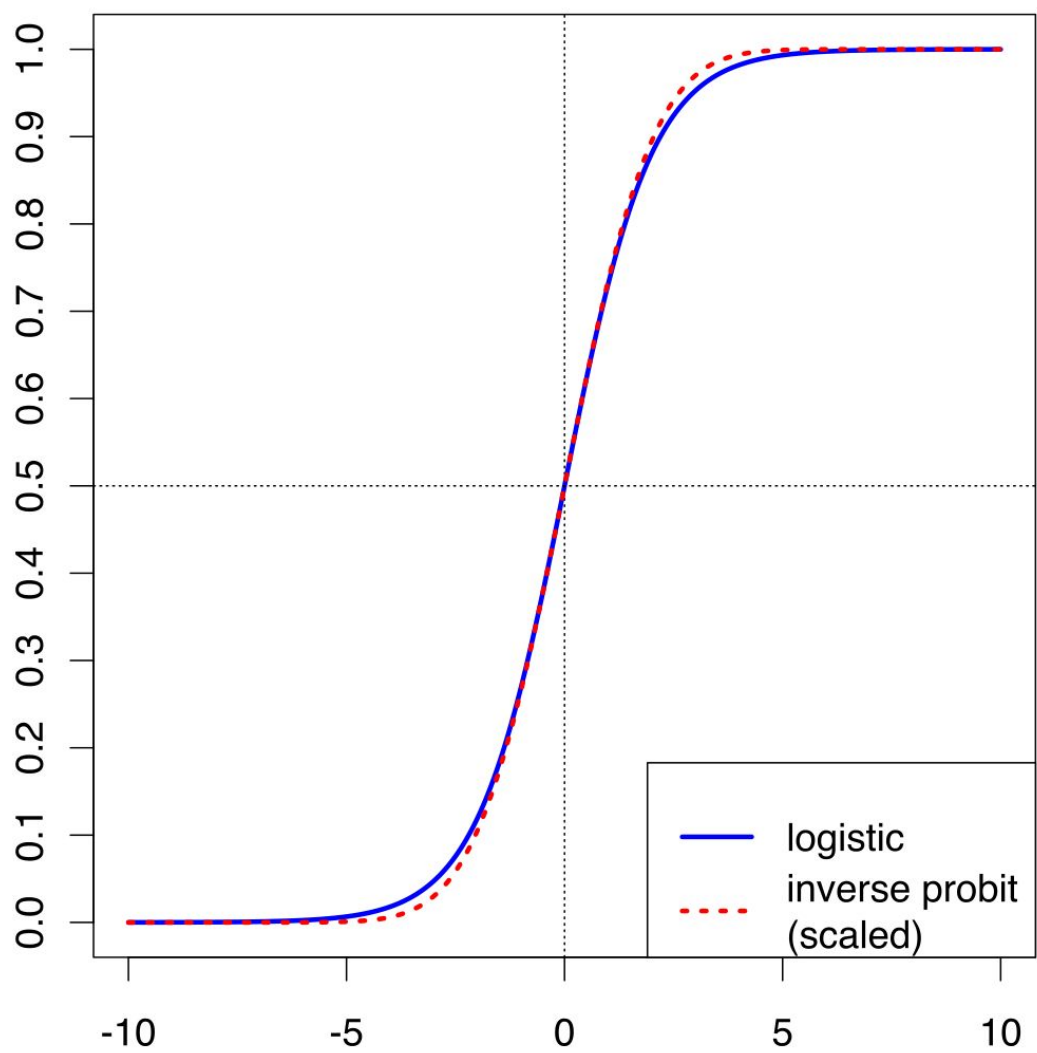
Height vs. Weight





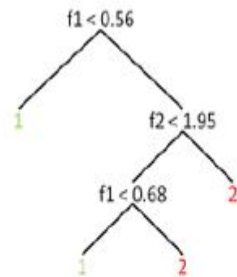


Logistic Regression

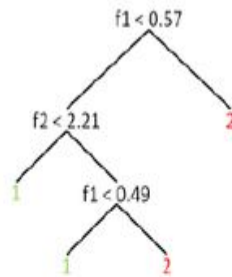


Random Forest Decision Tree

tree 1



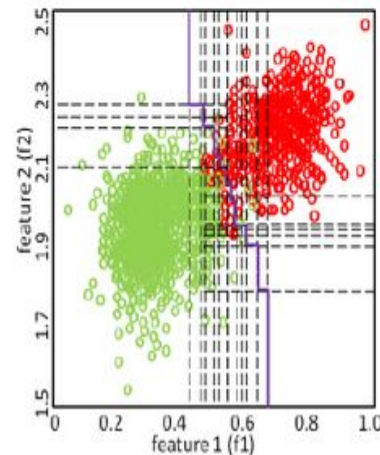
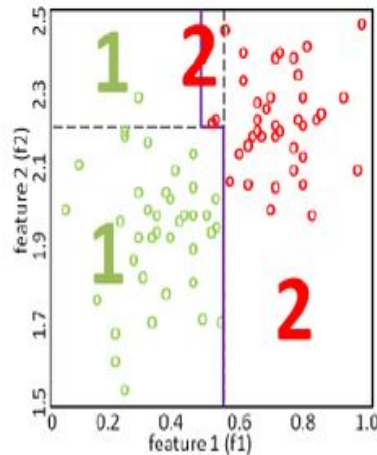
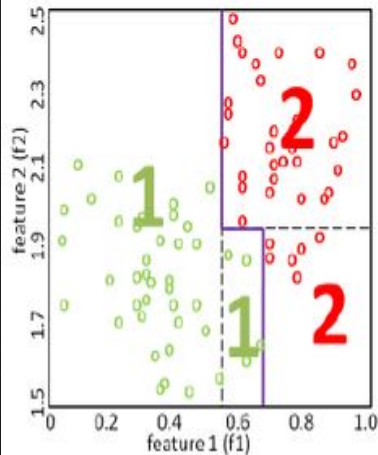
tree 500



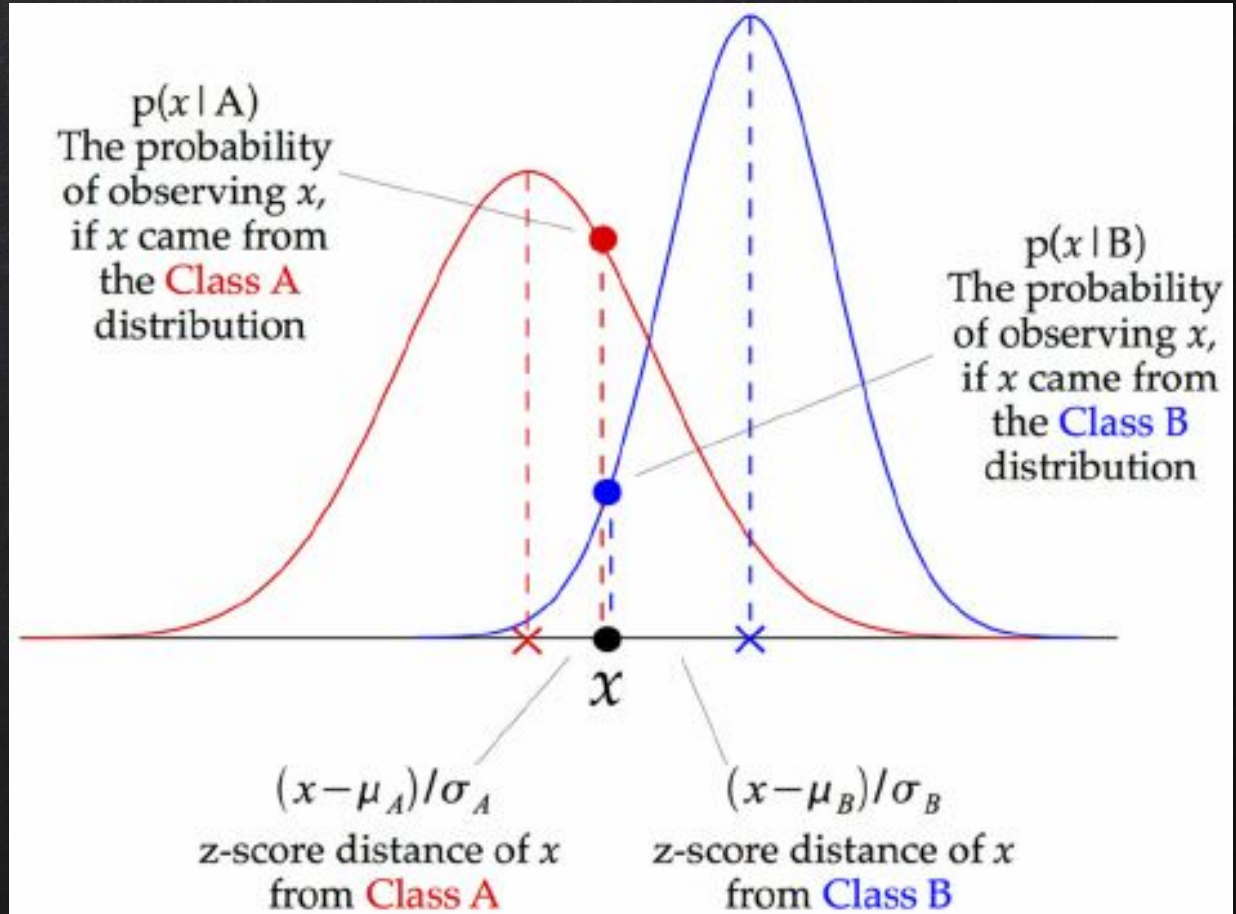
forest



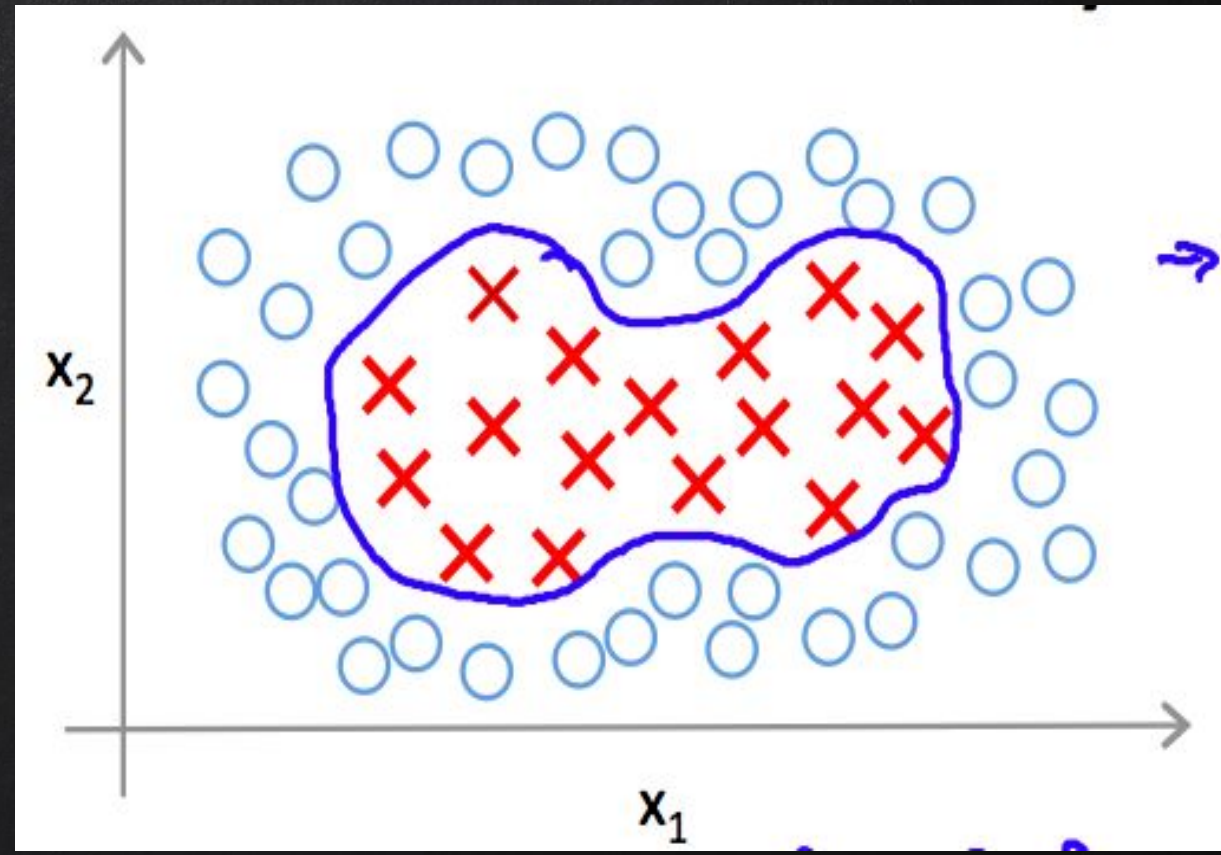
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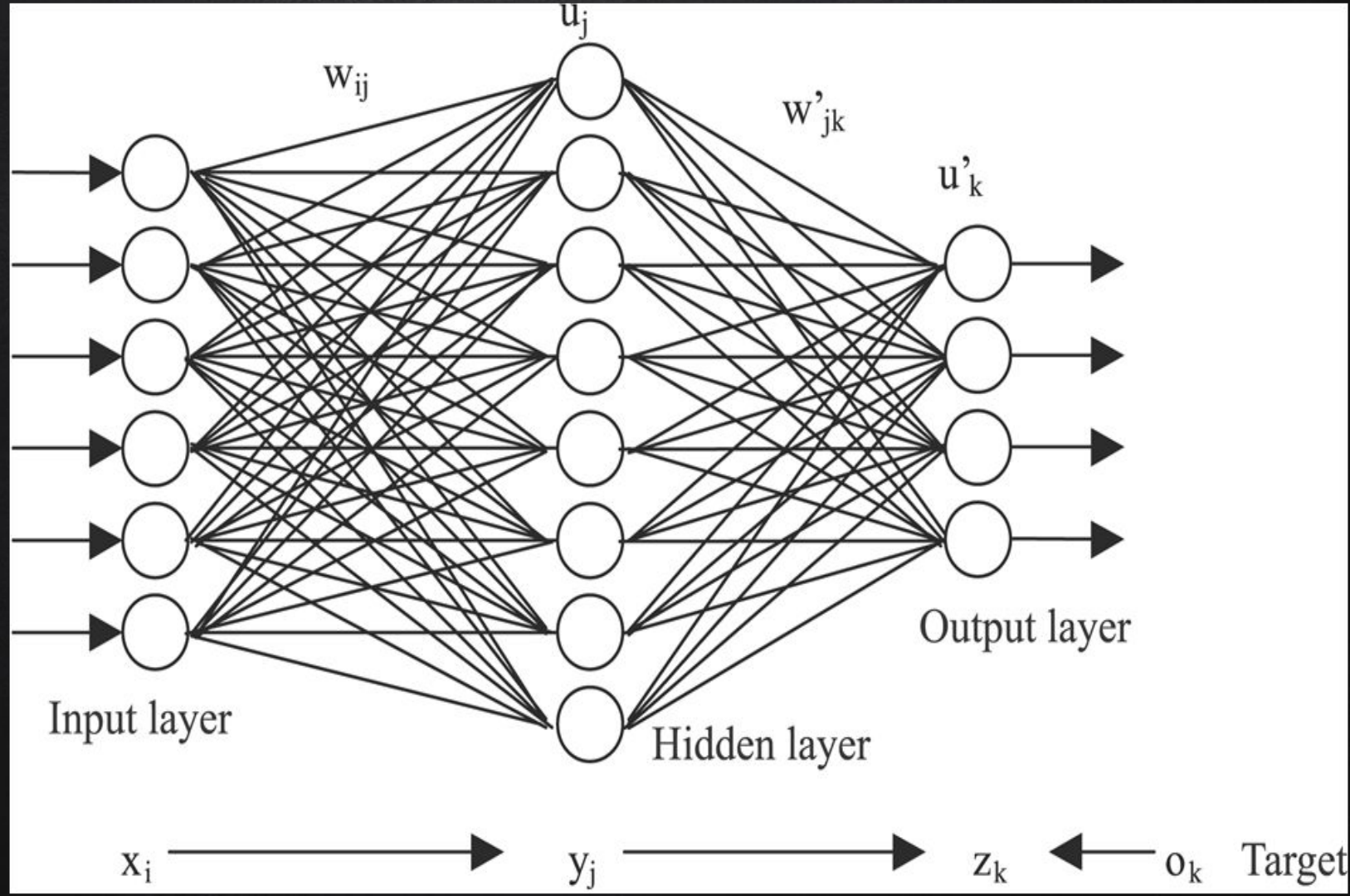
Naive Bayes Classifier



Non-Linear
Support Vector Machine



Neural Networks





- Using Data to make a decision – example:
 - Alpha Go – whats my next game move?
 - Self-Driving Car: Is the light red or green?
 - What ad should I show a 45 year old female who has 2 children, a pet dog, fan of Red Sox and likes to eat at McDonalds
 - What is the hidden pattern in cancer cells that differentiates it from regular normal cells?



NEURAL NETWORK
ORIGINAL IDEA : 1943

ALGORITHMS WERE INVENTED
IN 1980s

WHAT CHANGED
IN LAST 5 YEARS

MORE DATA

COMPUTING POWER TO
PROCESS THAT DATA

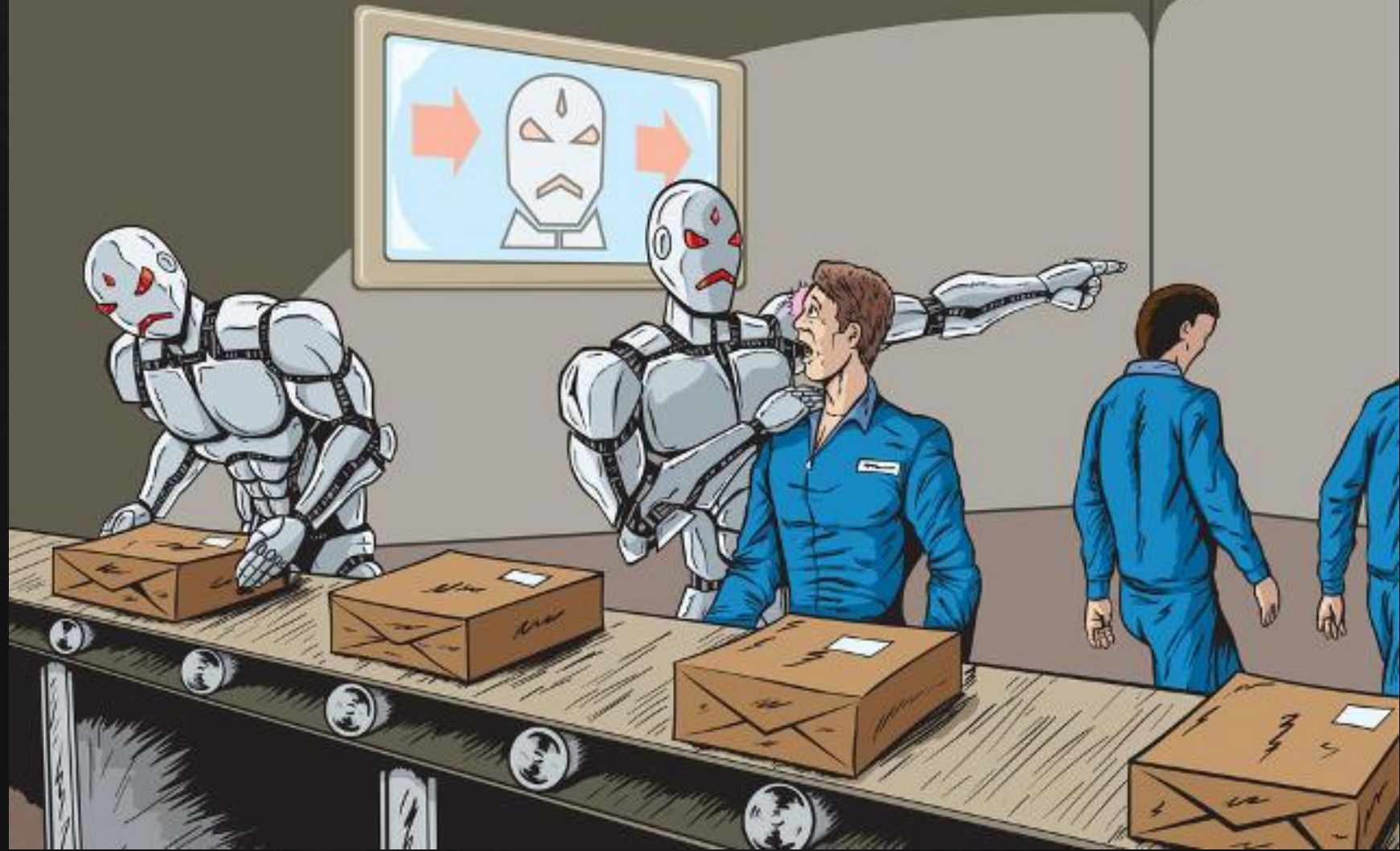
FINANCIAL INCENTIVE TO
PROCESS THAT DATA



With artificial intelligence, we are summoning the demon. In all those stories where there's the guy with the pentagram and the holy water, it's like, yeah, he's sure he can control the demon. Didn't work out.

— *Elon Musk* —

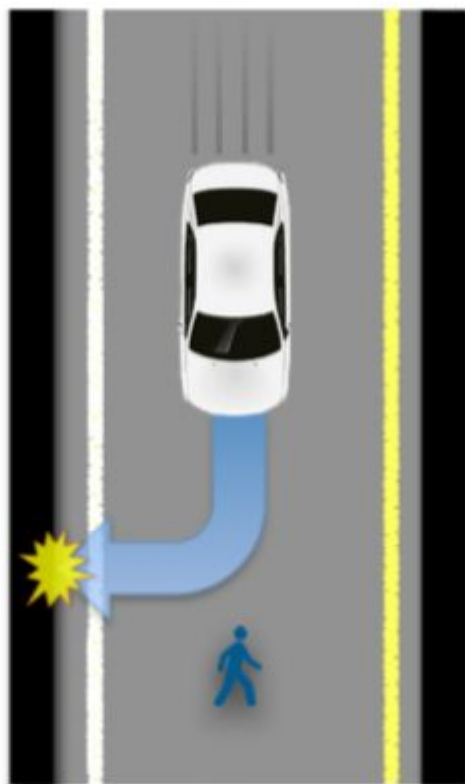
AZ QUOTES



a



b



c





Computers will overtake humans with AI within the next 100 years. When that happens, we need to make sure the computers have goals aligned with ours.

--STEPHEN HAWKING