**2025高考英语一轮复习外刊阅读与词汇专练**

**专题10 电网要崩溃？AI先知道！**

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**【精编·外刊阅读】**

**AI can predict tipping points for systems from forests to power grids**

**（文章来源：New Scientist）**

**文中红色粗体为课标词，下面有专门的高频课标词训练和课标词梳理表格**

[A] AI can **predict** when complex **systems** like forests, animal populations or the **power** grid will suddenly start behaving very differently. Identifying such **tipping points** may help **prevent** catastrophic **collapses** in biology or human **systems**.

[C] To make **predicting** such transitions more **precise**, Gang Yan at Tongji University in China, and his colleagues combined two different **types** of **artificial** intelligence called neural **networks**. They improved the first one to understand the **functioning** of and **connections** across **systems** structured like large **networks** with many nodes. For example, in an **ecosystem**, each node would be a **regional** **location** where researchers would collect **data** about how many animals or trees live there. Nodes could also be different **parts** of the **power** grid or areas where **disease** outbreaks are **occurring**.

[D] The team **designed** the second neural **network** to be especially good at analysing how **networks** change over time. So, the first **network** would **process** **data** about each node and the **interactions** between them, then feed into the second **network**, which **detected** **patterns** in **data** that repeat over time and **predicted** future **tipping points**.

[E] Yan says that past studies **focused** on **identifying** particular **features** of **data** that increased or **decreased** as a **tipping point** approached, but his team’s AI goes **further**. “It **aims** to **identify** the **specific** conditions that lead to **system** **collapse**, stating: ‘Watch out, if the **system** reaches this [**specific**] condition, it will **collapse** **immediately**’,” he says.

[F] He and his **colleagues** tested the AI on a **range** of mathematical models and simulated **data** used to **represent** **power** grids, **crop** harvests and animal populations. In one test, they used 20 years of real-world **data** on vegetation and **rainfall** in a forest **ecosystem** in Central Africa that **suddenly** became a grass land. The researchers trained the AI on simulations and the scarce **data** available for one **part** of the **region**, and then had it **predict** the value for **annual** **rainfall** at the **tipping point** for another. The AI correctly **predicted** what had **actually** happened to the **ecosystem**, even when it was only given **data** for about 10 **per** cent of the nodes to learn from.

**【原创 阅读理解】**

1. What can AI predict in complex systems like forests or power grids?

A. When systems like forests will collapse.

B. When systems like forests will behave abnormally.

C. How systems like forests will adapt to changes.

D. How systems like forests will recover.

1. How is data from the first network used by the second network?

A. To track data.

B. To check data.

C. To find patterns.

D. To store patterns.

1. How might this AI system contribute to preventing real-world disasters?

A. By predicting natural disasters accurately.

B. By finding conditions that lead to collapse.

C. By alerting authorities to potential failures.

D. By controlling systems during emergencies.

1. What is the central conclusion drawn from the AI's testing results?

A. The AI could not predict collapses.

B. The AI boosted the efficiency of the systems.

C. The AI depended on large datasets.

D. The AI successfully identified tipping points.

**【原创 语法填空】**

AI can predict when complex systems, like forests, animal populations, or power grids, might suddenly start behaving in unexpected ways, which is essential for preventing major breakdowns \_\_\_\_1\_\_\_\_ both natural and human-made systems.

To improve the accuracy of these predictions, Yan and his team combined two types of neural networks. The first network \_\_\_\_2\_\_\_\_ (design) to understand how systems with many connected parts work, \_\_\_\_3\_\_\_\_ each part could represent a location that gathers information on animal or tree \_\_\_\_4\_\_\_\_ (population), or could be different sections of the power grid or areas affected by disease.

The second neural network is particularly skilled at analyzing \_\_\_\_5\_\_\_\_ these systems change over time. It takes the information \_\_\_\_6\_\_\_\_ (process) by the first network to find patterns that repeat and predict when a tipping point might occur.

Yan explains that while \_\_\_\_7\_\_\_\_ (early) research mainly looked at certain data trends as a tipping point neared, their AI goes further by identifying the exact conditions that cause a system \_\_\_\_8\_\_\_\_ (fail), giving a clear warning: ‘If the system reaches this specific state, it \_\_\_\_9\_\_\_\_ (collapse) right away.’

This AI was tested on different models and simulated data, including 20 years of real-world data on vegetation and rainfall in a Central African forest that suddenly turned into \_\_\_\_10\_\_\_\_ grassland. Even with limited data, the AI accurately predicted when the ecosystem would reach its tipping point.

**【原创·课标高频词训练】**

1. The scientists \_\_\_\_\_\_\_\_ (identify) the key factors contributing to climate change.
2. Without proper maintenance, the old bridge \_\_\_\_\_\_\_\_ (collapse) under the weight of heavy traffic.
3. The new curriculum \_\_\_\_\_\_\_\_ (structure) to develop critical thinking and creativity among students.
4. The instructions were \_\_\_\_\_\_\_\_ (specific) designed to be easy for beginners to follow.
5. The company’s \_\_\_\_\_\_\_\_ (represent) will be attending the conference to discuss potential collaborations.
6. The store offers a wide variety of products, \_\_\_\_\_\_\_\_ (range) from electronics to home appliances.
7. The food \_\_\_\_\_\_\_\_ (process) to retain its nutritional value carefully.
8. The event \_\_\_\_\_\_\_\_ (occur) unexpectedly, causing a major disruption in the schedule.
9. The new software \_\_\_\_\_\_\_\_ (function) efficiently even under heavy loads.
10. The exhibition, \_\_\_\_\_\_\_\_ (feature) works by local artists, attracted a large crowd.
11. The population of the city \_\_\_\_\_\_\_\_ (decrease) steadily over the past decade.
12. The successful launch was the result of a \_\_\_\_\_\_\_\_ (combine) of talent, hard work, and timing.
13. The deadline for the project \_\_\_\_\_\_\_\_ (approach) faster than expected, so the team is working overtime.
14. The new policy \_\_\_\_\_\_\_\_ (aim) at improving customer satisfaction and reducing response times.
15. The conference is held \_\_\_\_\_\_\_\_ (annual), attracting participants from around the world to discuss the latest developments in technology.

**【梳理·外刊中的课标词】**

|  |  |  |  |
| --- | --- | --- | --- |
| **词汇** | **中文注释** | **词汇** | **中文注释** |
| tipping point |  | system |  |
| power |  | network |  |
| predict |  | identify |  |
| collapse |  | type |  |
| structure |  | specific |  |
| represent |  | region |  |
| range |  | process |  |
| prevent |  | per |  |
| pattern |  | particular |  |
| occur |  | location |  |
| interaction |  | improve |  |
| immediately |  | harvest |  |
| further |  | function |  |
| focus |  | feature |  |
| disease |  | detect |  |
| design |  | decrease |  |
| crop |  | complex |  |
| combine |  | biology |  |
| behave |  | available |  |
| artificial |  | approach |  |
| annual |  | analyse |  |
| aim |  | actually |  |
| ecosystem |  | suddenly |  |
| rainfall |  | precise |  |
| colleague |  | transition |  |
| scarce |  | intelligence |  |
| connection |  | data |  |