

1

UNIT

Overview

START WITH AI

JOURNEY WITH AI

FORWARD WITH AI



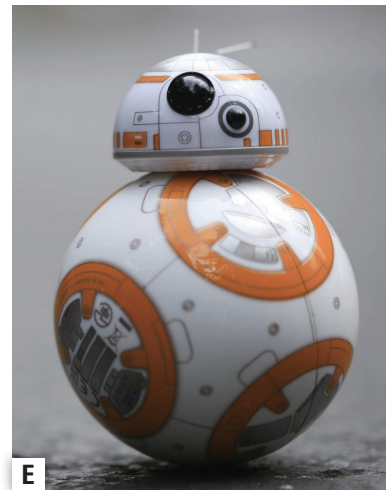
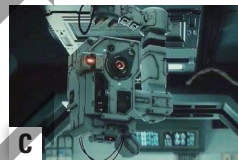
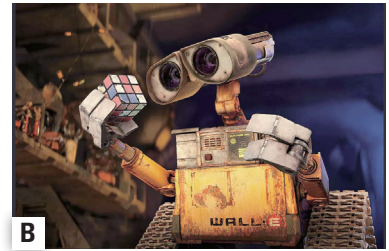
Learning objectives

After completing this unit, you'll be able to:

- have a general idea of AI's development
- understand AI is bringing on a new industrial revolution
- understand two typical parts of a manual—table of contents and safety precautions
- know China is making achievements in this field

START WITH AI

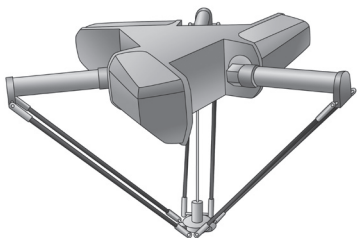
The following are famous robots in movies. Do you know them? Match them with their names.



- 1 BB-8 (*Star Wars*)
- 2 Moss (*The Wandering Earth*)
- 3 Baymax (*Big Hero 6*)
- 4 Bumblebee (*Transformers*)
- 5 WALL-E (*WALL-E*)

JOURNEY WITH AI

Practical Reading



From the manual
of a robot



小艾说

无论说明书是长是短，或简或繁，你都可以浏览目录，大致了解全貌，提高阅读效率。常见的说明书一般有产品介绍、安装步骤、操作步骤、保养与清洁、疑难解答、参数说明、保修条款等部分。

Table of contents



Liability
Safety precautions

1 Chapter 1 Introduction

- 1 Description of the robot
- 2 Updates of the robot
- 3 General design of the robot
- 4 Front view of the robot
- 5 Rear view of the robot
- 6 About this manual

2 Chapter 2 Installation and getting started

- 1 Unpacking
- 2 Assembling the robot
- 3 Mounting the motors
- 4 Mounting the rotational axis on the motor/gearbox shaft
- 5 Calibration
- 6 Installing the software

3 Chapter 3 Operation procedures

- 1 First steps
- 2 Basic steps
- 3 Tips for the daily work with the robot

4 Chapter 4 Maintenance and clean-up

- 1 Maintaining the robot
 - 1.1 Springs
 - 1.2 Ball bearings
 - 1.3 Rotational axis
- 2 Cleaning the robot
- 3 Replacing major components

5 Chapter 5 Troubleshooting

- 1 Operational issues
- 2 Charging errors

6 Chapter 6 Specifications

- 1 Basic specifications
- 2 External dimensions
- 3 Design specifications

7 Chapter 7 Warranty

Appendix
Index

Task 1 Reading comprehension Read the table of contents and complete the dialog.

(At work, Tim consults his colleague John about how to use the new robot.)

- T: Hi, John. Do you have a minute? I have some questions about the robot.
- J: Sure. Go ahead.
- T: What's new about it? I think it's the same with the old one.
- J: There are a few updates. Look at Chapter 1 of its manual. Read this part—**1 Updates of the robot**.
- T: I see. What about the software? I'm not familiar with its software.
- J: The manual tells how to install the software. Here, in Chapter **2** _____.
- T: OK! Then what should I do if I find some parts dirty?
- J: Refer to Chapter 4. **3** _____ is always important for prolonging the life of the robot.
- T: Great! Sometimes the robot makes noises or has charging errors. I think I can refer to the **4** _____ part to solve the problems.
- J: That's right. And the **5** _____ and **6** _____ in the back of the manual can help you locate the right contents quickly.
- T: Now everything is clear. Thank you so much for your help.
- J: You may also thank the manual very much. Haha.

Task 2 Playing a game Circle the five words in the word search.

- bearing rear component
- spring unpack

Words & Phrases



Words

- calibration /kælə'breɪʃən/ n. 校准
- component /kəm'pəʊnənt/ n. (机器) 零件
- gearbox /'gɪrbɔ:ks/ n. 齿轮箱
- liability /laɪə'bɪləti/ n. 责任; 义务
- shaft /ʃæft/ n. (机器的) 轴
- spring /sprɪŋ/ n. 弹簧
- unpack /ʌn'pæk/ v. 打开 (箱子等) 取出物品
- update /'ʌpdeɪt/ n. 更新

Phrases

- ball bearing 滚珠轴承
- front view 前视图
- operation procedure 操作步骤
- rear view 后视图
- rotational axis 旋转轴

Notes

- 文中的机器人被称为三角式机器人 (delta robot), 是工业机器人 (industrial robot) 中的并联式机器人 (parallel robot)。我国的工业机器人起步于二十世纪七十年代, 如今已经得到了非常广泛的应用。发展工业机器人也是我国制造业向智能化、高端化转型过程中的重要一环。
- 关于视图, 除了前视图 (front view) 和后视图 (rear view) 外, 常见的还有仰视图 (bottom view) 和俯视图 (top view)。

T D K S P R I N G T
 N R J A N O X C E F
 E A U N P A C K A G
 N P B Y I V N E T N
 O M X B A Q T T R I
 P O O G L F T A Z R
 M K J D X P E H V A
 O O S J P R C L U E
 C F H B W C W M B B
 O B B M D L O R X P

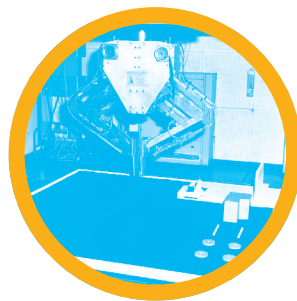
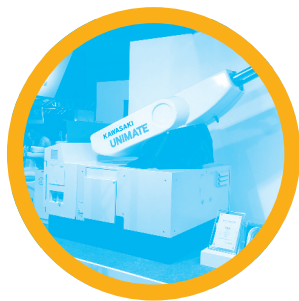
A few milestones in AI history



小艾说

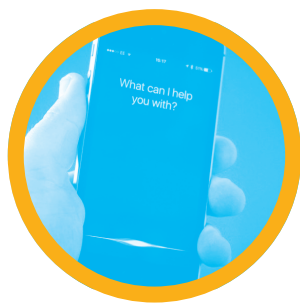
人工智能是一个很大的话题，也是一个广阔的世界，让我们从了解它的前世今生开启这一旅程吧。

- 1 Artificial intelligence is the hot topic of our times. The concept is not actually all that new: as long ago as 1637, the **philosopher** Descartes thought seriously about the possibility that machines would one day think and make decisions.
- 2 However, it wasn't until 1956 that the term "artificial intelligence" was **coined**. This was the year Professor John McCarthy proposed the term in the Dartmouth Conference, an event which invited leading experts in the field to discuss their ideas over the subject. Ever since this conference, artificial intelligence has developed at a fast pace.
- 3 The first stationary industrial robot was named Unimate and in 1961, it was delivered to the General Motors factory and worked on an assembly line. Other more advanced robots followed soon after: Shakey the robot was
- invented in late 1960s. As the first general-purpose mobile robot, Shakey **combined** research in robotics, computer vision, and natural language processing. In 1973, a robotics group at University of Edinburgh built Freddy, the famous Scottish Robot. Freddy was able to assemble wooden models using vision to **identify** and **locate** the parts.
- 4 It wasn't long before machines were able to perform much more **complex** tasks. In 1997, the chess supercomputer Deep Blue managed to defeat the world chess **champion** Garry Kasparov. This victory drew public attention to how quickly computers were evolving.
- 5 In 2002, many **households** around the world were delighted to hear about the invention of a **vacuum** cleaner robot called Roomba. Roomba



wasn't the first household robot, but she was the first successful model. Electrolux had introduced a robotic vacuum cleaner in 1996, but it experienced frequent problems and didn't sell well.

- 6 If household robots weren't enough, soon an even more advanced robot would be introduced: an intelligent assistant who would **respond** to voice commands. Apple released Siri in 2011, and a wave of similar products has since followed: Google Assistant, Microsoft Cortana, Amazon Alexa and Baidu Duer.
- 7 What's next for AI? If technology continues to develop at this rate, one thing is sure: many more exciting changes are **afoot**.



Words & Phrases



Words

- afoot** /ə'fʊt/ *adj.* 进行中的
champion /'tʃæmpiən/ *n.* 冠军; 第一名
coin /kɔɪn/ *v.* 创造; 杜撰 *n.* 硬币
combine /kəm'baɪn/ *v.* (使) 结合; (使) 组合
complex /kəm'pleks/ *adj.* 复杂的; 难以理解的
household /'haʊshəʊld/ *n.* 一家人
adj. 家庭的; 家用的
identify /aɪ'dentɪfaɪ/ *v.* 认出; 确定
locate /'ləʊkeɪt/ *v.* 找出……的准确位置
milestone /'maɪlstəʊn/ *n.* 里程碑
philosopher /fə'lɔ:səfər/ *n.* 哲学家
respond /rɪ'spɔ:nd/ *v.* 作出反应; 回应
vacuum /'vækjʊm/ *n.* 真空

Phrases

- assembly line** 装配线; 流水作业线
at a fast pace 以很快的速度
draw sb's attention 吸引某人的注意

Notes

- Descartes: 笛卡尔, 法国哲学家、数学家、物理学家。
- This was the year Professor John McCarthy proposed the term in the Dartmouth Conference, an event which invited leading experts in the field to discuss their ideas over the subject. 这是一个复杂的句子, 包含两个定语从句: 一个修饰 the year, 一个修饰 an event。同时, an event 这一句又是前面 the Dartmouth Conference 的同位语。
- 文中提到的几个工业机器人都很有名: Unimate 是第一个商用机器人, 是短语 universal automation (全能自动化) 的简写; Shakey 是第一个通用的移动机器人; Freddy 曾被叫作手眼机器 (hand-eye machine)。当然, 今天的智能机器人已经更普遍, 更高级了。
- Apple Siri, Google Assistant, Microsoft Cortana, Amazon Alexa, Baidu Duer: 这些都是智能语音助手。其中有你用过的吗?
- What's next for AI? 这句话中, next 是代词, 表示下一个 (人或事物)。又如: What's next on your to-do list? 你的待办清单上的下一项是什么?

JOURNEY WITH AI

Intensive Reading

Task 1 Words Fill in the blanks with the proper form of the words in the boxes. Note they all start with the letter *c*.

continue

conference

combine

champion

coin

complex

- 1 The term "ecosystem" was c_____ in 1930s.
- 2 His dream is to become a world c_____ of tennis.
- 3 The problems we face today are considerably more c_____, and resolving them has become much more difficult.
- 4 This design has c_____ traditions of the past with the trend of today.
- 5 It's not suggested that one c_____ working after getting illness.
- 6 The participants of this c_____ came from more than 100 countries.

Task 2 Grammar Put the proper names in the corresponding categories. Can you find more proper names and more categories from the passage?

Descartes

Roomba

Garry

Siri

Kasparov

Duer

General Motors

Microsoft

Amazon

Baidu

Unimate

Cortana

Shakey

Grammar Note

名词通常包括普通名词和专有名词 (proper name)。专有名词主要是人名、地名和一些事物的专有名称。专有名词的首字母通常大写。

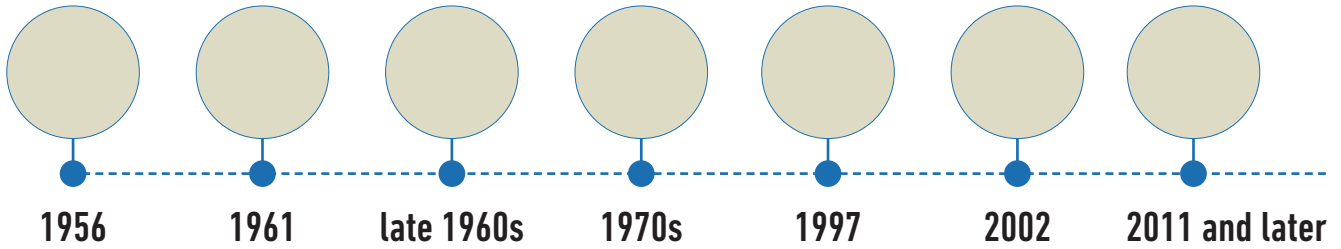
Person

Descartes

Company

Robot

Task 3 Reading comprehension Put the following events in a time sequence.



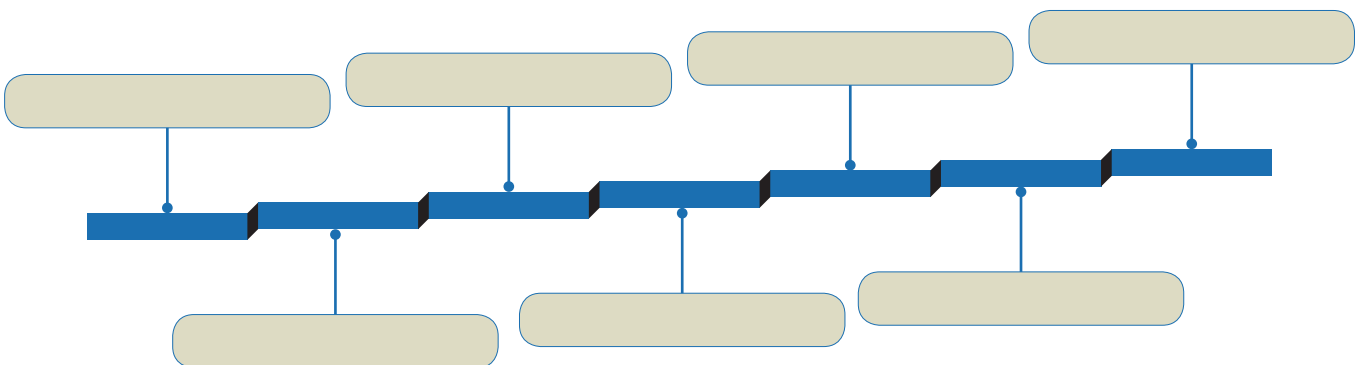
- A Deep Blue defeated the world chess champion.
- B Freddy, who could use vision to identify and locate parts, was put into use.
- C John McCarthy coined the term “artificial intelligence”.
- D Shakey, the first general-purpose mobile robot, was invented.
- E Intelligent robots, who would respond to voice commands, were introduced.
- F Roomba, the household robot, was sold on the market.
- G Unimate, the industrial robot, worked on an assembly line.

Reading Strategy

讲述历史发展类的文章经常按照时间顺序进行叙述。阅读时，你可以通过表示年月、时间的关键词理解事件的先后顺序，或制作时间轴，更加直观明了。

Task 4 Extended exercise A milestone is an important event in the development of something. What are the milestones in your life with computers or the Internet? Make a milestone timeline of your own.

- accessed a computer
- owned a cellphone
- accessed the Internet
- opened a Weibo account
- bought a smart product
- learned to program
- started playing computer games





From the manual of VR glasses



小艾说

无论是生活用品还是生产机器，使用之前，请首先阅读说明书中的安全提示，一定要在确保安全的前提下使用啊！

! Safety precautions



Health and safety precautions

- Take regular breaks from wearing your glasses, as prolonged periods of use may cause fatigue.
- This device is not suitable for people with epilepsy, as it may trigger seizures.
- Do not use this device while driving a motor vehicle, operating heavy machinery or performing physical activities.
- Be aware that this device may cause a momentary loss of balance, so only wear your glasses where a soft and safe landing is guaranteed.
- This device is not recommended for children under the age of 13 as young children's eyes are still developing. Adults should monitor children (aged 13 and older) who are using VR glasses and should limit the time they spend using the device as well as ensuring they take regular breaks during use.

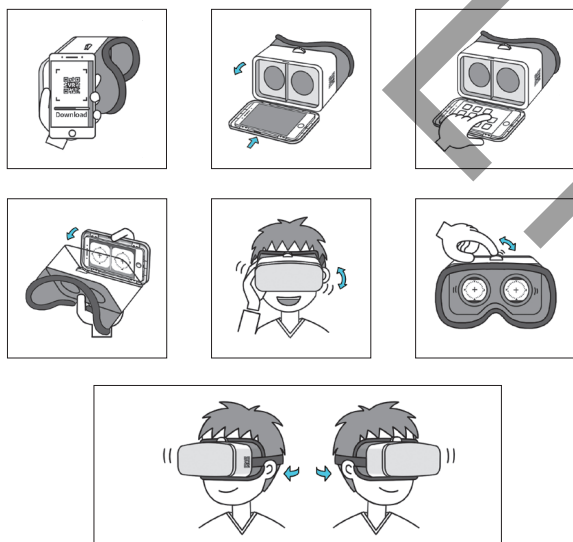
机器翻译

健康和安全预防措施

- 从戴眼镜中定期休息，因为长时间使用可能会导致疲劳。
- 该设备不适合癫痫患者，因为它可能引发癫痫发作。
- 在驾驶机动车、操作重型机械或进行体力活动时，请勿使用本设备。
- 请注意，该设备可能会导致瞬间失去平衡，因此，只有在保证软着陆和安全着陆的情况下，才可佩戴眼镜。
- 不建议 13 岁以下儿童使用此设备，因为幼儿的眼睛还在发育中。成人应监控使用虚拟现实眼镜的儿童（13 岁及以上），并应限制他们使用虚拟现实眼镜的时间，并确保他们在使用过程中定期休息。

How to use

1. Download the VR app of your choice.
2. Open your VR glasses headset and place your smartphone in the holding tray.
3. Tap the VR app icon on your phone's home screen.
4. Close your VR glasses headset.
5. Place the glasses on your head, adjusting the straps to ensure that it is securely fastened.
6. Adjust the focus if necessary.
7. Move your head to control the cursor and enjoy the VR experience.



Warning

This product may contain traces of chemicals known to cause birth defects. Therefore, this product is not recommended for pregnant women. Please ensure you wash your hands after handling your device.



人工翻译

使用方法

1. 下载对应的 VR 应用程序。
2. 打开 VR 眼镜前盒，将智能手机放在托盘中。
3. 轻触手机主屏幕上的 VR 应用程序图标。
4. 关闭 VR 眼镜前盒。
5. 将眼镜戴在头上，调整带子以确保其牢固固定。
6. 必要时调整焦距。
7. 移动头部从而控制光标，享受 VR 体验。



我的翻译

Words & Phrases



Words

adjust /ə'dʒʌst/ *v.* 调整; 适应

cursor /'kɜːrsər/ *n.* (计算机的) 光标

fatigue /fə'tiːg/ *n.* 疲乏; 劳累

focus /'fəʊkəs/ *n.* 焦距; 焦点

icon /'aɪkɔːn/ *n.* 图标

momentary /'mɒməntəri/ *adj.* 短暂的; 瞬间的

monitor /'mɒnɪtər/ *v.* 监视; 监测

precaution /prɪ'kɔːʃən/ *n.* 预防措施

pregnant /'pregnənt/ *adj.* 怀孕的

prolonged /prə'lɒŋd/ *adj.* 持续很久的; 长期的

strap /stræp/ *n.* 带子

trigger /'trɪgər/ *v.* 引发; 激发

Phrases

birth defect 出生缺陷

holding tray 托盘

take regular breaks 定期休息

VR (virtual reality) 虚拟现实

Notes

1. VR: 虚拟现实是当下非常热门的一项实用技术, 已广泛应用于影视娱乐、教育、设计、医学、军事和航空航天等领域。
2. epilepsy: 癫痫, 又称“羊角风”或“羊痫风”, 是我国神经科疾病中仅次于头痛的第二大常见病。
3. icon: 计算机、手机等屏幕上的图标。另外还有一些类似 icon 但指代不同的词: emoji, meme, sticker, emoticon。



Task 1 Words Choose the appropriate meaning of the words according to the manual.

- 1 precaution
 - a. things to do to prevent danger
 - b. things to arrange for something
- 2 prolonged
 - a. making something longer and longer
 - b. continuing for a long time
- 3 trigger
 - a. the part of a gun
 - b. to make something happen
- 4 momentary
 - a. continuing for a very short time
 - b. a particular point in time
- 5 monitor
 - a. the part of a computer with a screen
 - b. to watch carefully

Task 2 Reading comprehension Decide whether the following statements are true (T) or false (F).

- 1 You may feel tired if using the VR glasses for a long time.
- 2 You can wear the glasses when driving a car on the road.
- 3 Children are the main target customers of the VR glasses.
- 4 Besides the glasses, you need a smartphone with the matching app on it.
- 5 To have better VR experience, keep your head still.

Task 3 Translation Translate the following paragraph and compare your translation with the machine translation.

This device is not recommended for children under the age of 13 as young children's eyes are still developing. Adults should monitor children (aged 13 and older) who are using VR glasses and should limit the time they spend using the device as well as ensure they take regular breaks during use.

Translation Note

从这一段可以看出，如今的机器翻译已经比较成熟。这一段中机译的不足之处有：“幼儿”的说法不准确；“虚拟现实眼镜”出现两次，有点重复。

机器翻译

不建议 13 岁以下儿童使用此设备，因为幼儿的眼睛还在发育中。成人应监控使用虚拟现实眼镜的儿童（13 岁及以上），并应限制他们使用虚拟现实眼镜的时间，并确保他们在使用过程中定期休息。

VS

我的翻译

Handwriting practice area with four horizontal lines and a large grey arrow pointing right.



How AI can bring on a new industrial revolution



—Adapted from a speech by Kevin Kelly

- 1 When we take AI and embody it, we get robots.
- 2 Robots are going to do many of the tasks that we have already done. A job is just a bunch of tasks, so they're going to redefine our jobs because they're going to do some of those tasks. But they're also going to create whole new categories, a whole new slew of tasks that we didn't know we wanted to do before. They're going to actually engender new kinds of jobs, new kinds of tasks that we want done, just as automation made up a whole bunch of new things that we didn't know we needed before, and now we can't live without them. So they're going to produce even more jobs than they take away.
- 3 But it's important that a lot of the tasks that we're going to give them are tasks that can be defined in terms of efficiency or productivity. If you can specify a task, either manual or conceptual, that can be specified in terms of efficiency or productivity, that goes to the robots. Productivity is for robots. We're really good at things that are inefficient. Science is inherently inefficient. It runs on the fact that you have one failure after another. It runs on the fact that you make tests and experiments that don't work, otherwise you're not learning. It runs on the fact that there is not a lot of efficiency in it. Innovation by definition is inefficient, because you make prototypes, because you try stuff that fails, that doesn't work. Exploration is inherently inefficient. Art is not efficient. Human relationships are not efficient. These are all the kinds of things we're going to be attracted to, because they're not efficient. Efficiency is for robots. We're also going to work with these robots because they think differently than us.
- 4 When Deep Blue beat the world's best chess champion, people thought it was the end of chess. But actually, it turns out that today, the best chess champion in the world is not a robot. And it's not a human. It's the team of a human and a robot. The best doctor is not a human. It's not a robot. It's the team. We're going to be working with these robots, and I think you'll be paid in the future by how well you work with them. They're different, they're useful and they're going to be something we work with rather than



小艾说

我们生活中，机器人越来越多，它可能会成为我们的朋友和帮手。一个AI和人紧密合作的时代刚刚开启，我们一起加油吧。

against. We're working with them rather than against them.

- 5 So the future: where does that take us? I think that 25 years from now, they'll look back and look at our understanding of AI and say, "You didn't have AI. In fact, you didn't even have the Internet yet, compared to what we're going to have 25 years from now." There are no AI experts right now. There's a lot of money going to it. There are billions of dollars being spent on it. It's a huge business, but there are no experts, compared to what we'll know in 20 years from now.
- 6 So we're just at the beginning of the beginning, we're in the first hour of all this. We're in the first hour of the Internet. We're in the first hour of what's coming. The most popular AI product in 20 years from now, that everybody uses, has not been invented yet. That means that you're not late.
- 7 Thank you.

Words & Phrases



Words

conceptual /kən'septʃuəl/ *adj.* 概念的
 embody /ɪm'bɔ:di/ *v.* 体现; 表现
 engender /m'dʒendər/ *v.* 产生; 引起
 inherently /m'hɪrəntli/ *adv.* 内在地
 prototype /'prəʊtətaɪp/ *n.* 原型
 redefine /ri:di'faɪn/ *v.* 重新定义

Phrases

a bunch of 大量; 一串
 a slew of 大量

Note

Kevin Kelly: 美国科技杂志《连线》创始主编，1994年出版的著作《失控》中的多项预测成为现实，后又出版《科技想要什么》《必然》，合称“KK三部曲”。在《必然》一书中，他用12个词总结了未来技术的发展趋势：形成 (Becoming)、知化 (Cognifying)、流动 (Flowing)、屏读 (Screening)、使用 (Accessing)、共享 (Sharing)、过滤 (Filtering)、重混 (Remixing)、互动 (Interacting)、追踪 (Tracking)、提问 (Questioning) 以及开始 (Beginning)。

Task Discussion What is your dream job? Can it be replaced by robots? Or what kinds of robots can assist you in your dream job?



小艾说

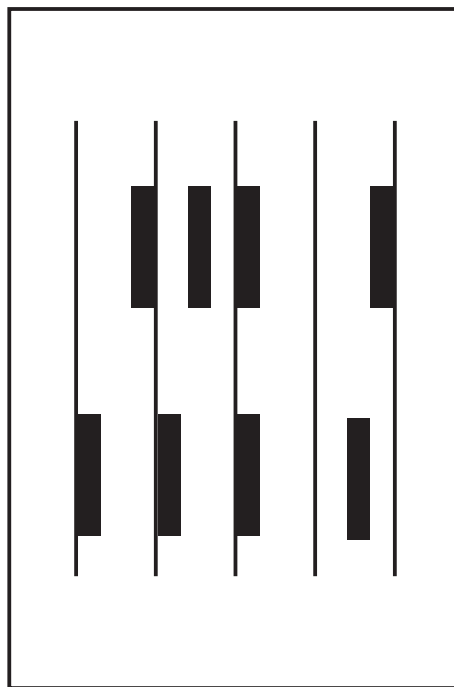
这是道谜题，你能解开吗？
你觉得 AI 能解开吗？

What is it?

At first glance, you may think you are looking at piano keys.

Look again. What if I tell you there are four numbers encoded here?

Can you decode the numbers?



AI's Show

Suppose you time-travel to the Tang Dynasty and meet the famous poet Du Mu. Tell him today's 5G and help him out. Make a dialog and act it out to the class, or make it into a drama and play it on stage.

Past




旅宿

[唐]杜牧

旅馆无良伴，凝情自悄然。
寒灯思旧事，断雁警愁眠。
远梦归侵晓，家书到隔年。
沧江好烟月，门系钓鱼船。

Present

Today, with 5G (the 5th Generation mobile technology), people can easily get in touch with relatives and friends in seconds by texts, voices and videos. People won't feel so lonely on journeys, and the letters from home won't travel so long any more.



My Learning Log

Words & Phrases The words and phrases I have learned in this unit are:

Grammar The grammar I have learned in this unit is:

Reading Strategy The reading strategy I have learned in this unit is:

Manual I have learned two parts of a manual. They are:
 Table of contents Safety precautions

Answer They are 5936.

VR glasses



Student



Jack



Why are you wearing a pair of VR glasses?

(games, VR headset)



Is that the right way to wear the glasses?

(look at the screen, button, adjust the focus)



Huh, right. Several new games now need VR glasses. How are these glasses used, anyway?

(download the VR application, open the VR app)



It doesn't sound too difficult. Can I try it?

(a long time, comfortable spot, lose your balance, hard object, injuring yourself)



Can you play just by wearing the glasses? Is it as simple as that?

(a fixed headband, adjust the strap, are appropriately placed over)



Wow, this feels so realistic!

Useful expressions

a pair of 一副, 一把, 一条

if necessary 如有必要

end up 最终处于, 到头来

Sample conversation

S = Student J = Jack

- J:** Why are you wearing a pair of VR glasses?
- S:** Well, one of the games I play requires a VR headset.
- J:** Huh, right. Several new games now need VR glasses. How are these glasses used, anyway?
- S:** First, you need to download the VR application. Then, you need to open the VR app on your phone and choose the game you want to play.
- J:** Can you play just by wearing the glasses? Is it as simple as that?
- S:** Well, you see, this is a fixed headband, and you need to adjust the strap to ensure that the glasses are appropriately placed over your head.
- J:** Is that the right way to wear the glasses?
- S:** After wearing the glasses, you must look at the screen again, and if necessary, use this button to adjust the focus.
- J:** It doesn't sound too difficult. Can I try it?
- S:** Sure. However, if you intend to play for a long time, it is better to find a comfortable spot on a sofa because you may lose your balance while using these glasses. And if there is a hard object nearby, you may end up injuring yourself.
- J:** Wow, this feels so realistic!
- J:** 你为什么戴着 VR 眼镜呢?
- S:** 嗯, 我玩的一款游戏需要用 VR 设备。
- J:** 对啊, 现在几款新游戏都得用 VR 眼镜。不过, 这个眼镜怎么用呢?
- S:** 首先, 你要下载一个 VR 应用。然后, 打开手机上的 VR 应用, 再选择你想玩的游戏。
- J:** 戴上就可以直接玩了? 就这么简单?
- S:** 你看, 这个是固定的头带。你还得调整一下这根带子, 确保眼镜非常合适地固定在头上。
- J:** 这样做对吗?
- S:** 戴上后你得再看一下屏幕画面。如有必要, 用这个按钮来调整焦距。
- J:** 听起来倒不难。我可以试玩吗?
- S:** 没问题。但要是长时间玩的话, 你最好坐在沙发舒适的位置上, 以免用的时候失去平衡。如果身边有坚硬的物体, 你还可能受伤。
- J:** 哇, 这感觉好逼真!