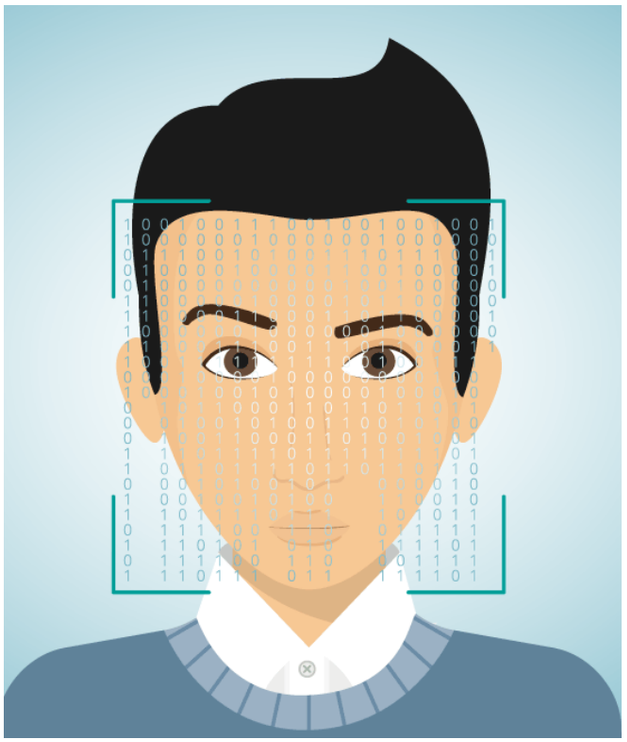
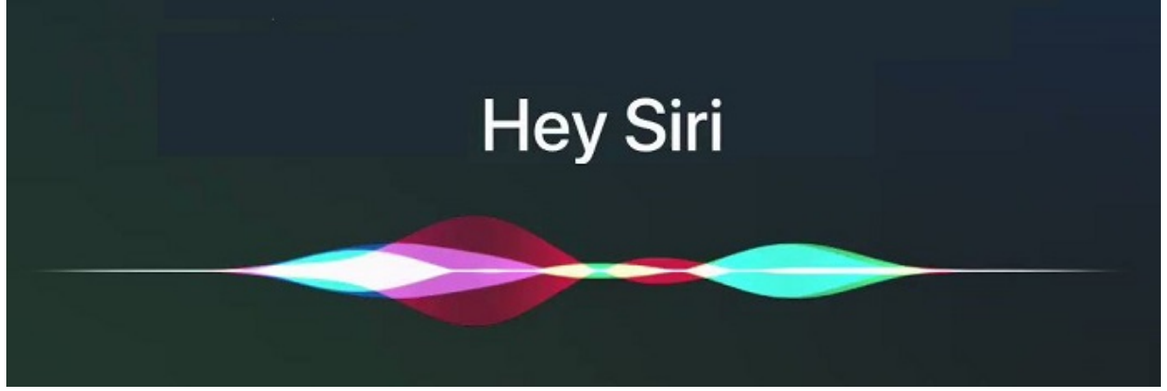
rén gōng zhì néng

# 人工智能

tàn mì

# 探秘

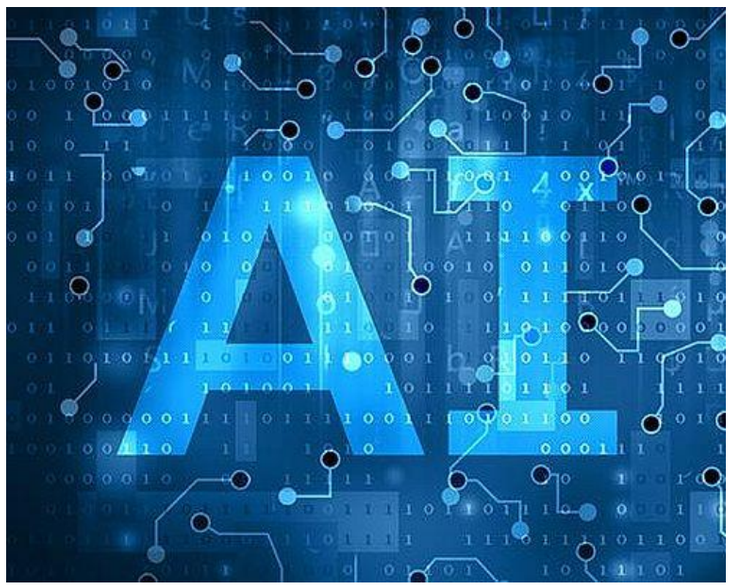




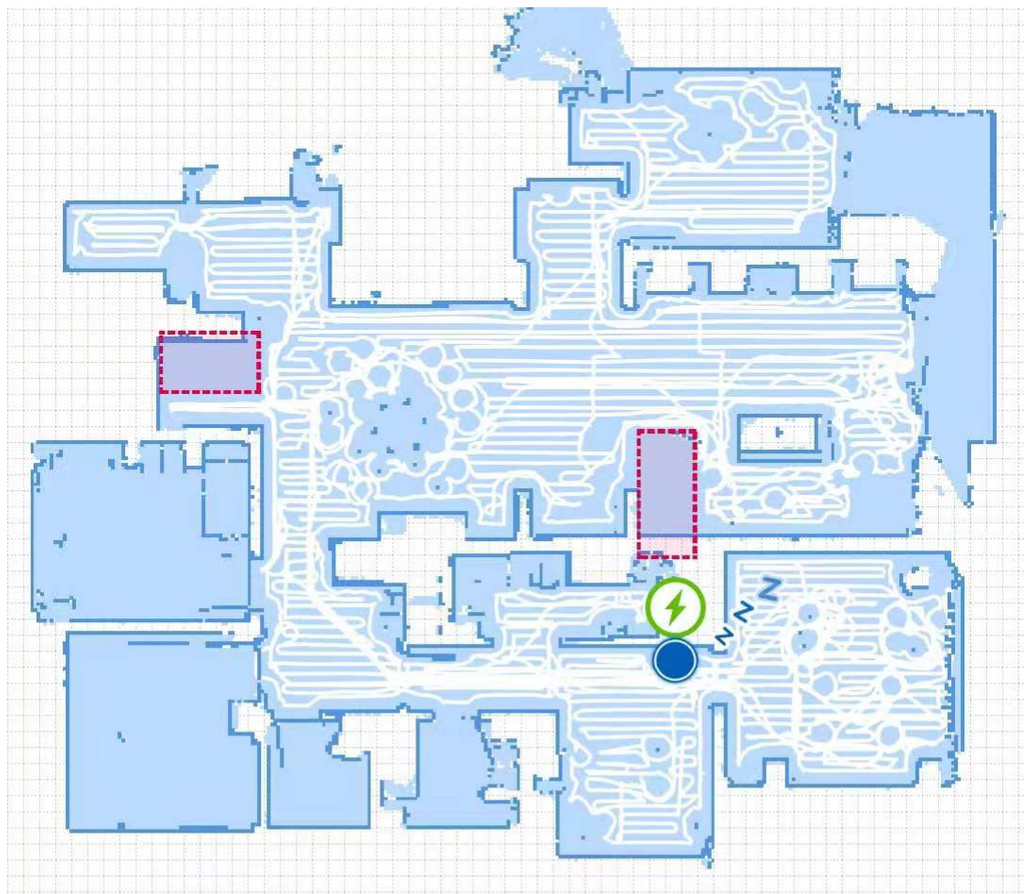
rén gōng zhì néng

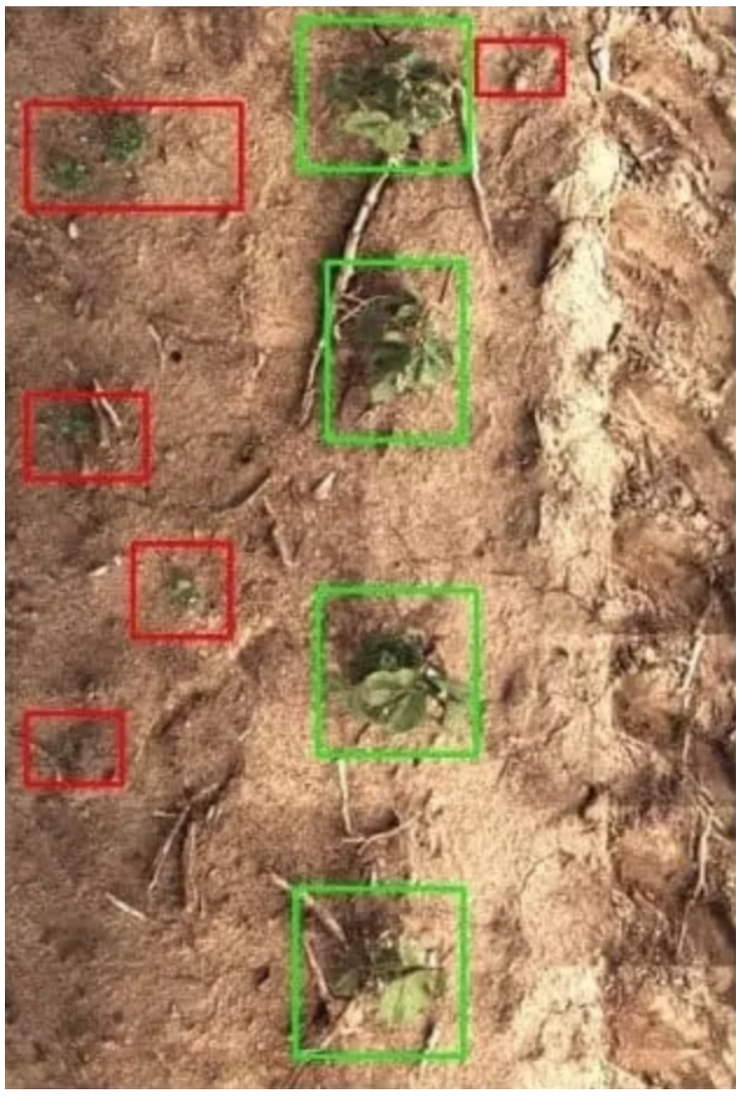
# 人工智能

# Artificial Intelligence



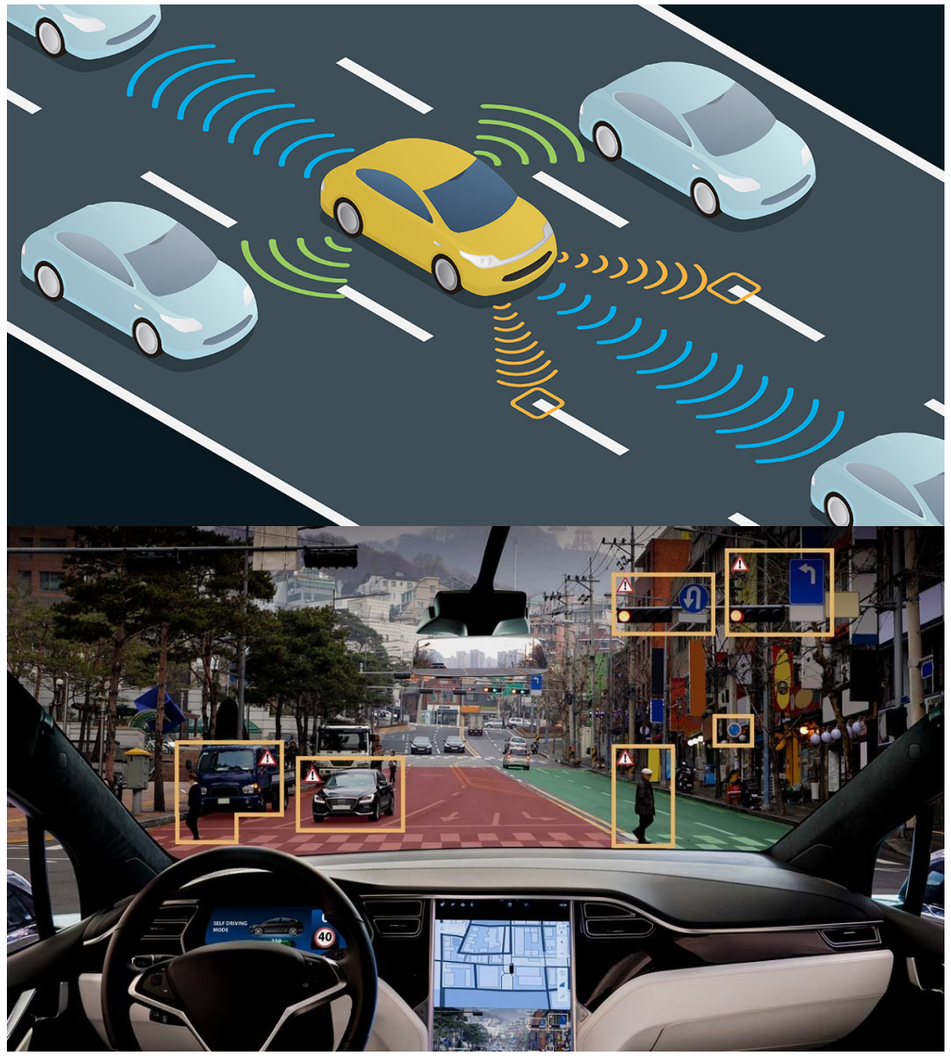
DEEBOT





# 什么是人工智能?

# 什么是人工智能?



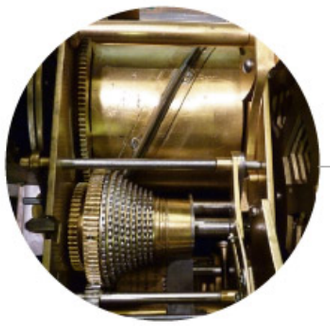
# 什么是人工智能?

# 什么是人工智能?

人工

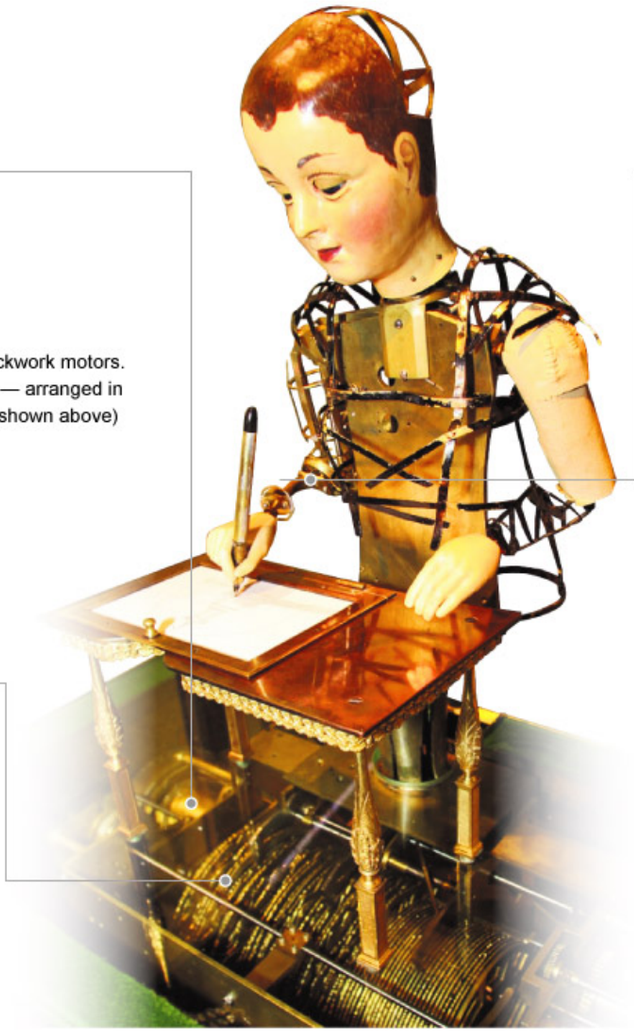
+

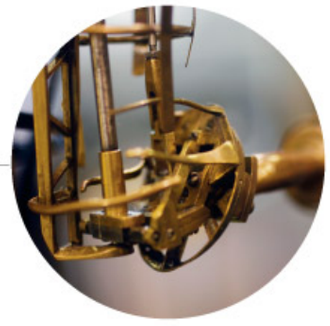
智能



**1.** The writing hand is powered by two clockwork motors. One turns a set of brass disks — or cams — arranged in banks of three dedicated sets. The other (shown above) moves the cam assembly left and right.

**2.** Each of the writing hand's 72 cams has a pattern cut into its edge corre- sponding to specific arm movements. As the cams rotate, metal styluses read the data.





**3.** The styluses in turn drive a series of rods, providing motion. There is a separate stylus for each direction: forward and back, side to side and up and down.

**4.** The head, eyes and left arm are con- trolled by an integrated mechanism that takes its cues from a pair of cams. The cams are operated by the same rota- tional motor as the drawing cams.

Maillardet's automaton

1800

tú líng jī

图 灵 机

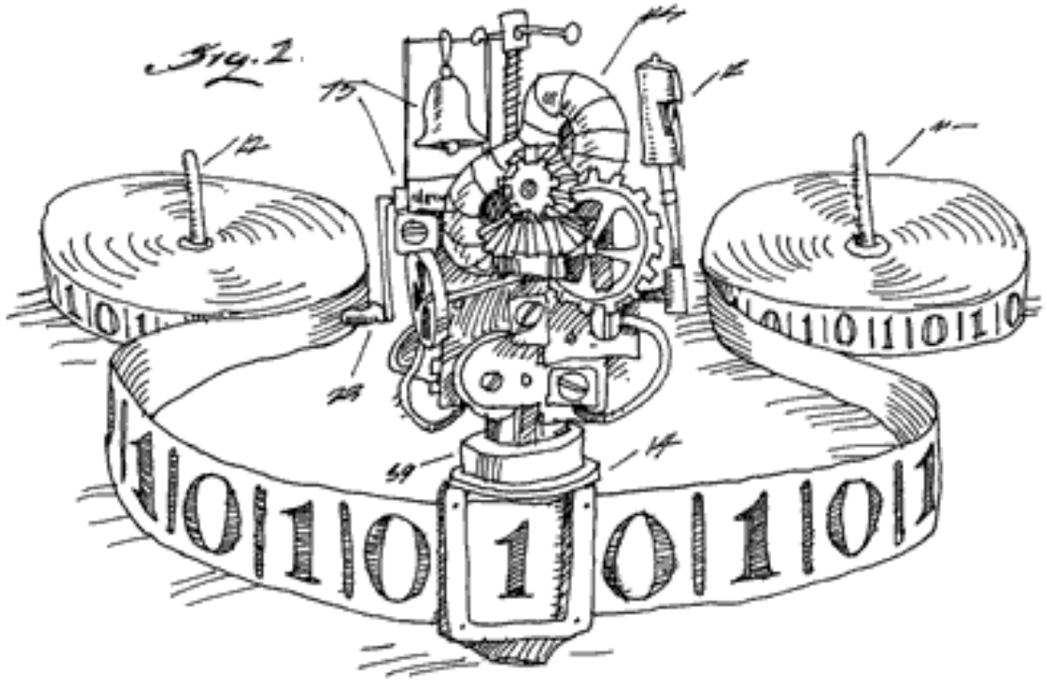


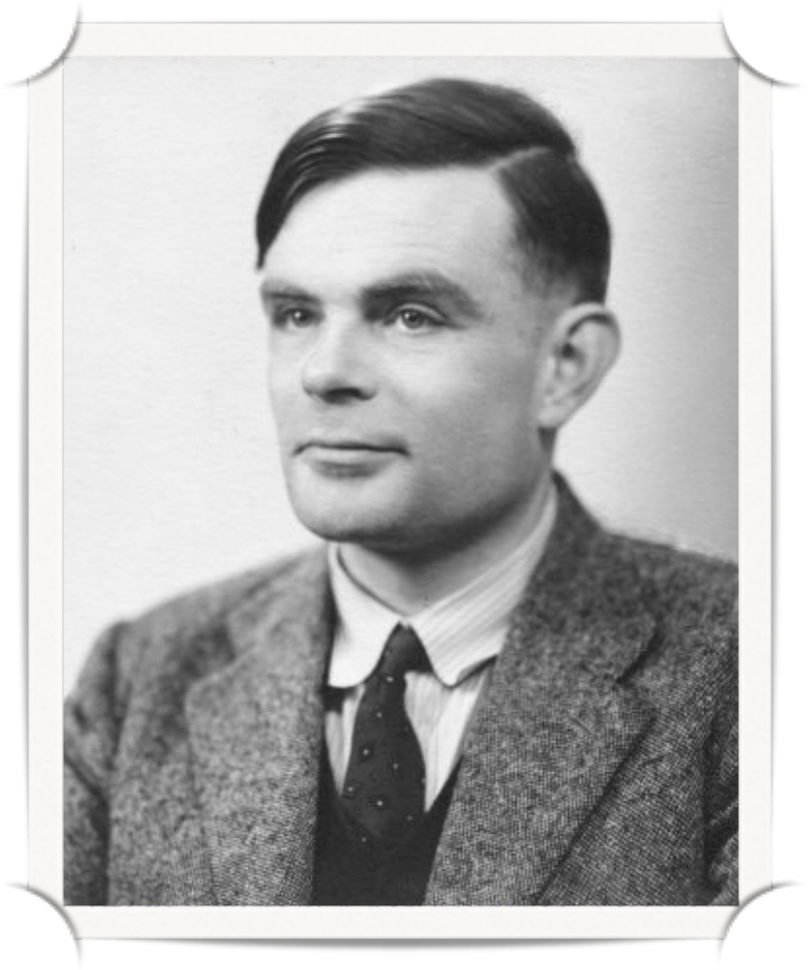
Fig. 2.
1 0 1 1 0 1 1 0 1 

# ON COMPUTABLE NUMBERS, WITH AN APPLICATION TO THE ENTSCHEIDUNGSPROBLEM

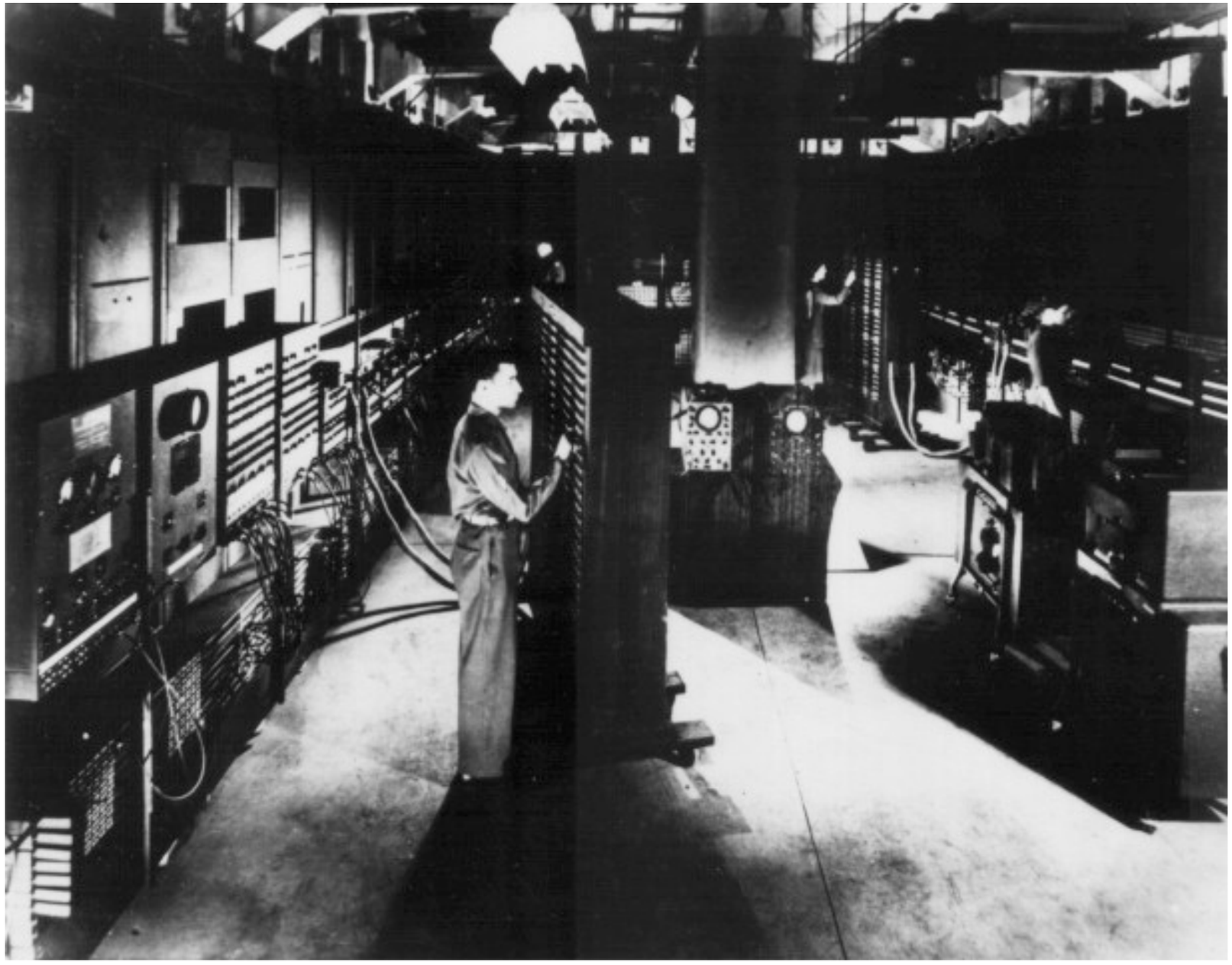
*By* A. M. Turing.

[Received 28 May, 1936.—Read 12 November, 1936.]

The "computable" numbers may be described briefly as the real numbers whose expressions as a decimal are calculable by finite means. Although the subject of this paper is ostensibly the computable *numbers*, it is almost equally easy to define and investigate computable functions of an integral variable or a real or computable variable, computable



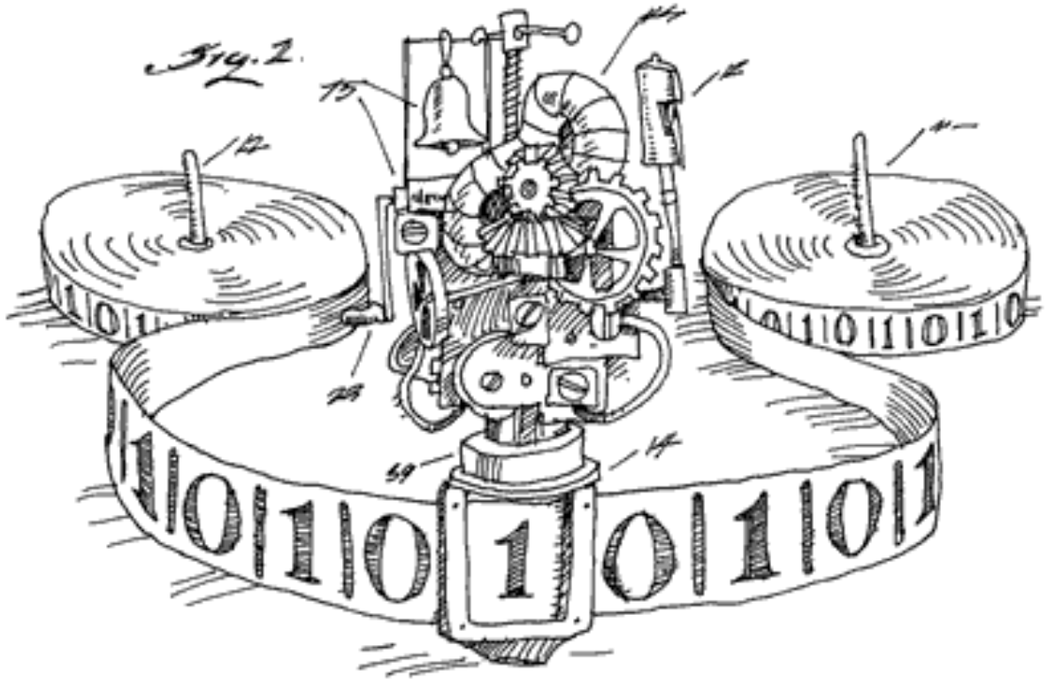
图灵
( 1912—1954 )

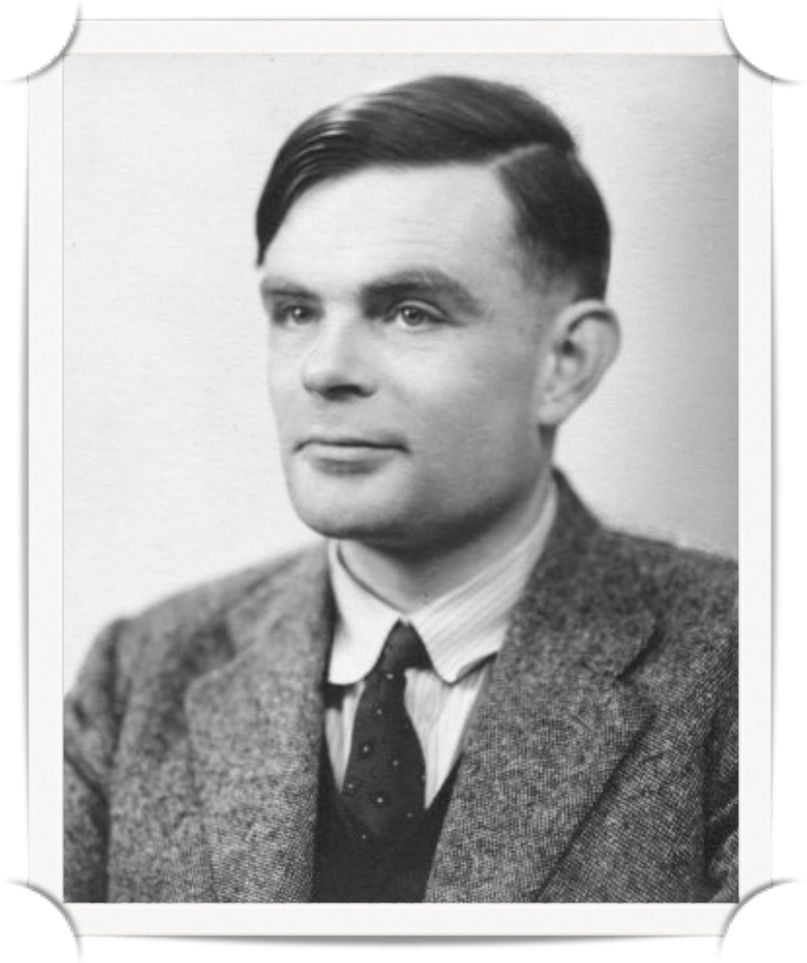


第一台通用电子计算机 ENIAC（1947年）

tú líng jī

图 灵 机



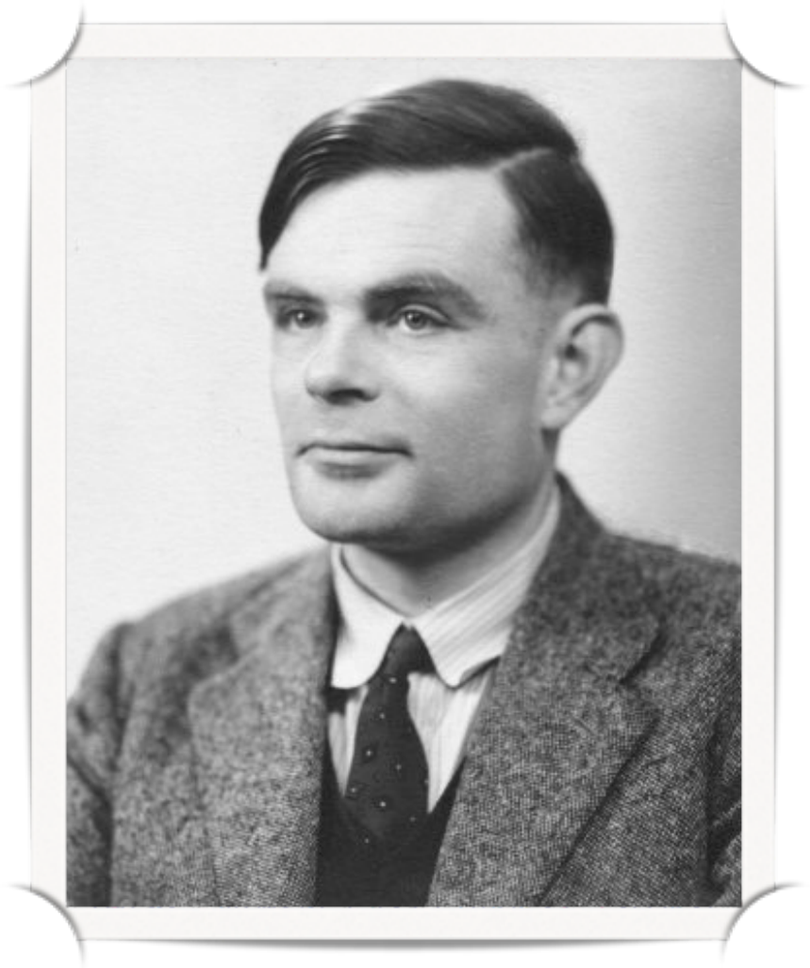
图灵

( 1912—1954 )

...

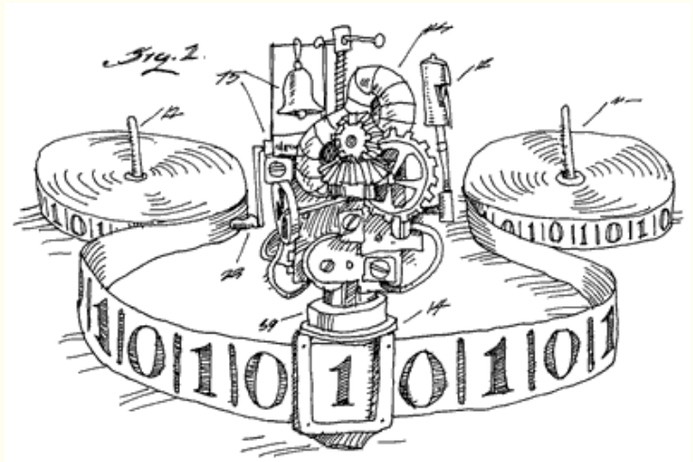
# tíng jī wèn tí
# 停 机 问 题

“没有任何计算机能
解决停机问题”

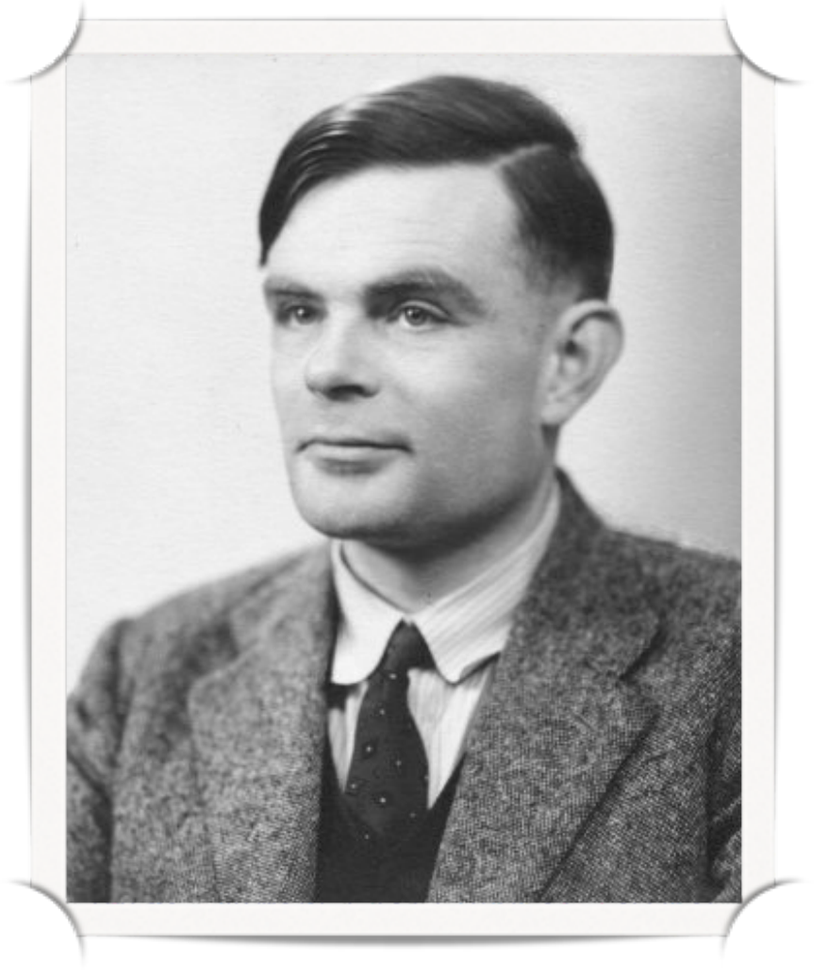


图灵
（1912—1954）

# 计 算

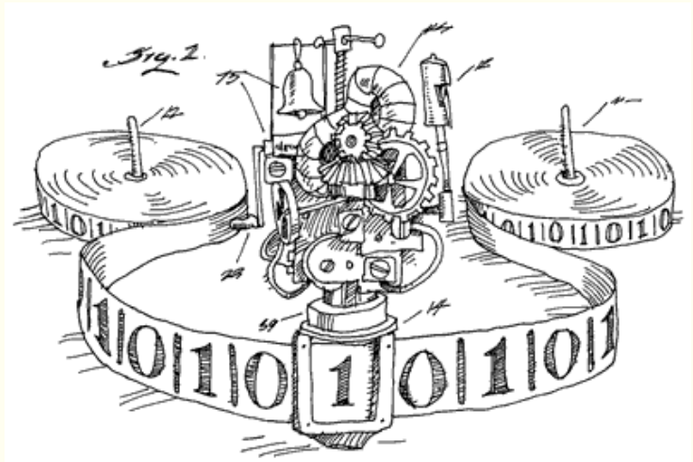


...



图灵
( 1912—1954 )

# 计 算



■ ■ ■

?

**A. M. Turing (1950) Computing Machinery and Intelligence. *Mind 49:* 433-460.**

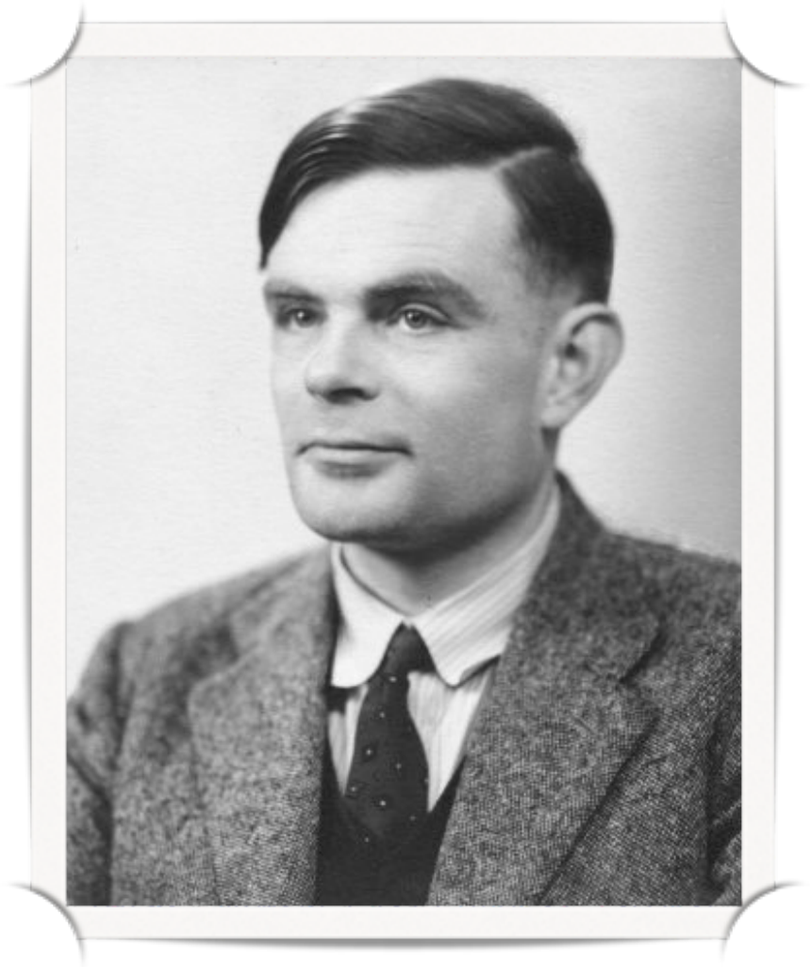
---

# COMPUTING MACHINERY AND INTELLIGENCE

**By A. M. Turing**

## 1. The Imitation Game

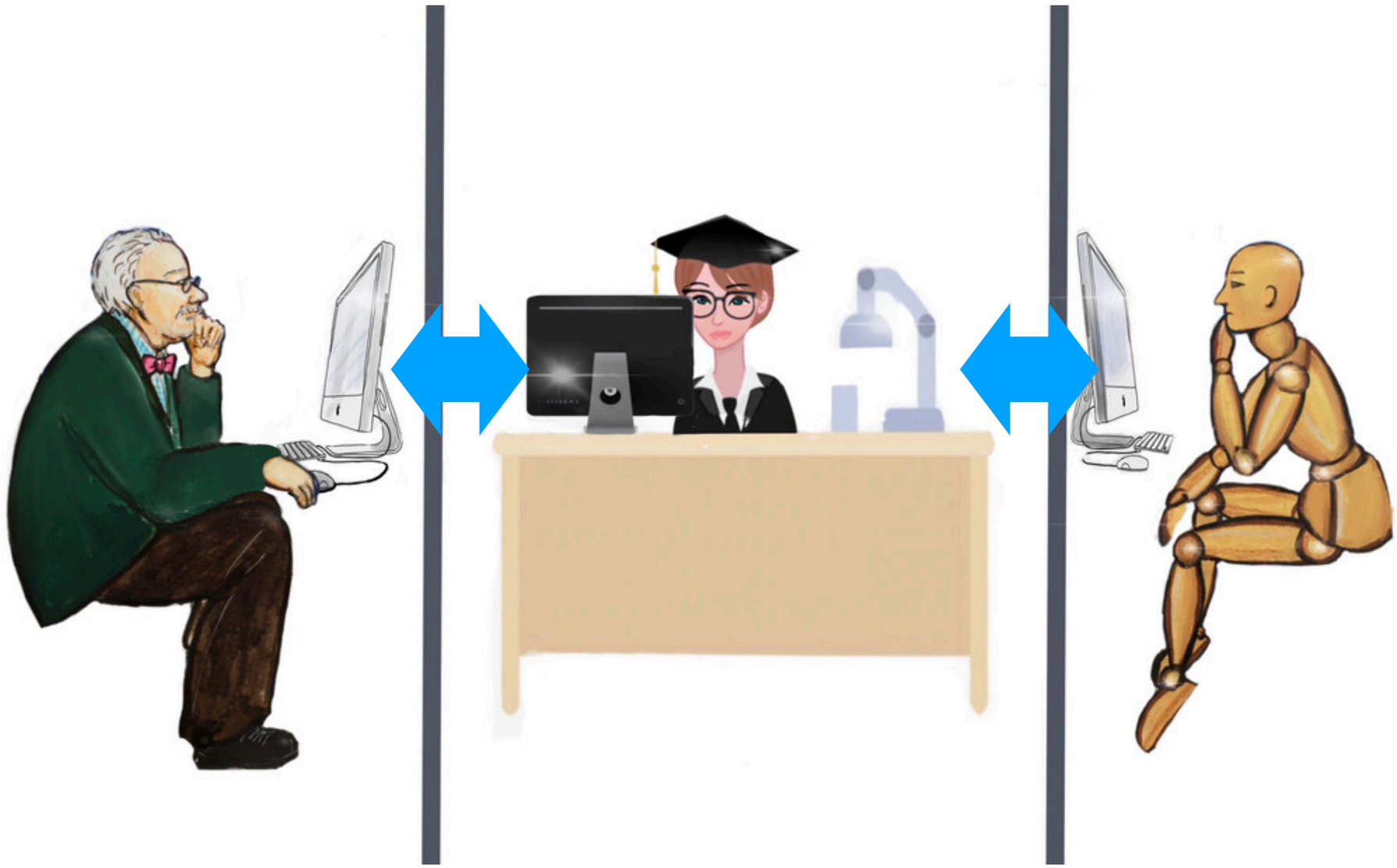
I propose to consider the question, "Can machines think?" This should begin with definitions of the meaning of the terms "machine" and "think." The definitions might be framed so as to reflect so far as possible the normal use of the words, but this attitude is dangerous, If the meaning of the words "machine" and "think" are to be found by examining how they are commonly used it is difficult to escape the conclusion that the meaning and the answer to the question, "Can machines think?" is to be sought in a statistical survey such as a Gallup poll. But this is absurd. Instead of attempting such a definition I shall replace the question by another, which is closely related to it and is expressed in relatively unambiguous words.



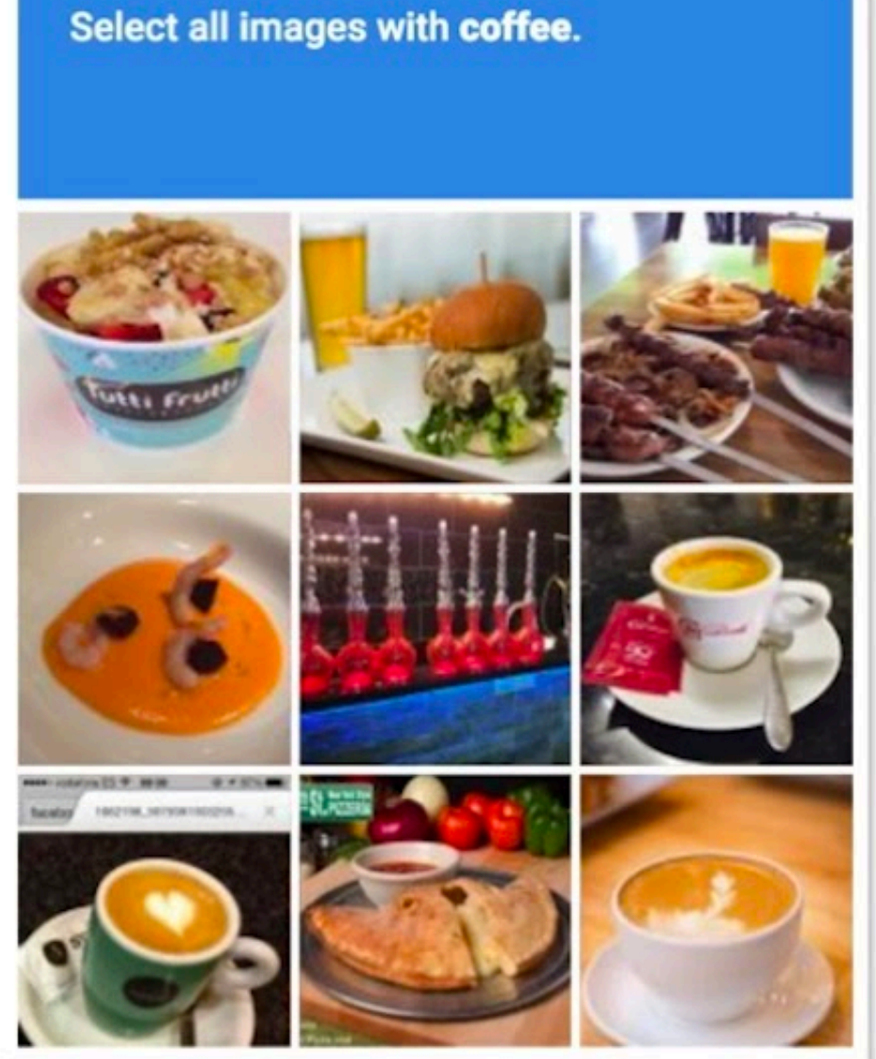
图灵
（1912—1954）

tú líng cè shì

# 图 灵 测 试

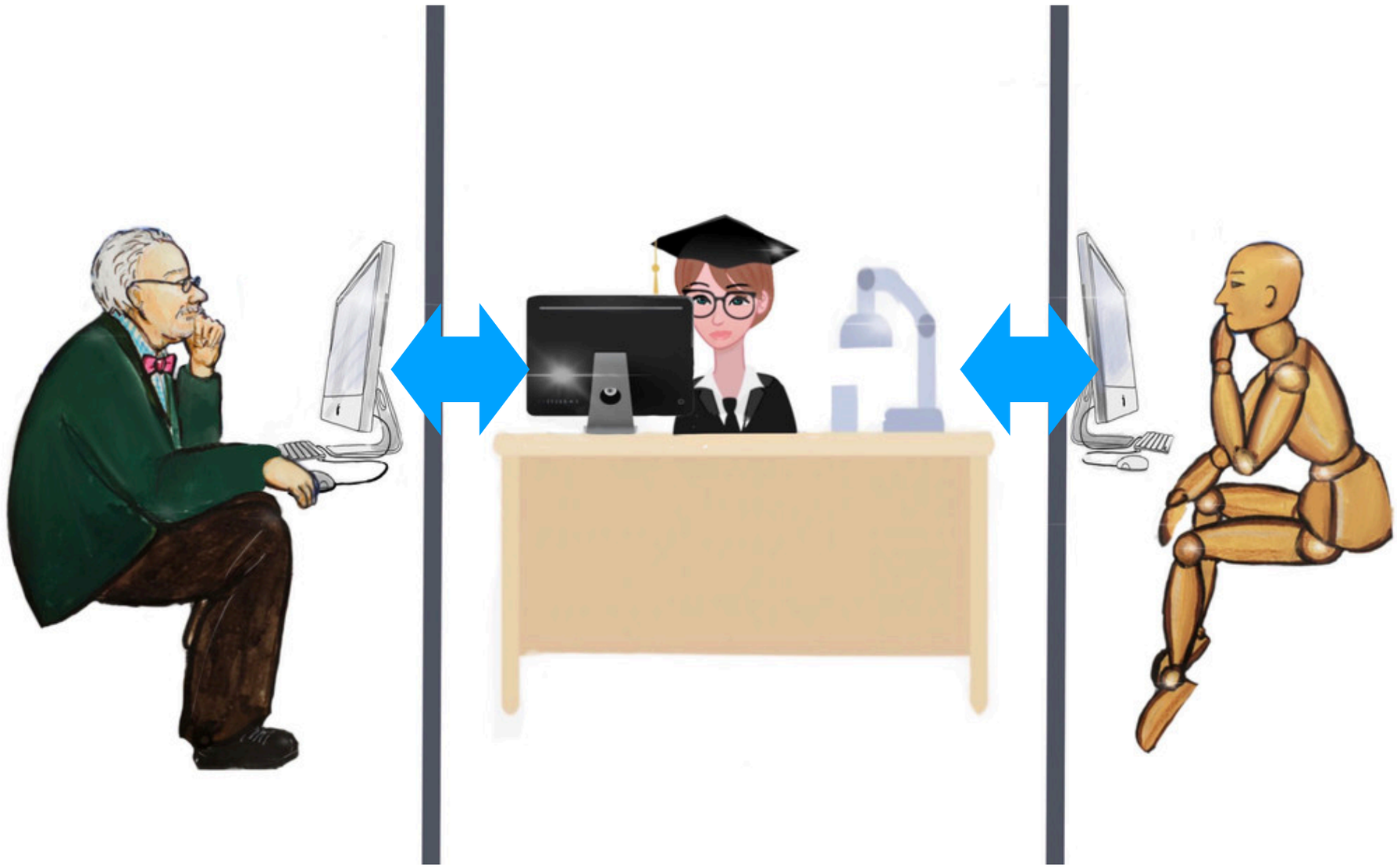


# tú líng cè shì
# 图 灵 测 试



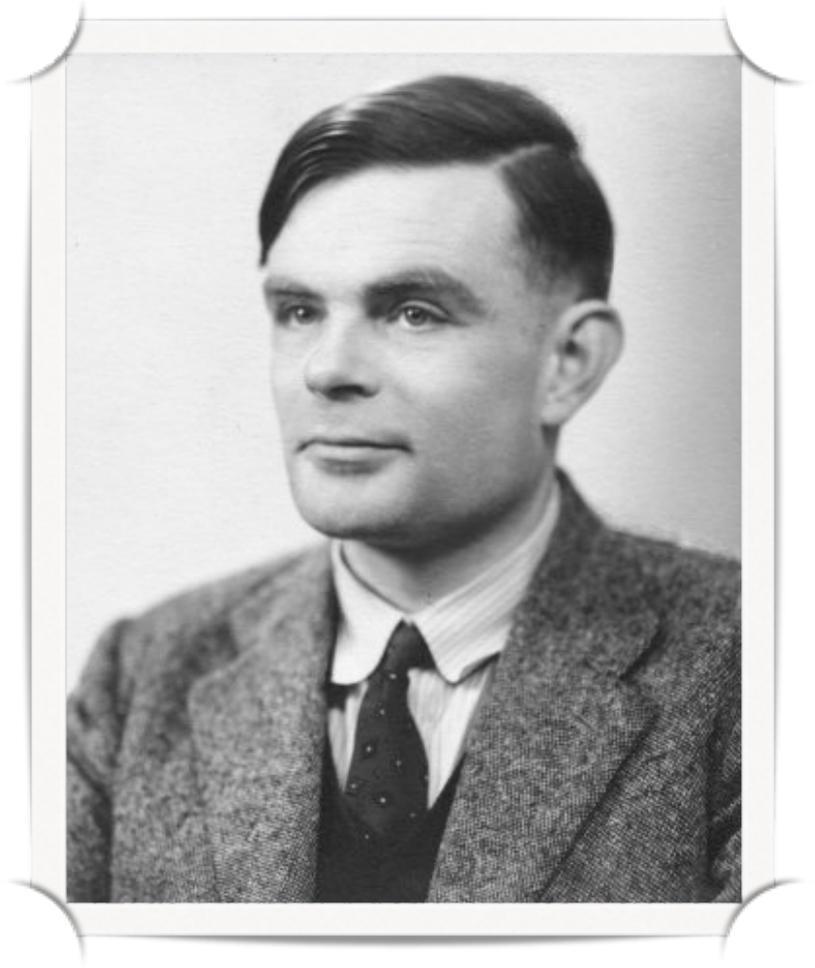
tú líng cè shì

# 图 灵 测 试



tú líng jiǎng

图 灵 奖



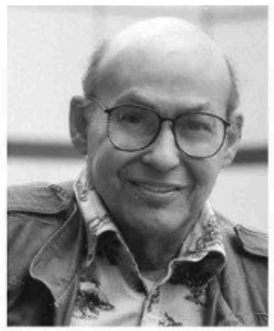
图灵

( 1912—1954 )

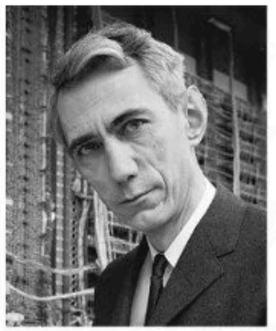
# Artificial Intelligence

## 1956 Dartmouth Conference: The Founding Fathers of AI

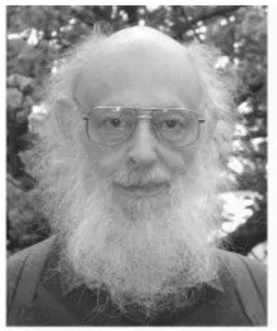
John MacCarthy



Marvin Minsky



Claude Shannon

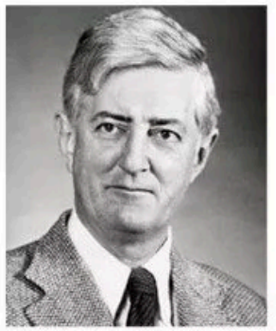


Ray Solomonoff

Alan Newell

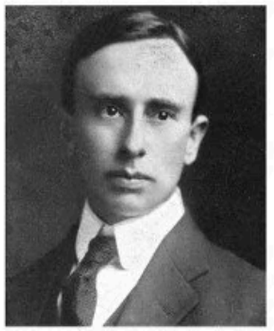
Herbert Simon

Arthur Samuel



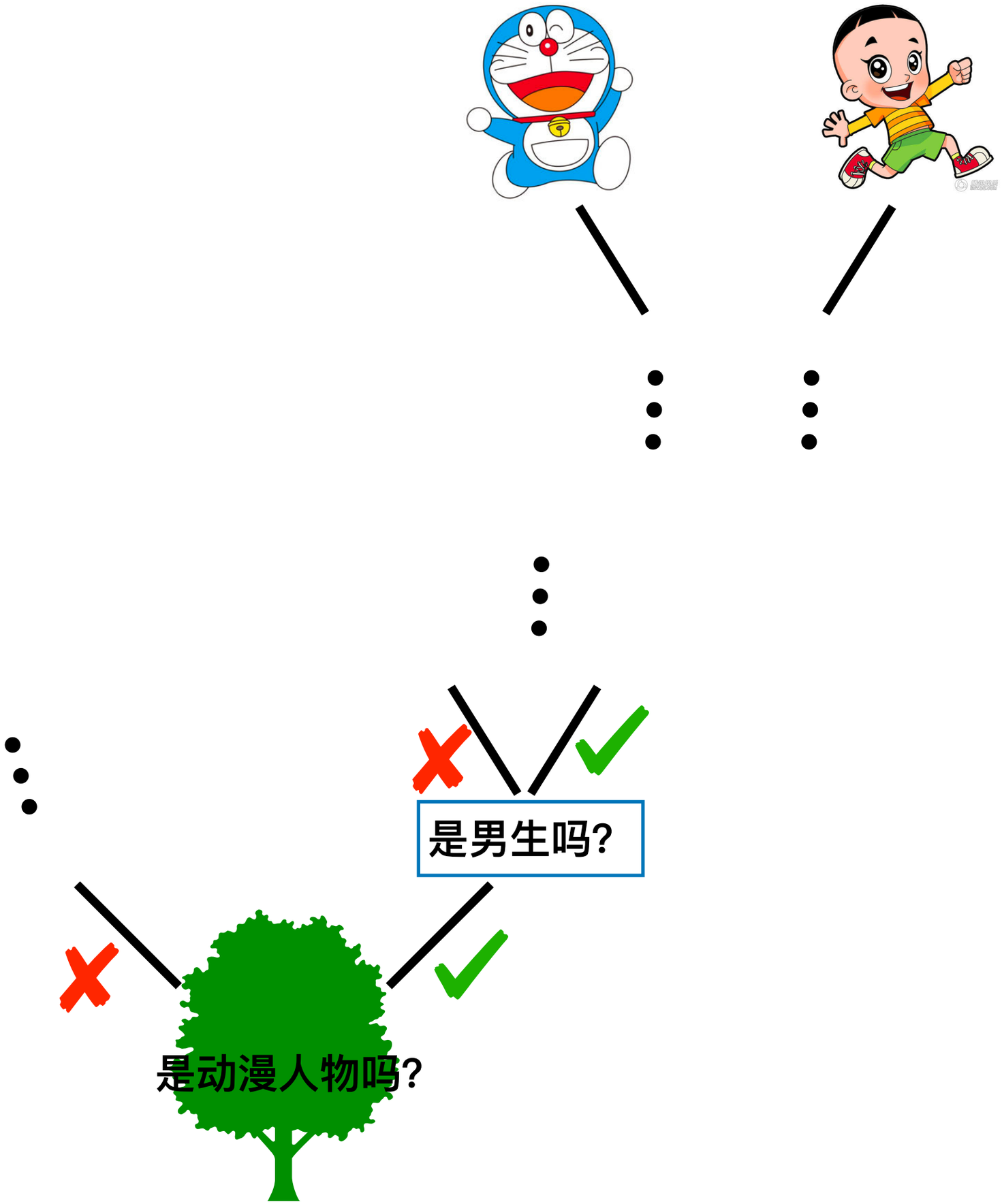
Oliver Selfridge

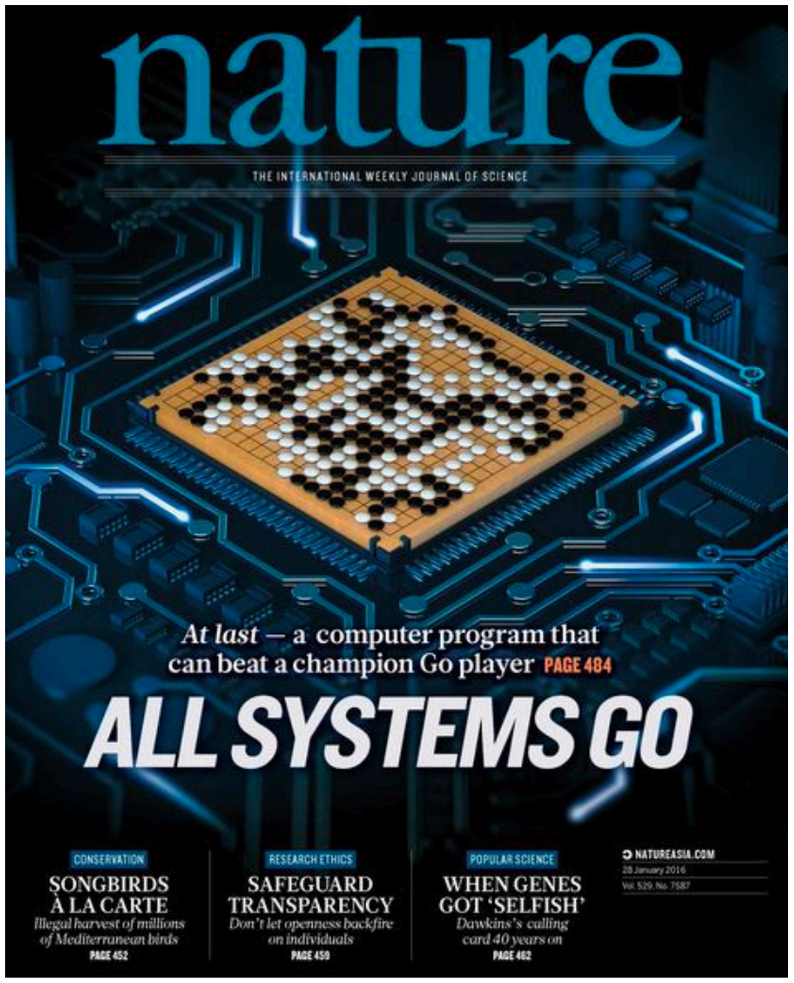
Nathaniel Rochester



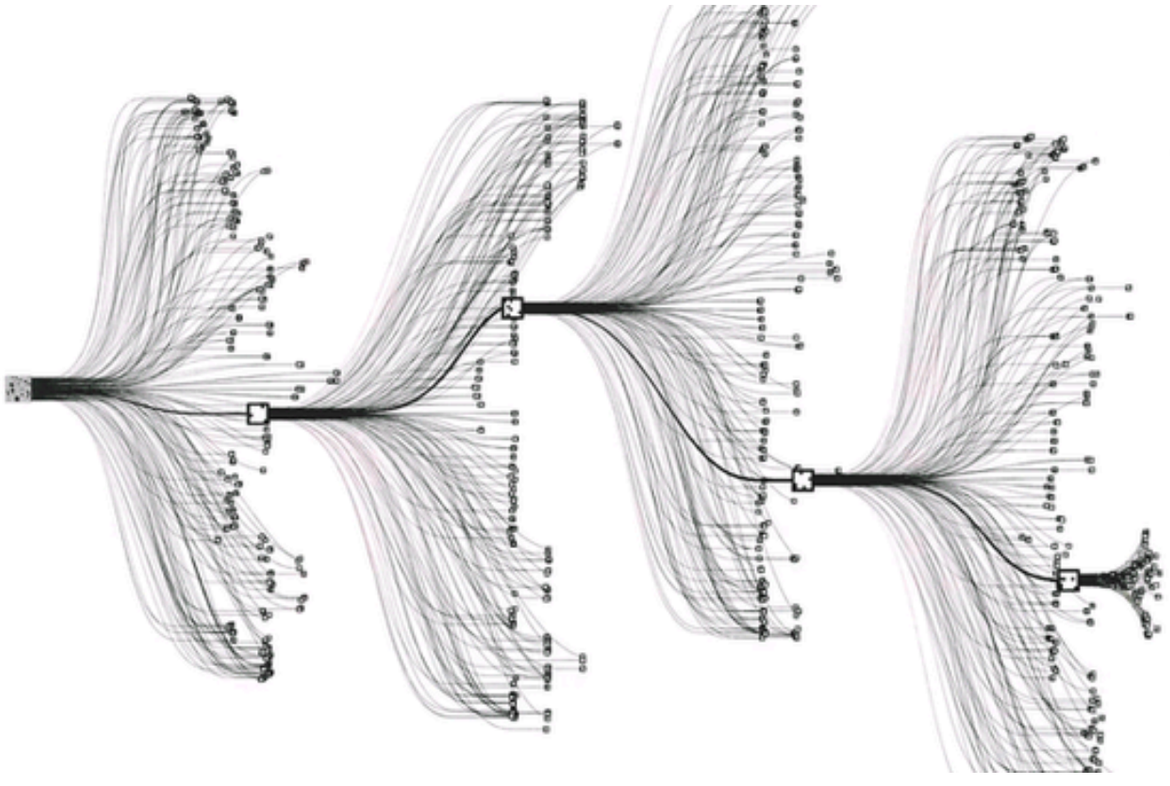
Trenchard More

https://cn.akinator.com


是男生吗?
是动漫人物吗?

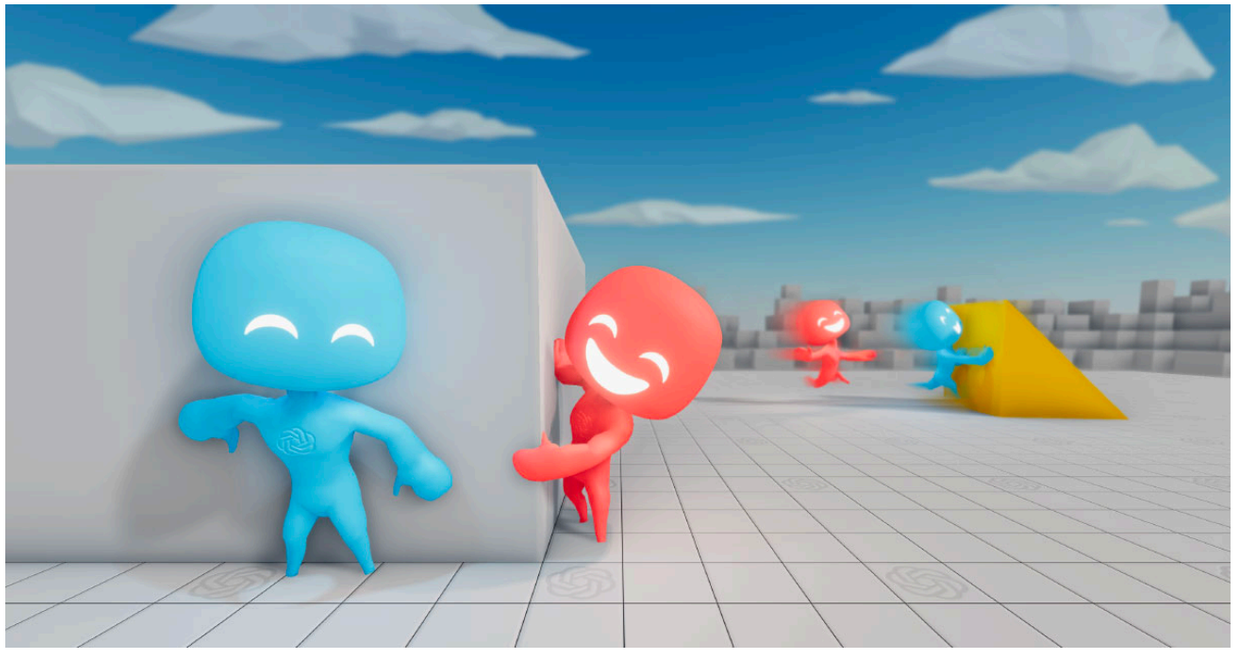

nature
THE INTERNATIONAL WEEKLY JOURNAL OF SCIENCE
At last — a computer program that can beat a champion Go player PAGE 484
ALL SYSTEMS GO
CONSERVATION
SONGBIRDS À LA CARTE
Illegal harvest of millions of Mediterranean birds
PAGE 452
RESEARCH ETHICS
SAFEGUARD TRANSPARENCY
Don't let openness backfire on individuals
PAGE 459
POPULAR SCIENCE
WHEN GENES GOT 'SELFISH'
Dawkins's calling card 40 years on
PAGE 462
NATUREASIA.COM
28 January 2016
Vol. 529 No. 7587

Google Deepr
Challenge Ma
8 - 15 March 20
ALPHAGO
00:05:30
LEE SEDOL
00:28:28
AlphaGo
Lee Sedol



THE ULTIMATE GO CHALLENGE
GAME 5 OF 5
15 MARCH 2016
VS
AlphaGo
Won 4 of 5
Lee Sedol
Won 1 of 5
RESULT
W+ Res
NUMBER OF MOVES
280
TIME WHITE
2h+
TIME BLACK
2h+

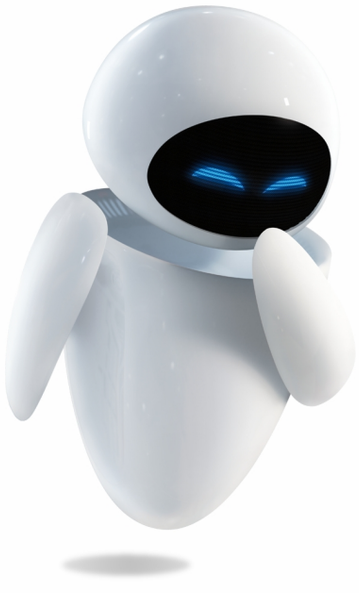
AI的捉迷藏游戏
增加了可观赏性



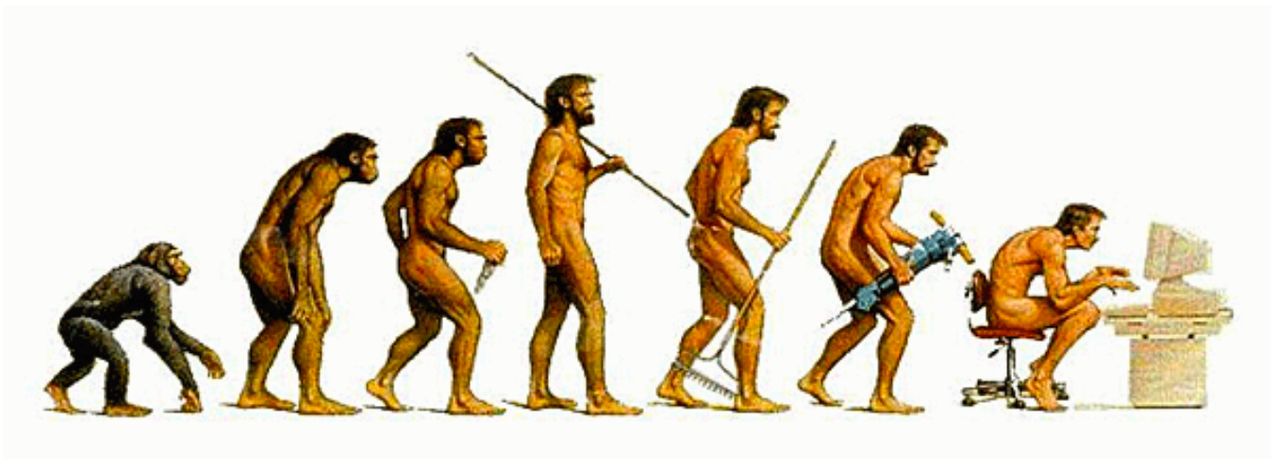
# Multi-Agent Hide and Seek

# 人工“智障”

## Artificial Stupidity



# 人工智能技术的局限



- 人类尚未弄清“计算”和“智能”的本质
- 不断强化偏见 ——兼听则明，偏信则暗
- 错把“相关”当做“因果” ——追根穷底，探索真相