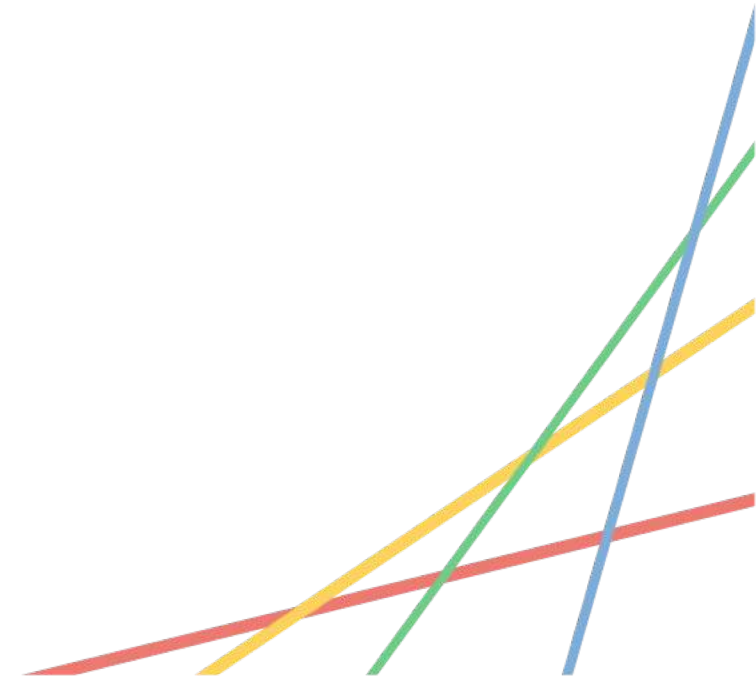




Winning in an AI first world

Konstantin Schellong, Google





Prepare your mind



Artificial intelligence

This whole grand project

Machine learning

Ability of computers to learn

Deep learning

More powerful and easier to train



10 minutes...
Random luck.



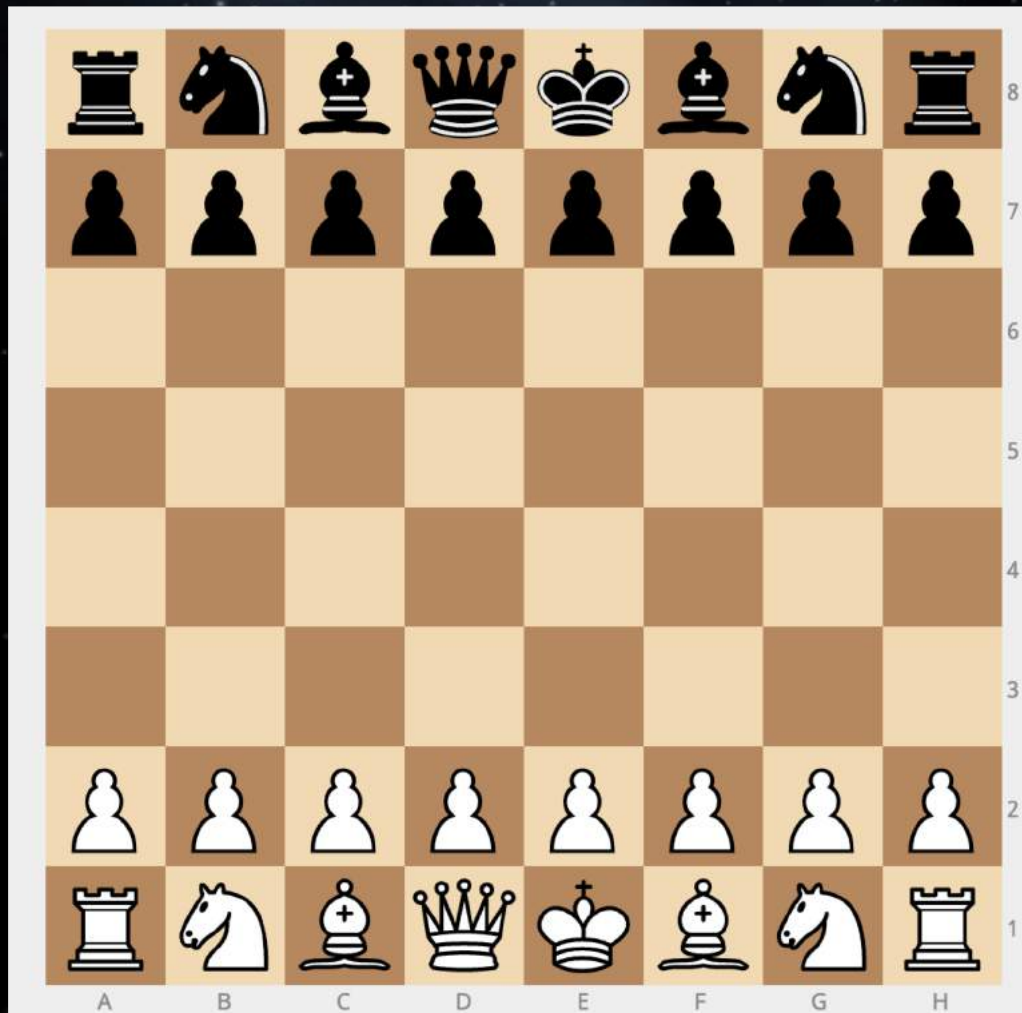
120 minutes...
Flawless



240 minutes...
Strategy emerges



Chess solved already in 1997

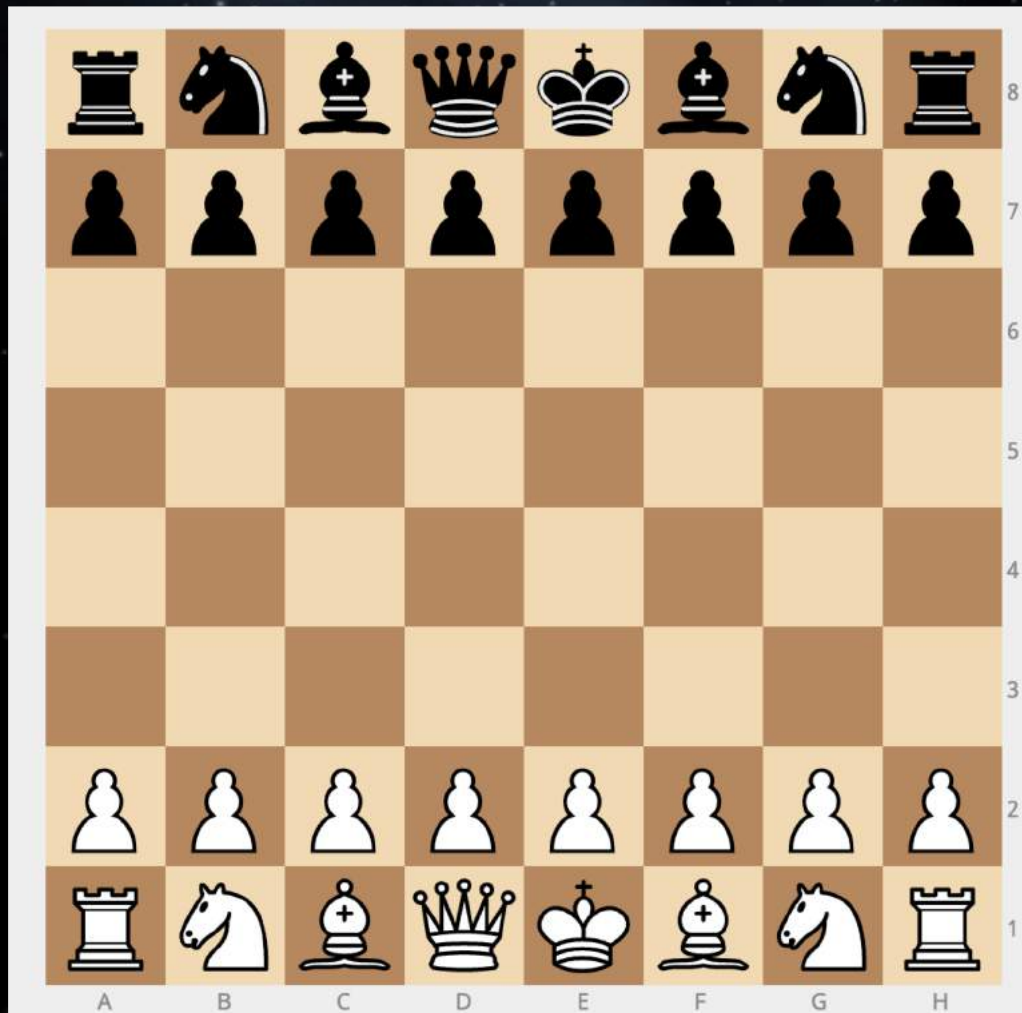


Deep Blue

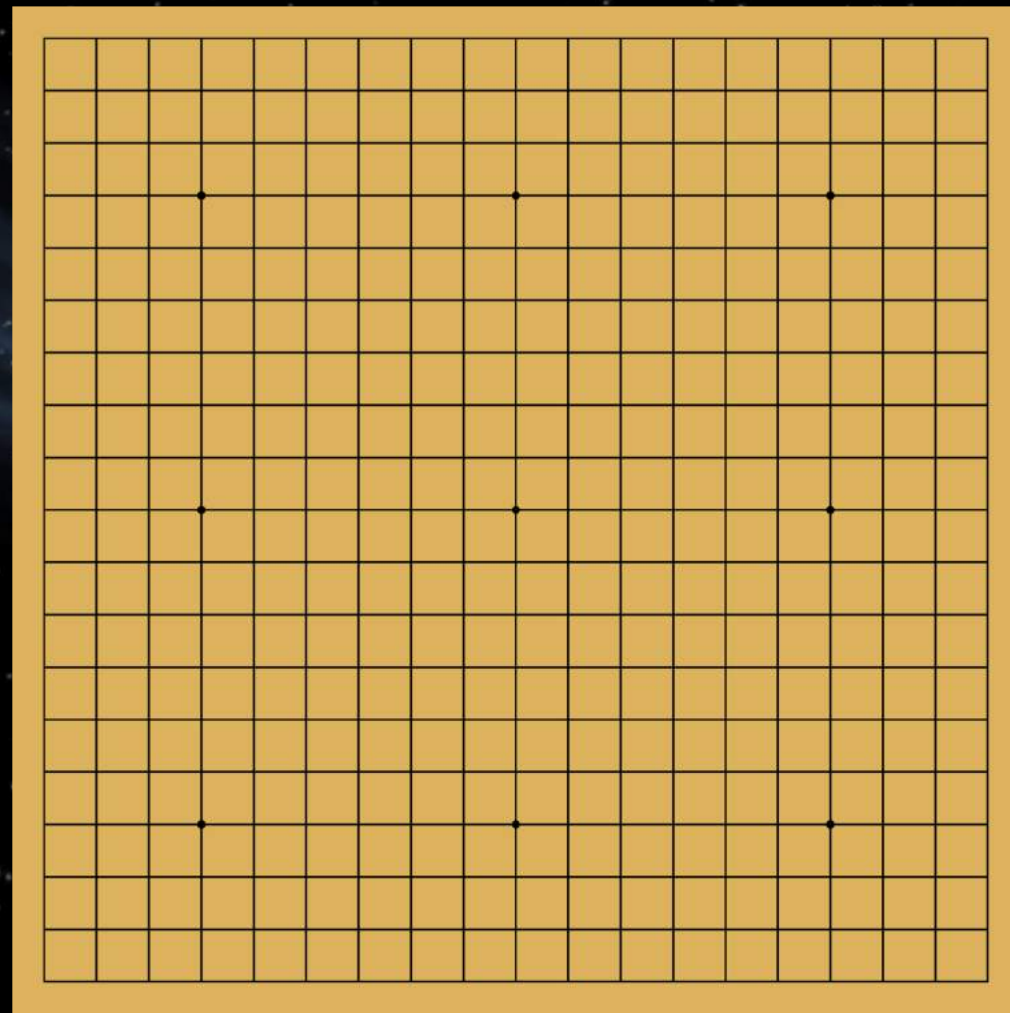


Higher complexity game: GO

8x8

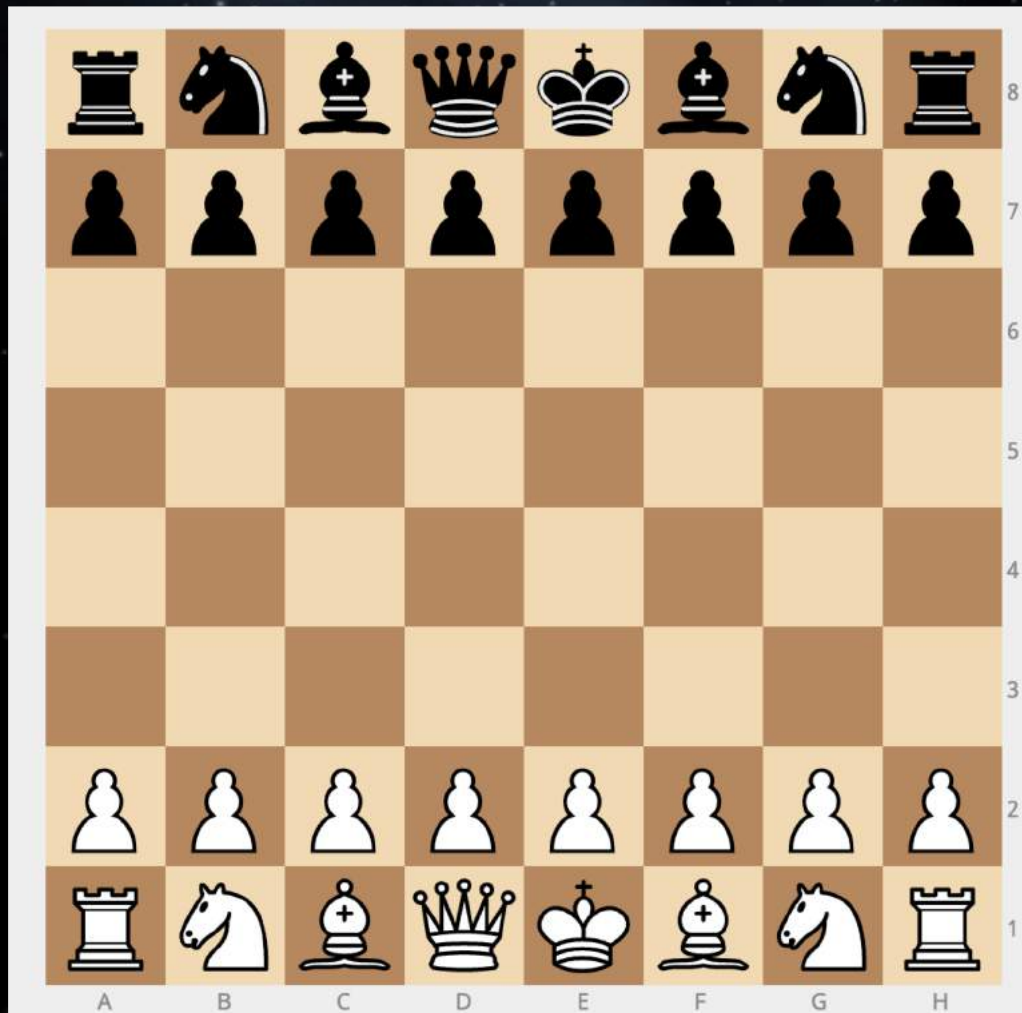


19x19

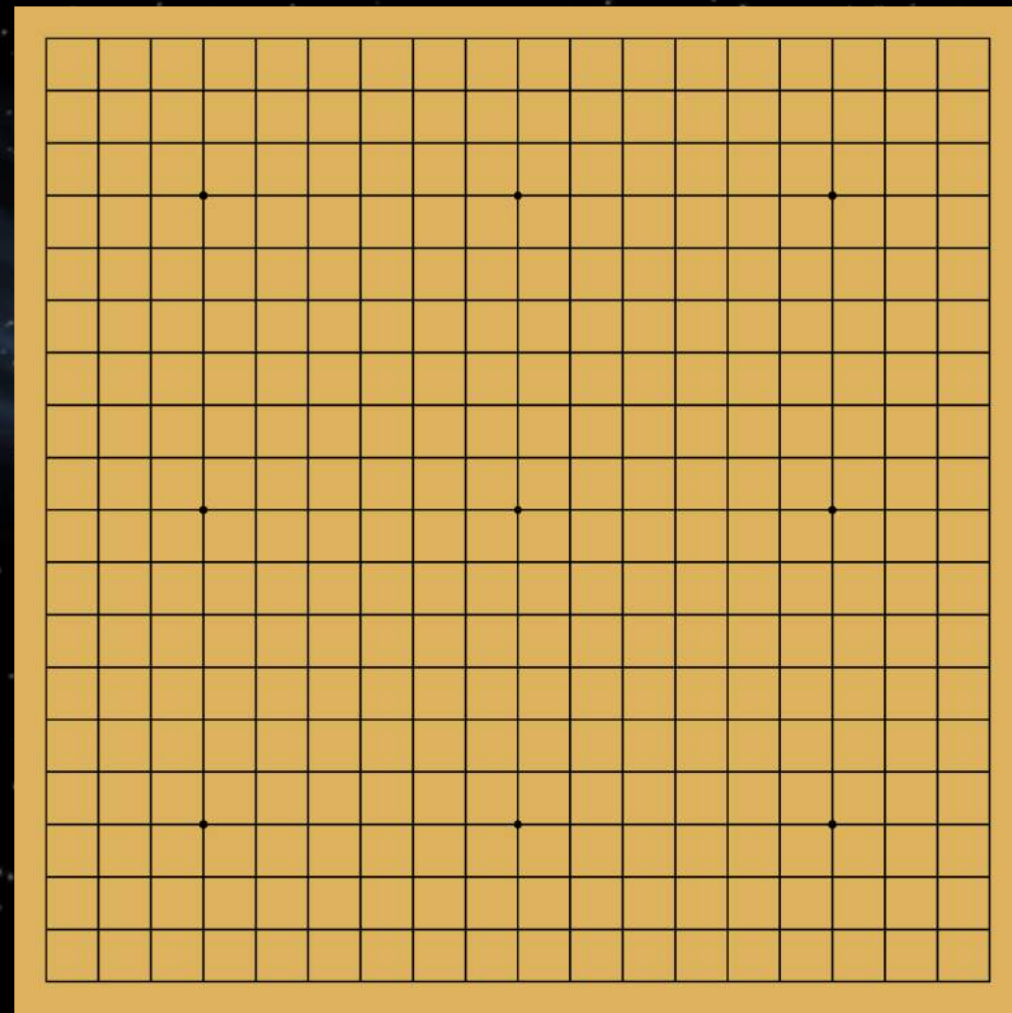


Possible combinations first 3 moves

4.352



46.644.640





Google DeepMind

Challenge Match

8 - 15 March 2017



ALPHAGO
00:05:30

LEE SEDOL
00:28:28

10^{170}

Possible positions

30 mil

Trained games



AlphaGo

Lee Sedol





Ke Jie
#1 GO since 2015

0

May 2017

3



Google's AlphaGo

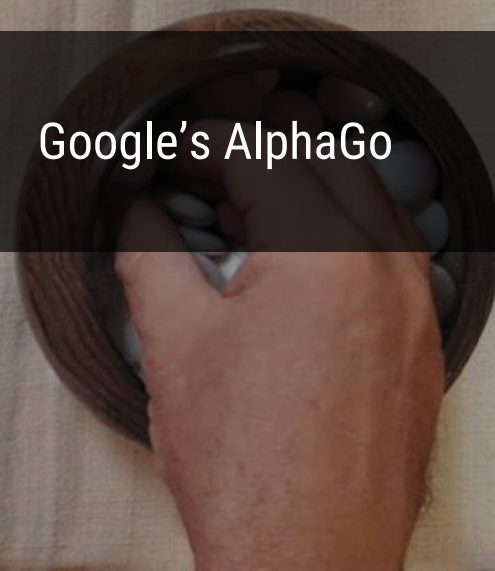
1

March 2016

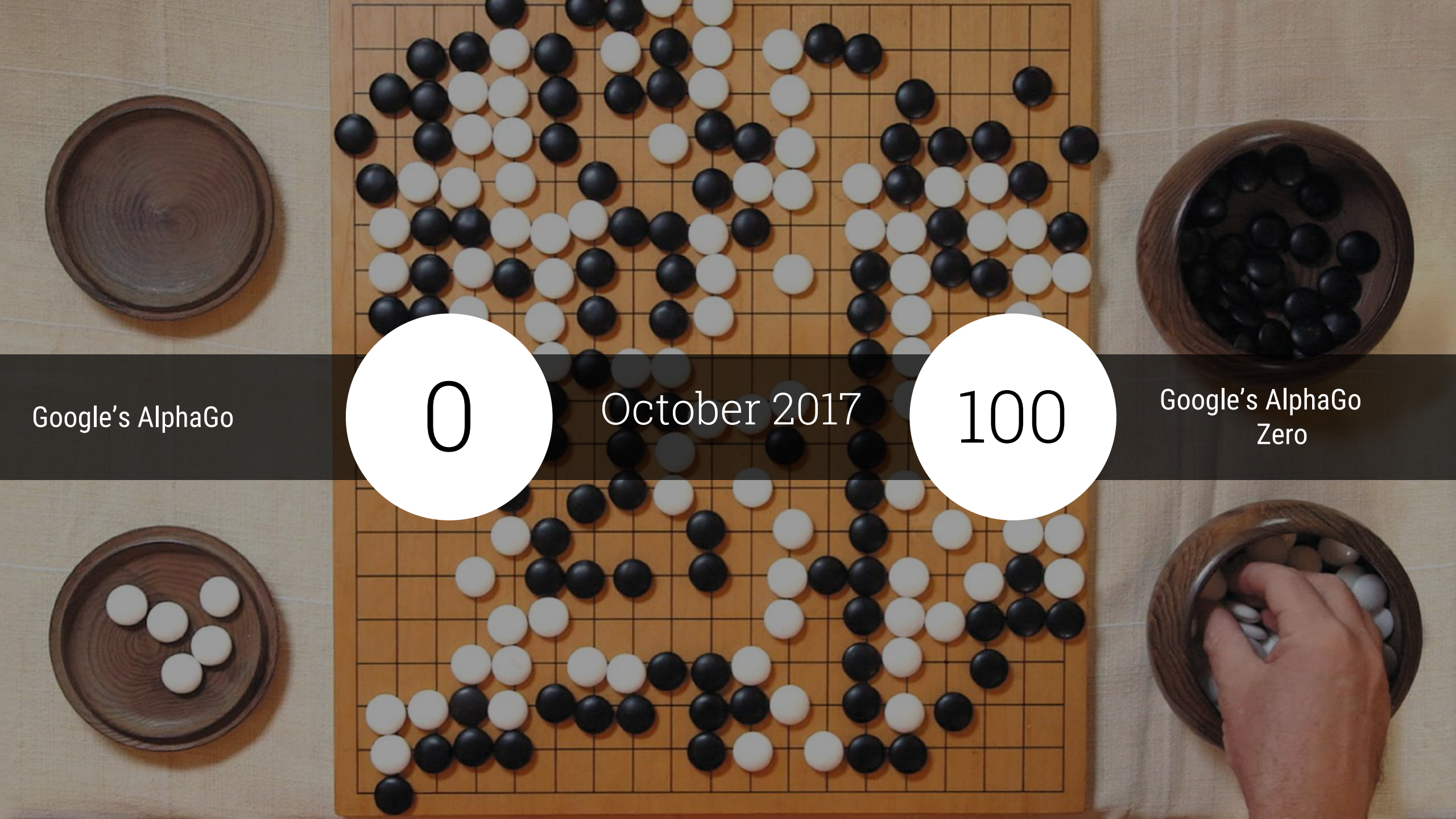
4



Lee Sedol
World Champion, GO



Google's AlphaGo



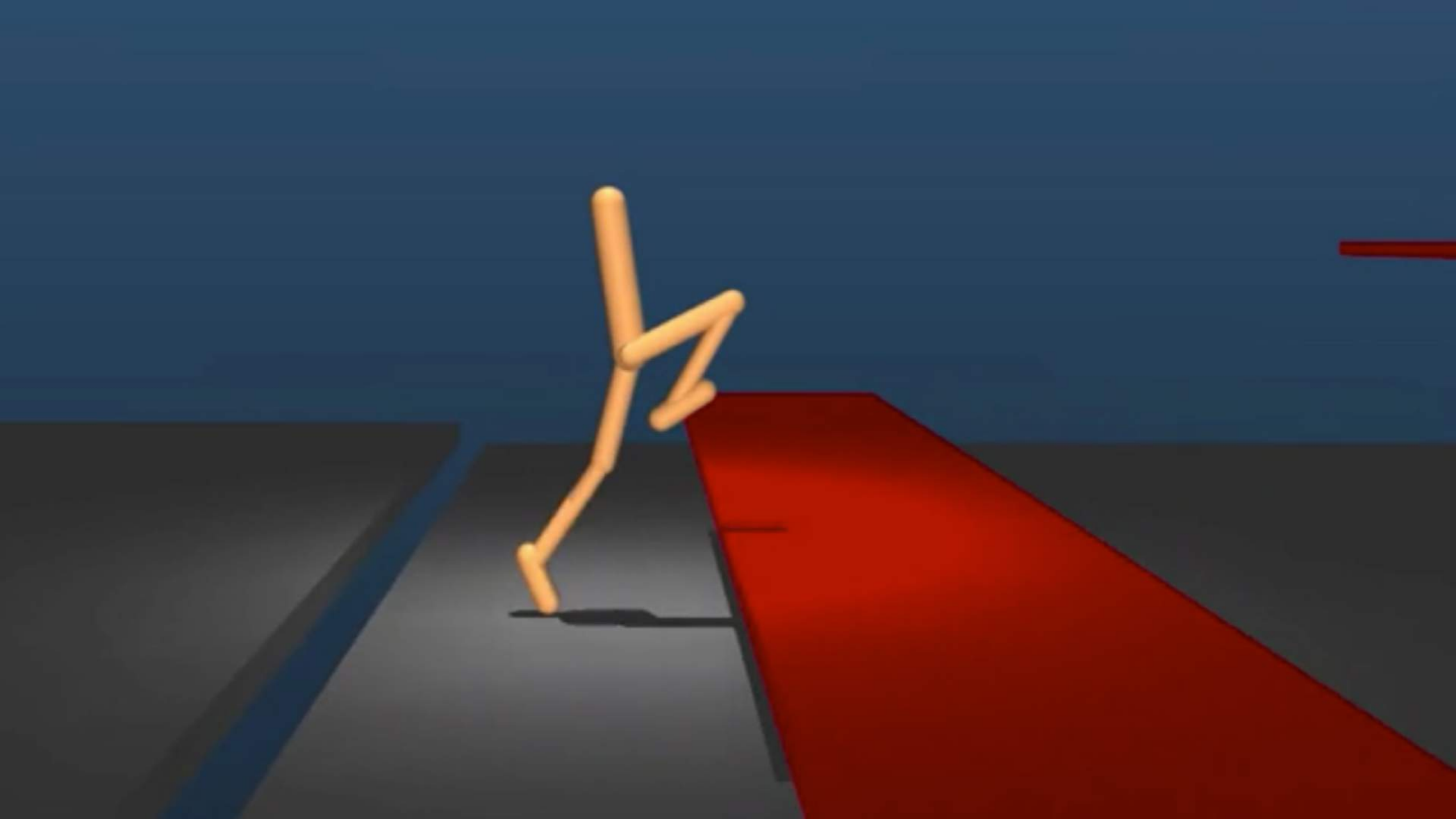
Google's AlphaGo

0

October 2017

100

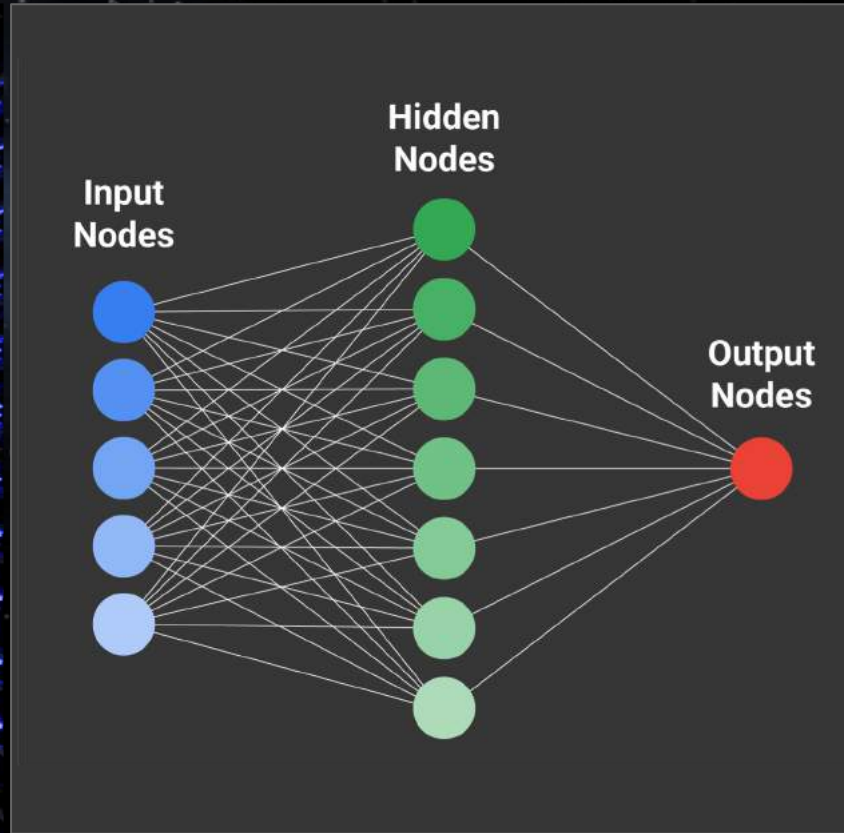
Google's AlphaGo
Zero



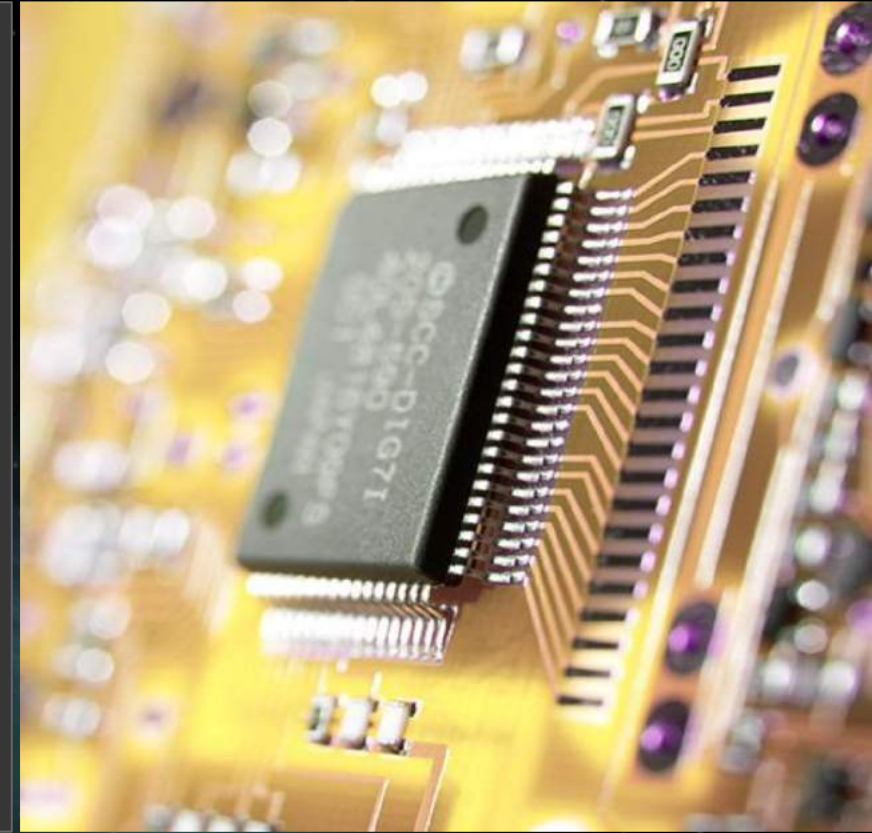
So why all the fuss now?



Large Datasets



Good Models

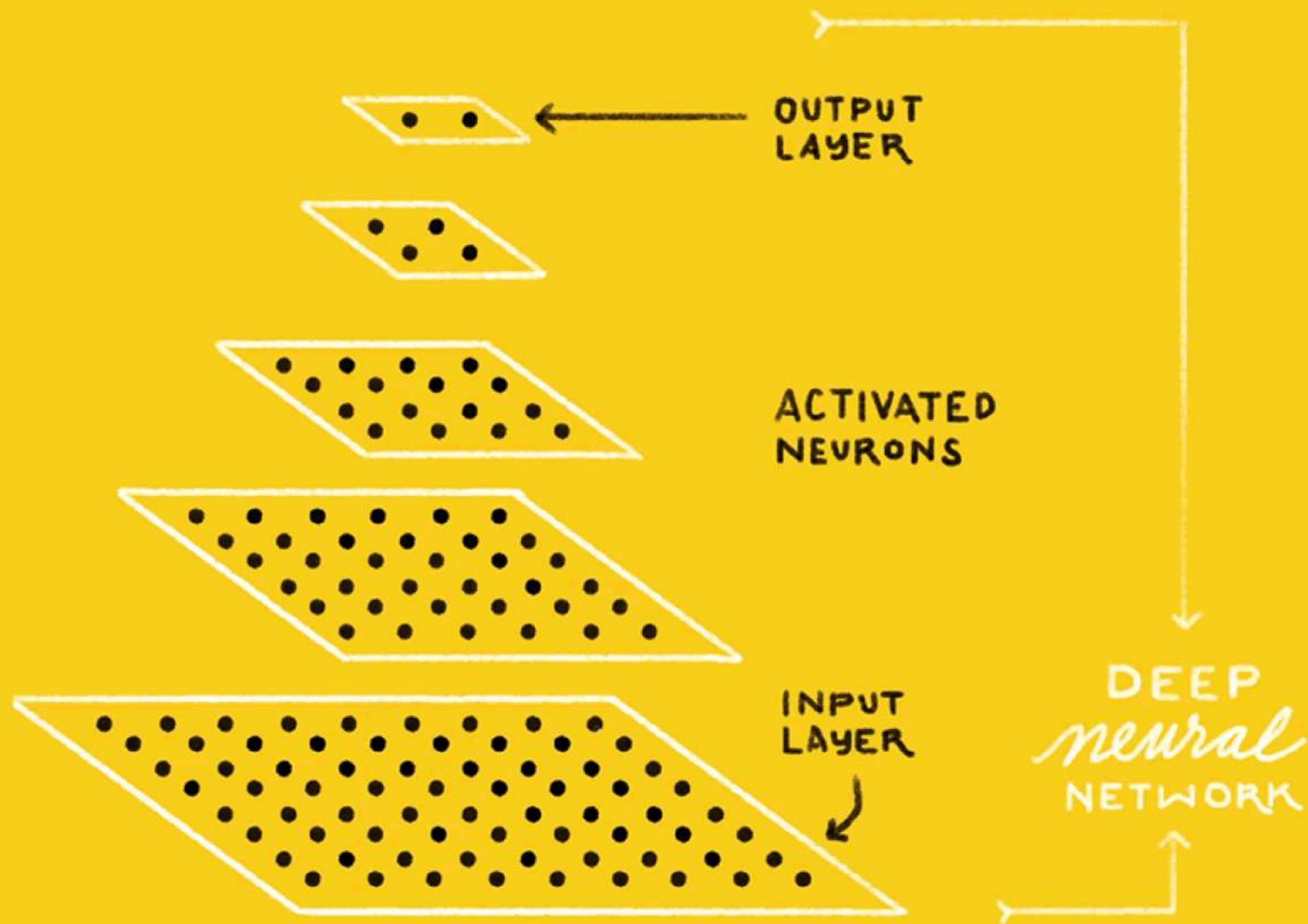


Lots of Computation

DOG



CAT DOG



Tom Hanks
or Bill Murray?



Machine Learning say's it's...

Bill Murray - and it's right!



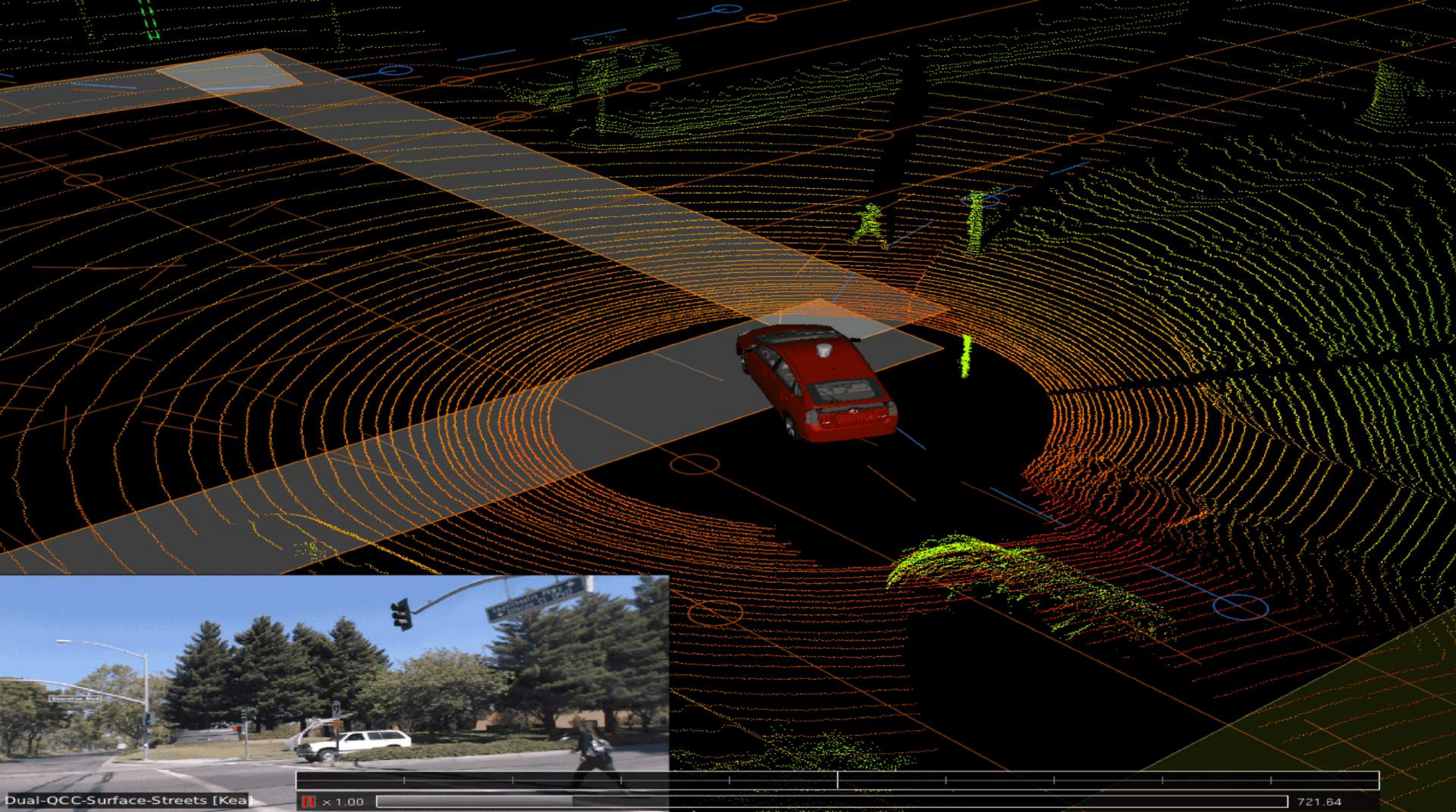




Potentially remove to save
time

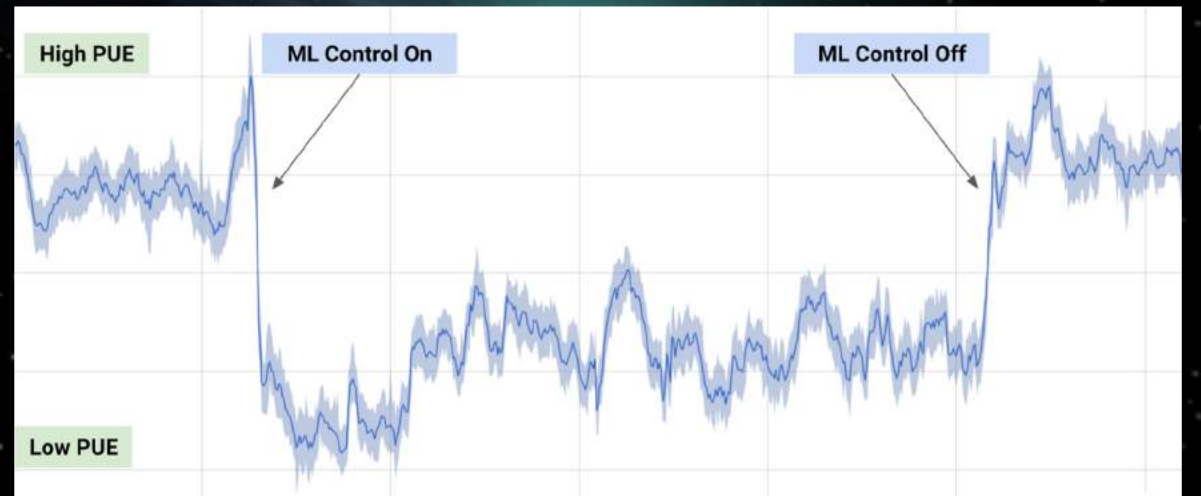


there is no one else in the world.
there is no one else in sight.
they were the only ones who mattered.
they were the only ones left.
he had to be with me.
she had to be with him.
i had to do this.
i wanted to kill him.
i started to cry.
i turned to him.

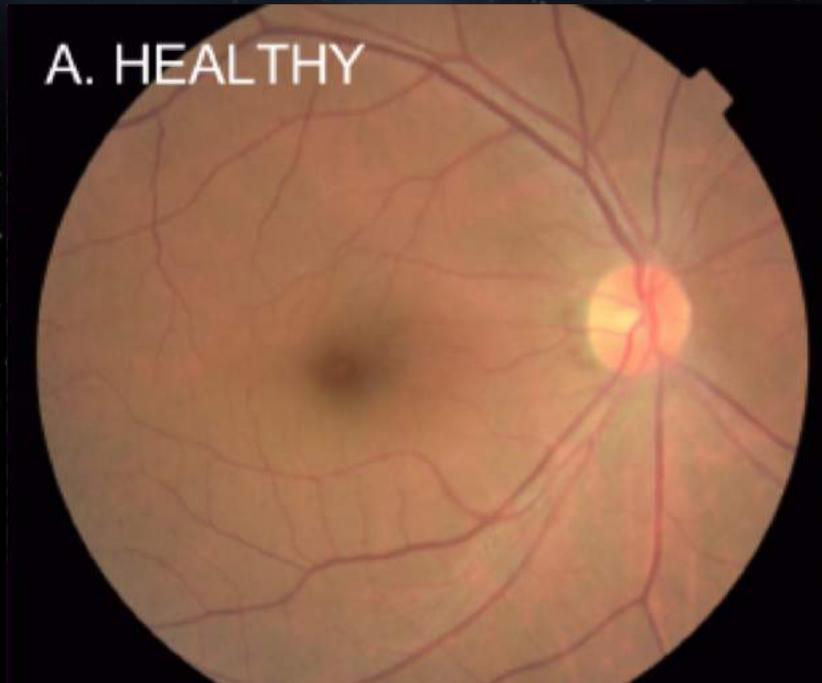




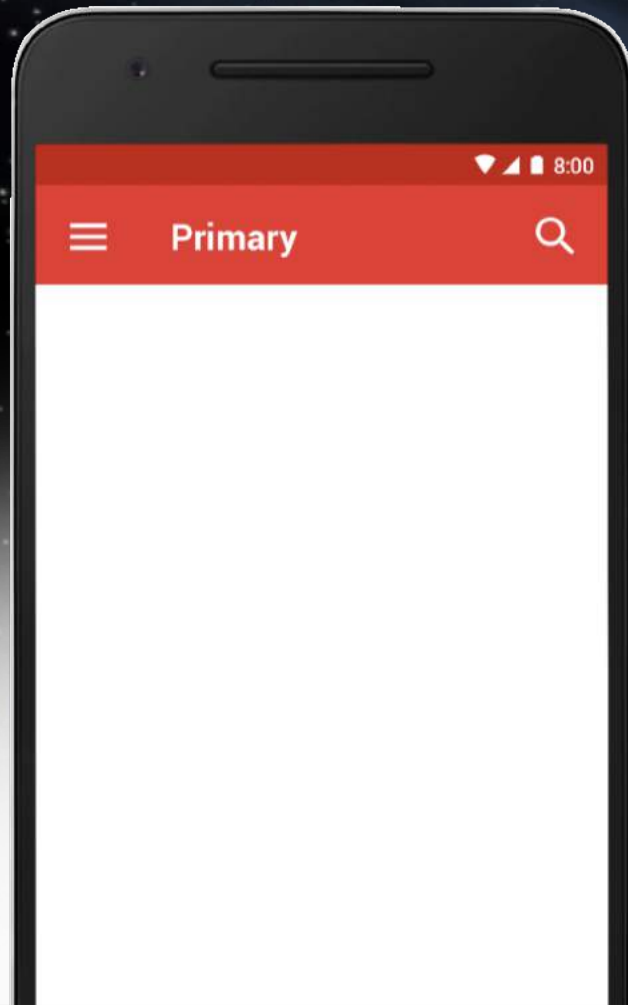
Using machine learning, a 40% reduction in the amount of energy used for cooling was consistently achieved



Automated Retinal Disease Assessment



ML now embedded in customer service



Faster at
responding
to urgent
emails

4X

10,000% ROI

With minimal
system cost
of ~£100 /
month



TensorFlow powered cucumber sorter



“

We will move from **mobile first** to an **AI first** world.
We see huge opportunities to dramatically
improve.

Google CEO, Sundar Pichai



Machine learning is already improving many of our products



Search

Search ranking
Speech recognition



Android

Keyboard & speech input



Play

App recommendations
Game developer experience



Gmail

Smart reply
Spam classification



Chrome

Search by image



Drive

Intelligence in Apps



YouTube

Video recommendations
Better thumbnails



Assistant

Smart connections
across products



Maps

Parsing local search



Cardboard

Smart stitching



Translate

Text, graphic and speech translation



Photos

Photos search

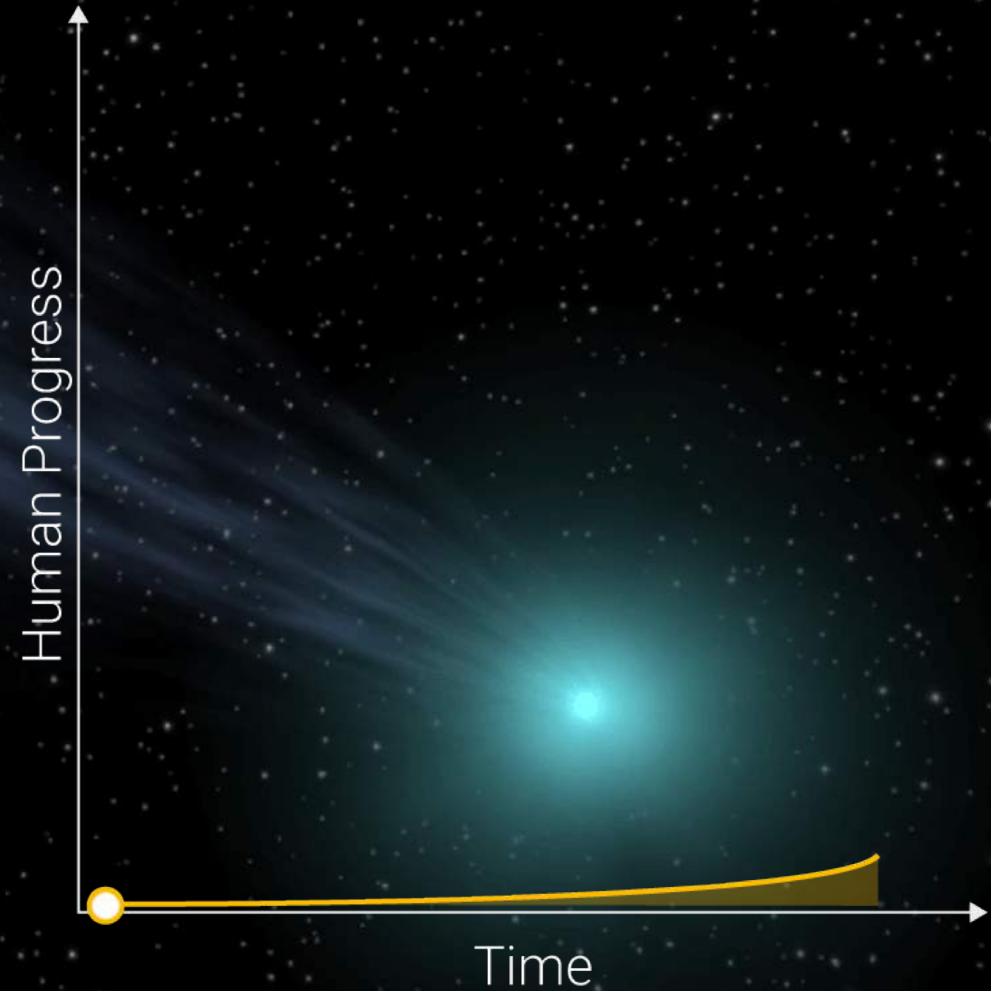


Today

Artificial Intelligence

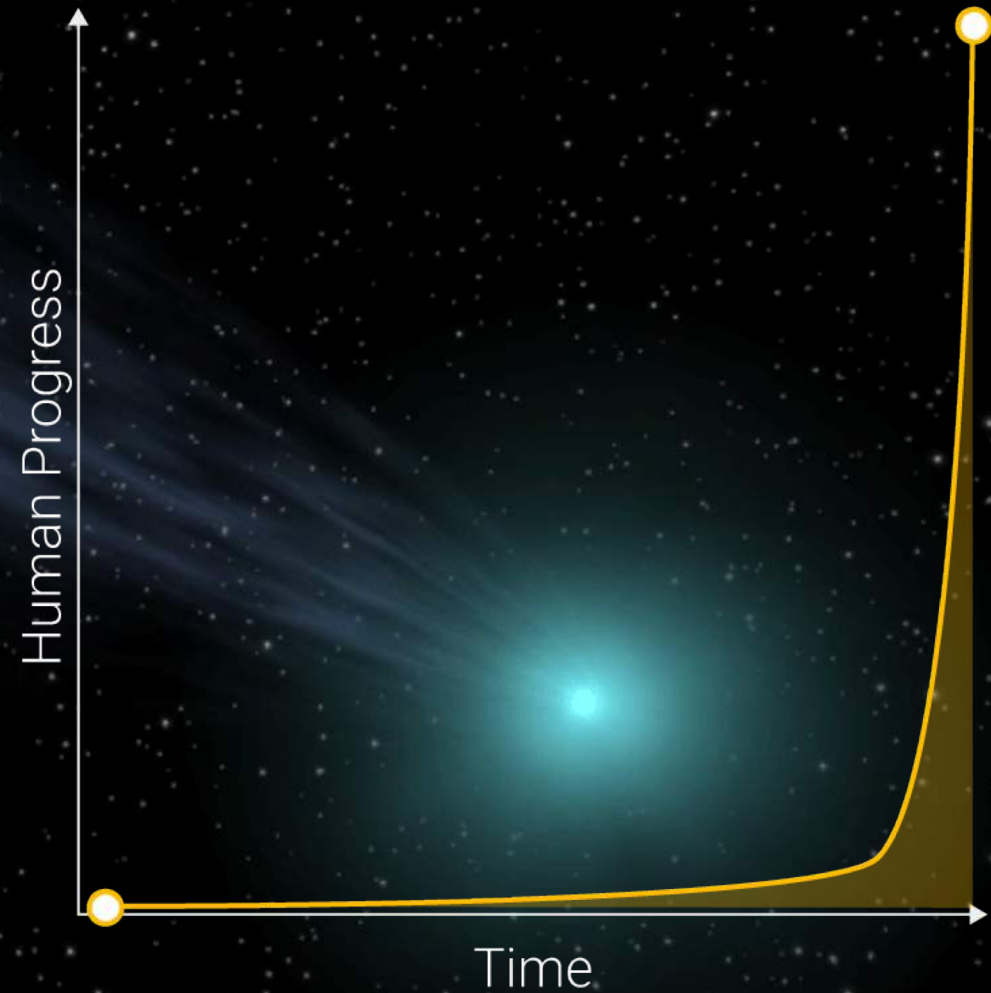
demonstrates early versions of
what many of us do, all day, every
day

We speak, write, think, analyze,
and react



Very soon

We are at the precipice of incredible change: the time to start applying Artificial Intelligence is now





Prepare your mind

