Algorithm Art

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Computer algorithms are instructions that tell machines to solve problems and make predictions. They help us use our smartphones and stream videos, and someday they'll drive our cars. But can they make us more creative?

Some artists think so. Algorithms are helping them to come up with new ideas and produce surprising artworks. These works remind us that science can be creative and that art is a form of invention. Meet two artists who have advanced the possibilities of algorithm art.

Painting With Robots

For Sougwen Chung, the computer is a tool for expanding her creativity. Chung, who is based in New York City, works with a set of robots called DOUG, short for Drawing Operations Unit: Generation. DOUG can be a robotic arm fitted with a pencil or paintbrush, or it can be a team of robots.

Chung programmed DOUG to paint. She gathered 20 years of her drawings and made digital copies, then saved these copies in the robot's memory bank. As Chung paints on a canvas, the robot responds to her brushstrokes. From "memory," it makes a stroke that Chung might make. In this way, artist and machine work together, and the result is always a surprise.

Chung and DOUG often perform before an audience. It must be "a bit weird" to watch an artist work without a definite plan, Chung says. But that's the fun of it. "The second I know what's happening in those performances, I'll probably stop doing them. For now, I like the energy it gives to the work."

Color By Numbers

Ben Shneiderman doesn't call himself an artist. "But I aspire to be an artist," he says. Shneiderman is a computer scientist at the University of Maryland. He's an innovator in the field of data visualization, a way of making large amounts of information visible at a glance.

In the 1990s, Shneiderman was looking for a way to see all the data contained on a computer hard drive. It dawned on him to make a digital map. So he designed an algorithm that could organize information using shapes of different sizes and colors. It turned out that the maps were not only useful, they were beautiful. They looked like art.

Shneiderman has mapped everything from sports statistics to population growth. Several of his works now belong to the Museum of Modern Art in New York City. And that makes sense to him. "There's a lot of unity between art and science," he says. "You don't have to choose one or the other. You can have both in your life."

答题:

1.How does DOUG create paintings?

A. By calculating and predicting Chung's every movement when drawing.

B. By responding to Chung's brushstrokes based on her former drawings.

C. By using the brushstrokes learned from Chung to create new pictures alone.

D. By completing Chung's unfinished painting after she stopped.

【答案】B

【考点】细节理解

【解析】题干询问，DOUG是如何绘画的？由题干定位到文章第五段，该段指出“Chung programmed DOUG to paint. She gathered 20 years of her drawings and made digital copies, then saved these copies in the robot's memory bank. As Chung paints on a canvas, the robot responds to her brushstrokes. From "memory," it makes a stroke that Chung might make.”，钟愫君通过编程让DOUG绘画。她收集了她20年来的绘画作品，并将之制作成数字副本，然后把这些副本保存到机器人的内存中。当钟愫君在帆布上绘画时，机器人会对她的笔触做出反应。根据“记忆”，它会画上钟愫君可能会画的一笔。B项与原文对应，故正确。随后文章指出“In this way, artist and machine work together, and the result is always a surprise.”，这样一来，艺术家和机器人共同创作，结果总是很令人惊讶。可知机器人是和艺术家一起创作的，故C项错误。文章并没有说机器人会预测钟愫君的每一个举动或者在钟愫君停止绘画之后完成她的作品，故AD项错误。综上，正确答案为B项。

2.What does it feel like to work with DOUG?

A. It seems to be unnecessary.

B. It can be quite weird and disorderly.

C. It is unplanned and surprising.

D. It is complicated and lacks creativity.

【答案】C

【考点】细节理解

【解析】题干询问，和DOUG共同创作的感觉如何？文章第五段指出“In this way, artist and machine work together, and the result is always a surprise.”，这样一来，艺术家和机器人共同创作，结果总是很令人惊讶。随后第六段指出“Chung and DOUG often perform before an audience. It must be "a bit weird" to watch an artist work without a definite plan, Chung says. But that's the fun of it.”，钟愫君和DOUG经常在观众面前表演绘画。钟愫君说，看到艺术家在没有计划的情况下创作一定“有些怪异”，但这正是乐趣所在。可知和DOUG共同创作是无计划且令人惊讶的，故C项正确。A，这似乎有些不必要；B，这可能会很怪异和混乱；D，这很复杂而且缺少创造力。

3.Which of the following about Ben Shneiderman is true?

A. He was an artist before he became a scientist.

B. He visualizes data by making digital maps.

C. His works are not useful but have great artistic value.

D. He designed a machine to create art in the first place.

【答案】B

【考点】细节理解

【解析】题干询问，关于Ben Shneiderman，下列哪一项是正确的？由题干定位到文章第八段到第十段，第九段指出“In the 1990s, Shneiderman was looking for a way to see all the data contained on a computer hard drive. It dawned on him to make a digital map. So he designed an algorithm that could organize information using shapes of different sizes and colors.”，在上世纪九十年代，Shneiderman正寻找一种方法来查看电脑硬盘上的所有数据，他突然想到可以做一个数字地图。因此他设计了一种算法，可以通过使用不同大小和颜色的形状来组织信息。可知Shneiderman通过制作数字地图来让数据可视化，故B项正确。随后该段指出“It turned out that the maps were not only useful, they were beautiful. They looked like art.”，结果这些地图不仅有用，而且漂亮。它们看上去像艺术作品。C项与原文不符，故错误。结合第八段“Ben Shneiderman doesn't call himself an artist...Shneiderman is a computer scientist at the University of Maryland.”，Ben Shneiderman并不把自己称为艺术家……Shneiderman是马里兰大学的一位计算机科学家。可知Shneiderman原先并不是一名艺术家，他一开始想要用计算机来绘制数字地图，最后却意外地创作出具有艺术性的作品，故AD项错误。综上，正确答

案为B项。

4.What does Ben Shneiderman think about art and science?

A. He thinks they are not conflicting.

B. He thinks they are completely different.

C. He thinks we should choose science rather than art.

D. He thinks there is no boundary between them.

【答案】A

【考点】细节理解

【解析】题干询问，Ben Shneiderman如何看待艺术和科学？由题干定位到文章最后一段，该段指出“"There's a lot of unity between art and science," he says. "You don't have to choose one or the other. You can have both in your life."”，他说：“艺术和科学之间有很多统一之处，你不必二选一。生活中你可以两者兼得。”可知Ben Shneiderman认为艺术和科学有很多统一之处，两者并不冲突。故A项正确。BC项错误。文章并没有说Ben Shneiderman认为艺术和科学没有边界，故D项错误。综上，正确答案为A项。

拓展:

重点词汇 Vocabulary

stroke /stroʊk/
n. 一笔

From "memory," it makes a stroke that Chung might make.

根据“记忆”，它会画上钟愫君可能会画的一笔。

advance /ədˈvæns/
v. 使……前进

Meet two artists who have advanced the possibilities of algorithm art.

见一见让算法艺术成为可能的两位艺术家吧。

aspire /əˈspaɪər/
v. 渴望

But I aspire to be an artist.

但我渴望成为一名艺术家。

词组搭配 Phrase&Collocation

1. dawn on sb 使……意识到

It dawned on him to make a digital map.

他突然想到可以做一个数字地图。

2. respond to 反应

As Chung paints on a canvas, the robot responds to her brushstrokes.

当钟愫君在帆布上绘画时，机器人会对她的笔触做出反应。

3. at a glance 看一眼

He's an innovator in the field of data visualization, a way of making large amounts of information visible at a glance.

他是信息可视化领域的创新者，信息可视化是一种让大量信息一目了然的方式。

句子讲析 SentenceSpotlight

So he designed an algorithm that could organize information using shapes of different sizes and colors.

因此他设计了一种算法，可以通过使用不同大小和颜色的形状来组织信息。

讲析:

（1）句子的主干为he designed an algorithm；
（2）that引导定语从句，修饰algorithm；
（3）using shapes...为现在分词做状语；
（4）of different sizes and colors为后置定语。

知识万花筒 Knowledge Bank

1. Sougwen Chung：钟愫君，加拿大籍华裔跨学科艺术家，钟愫君的艺术创作涵盖装置、雕塑、绘画和行为等多个领域，所有作品均由她和非同寻常的“助手”——人工智能机器人“D.O.U.G.”合作完成。

2. Ben Shneiderman：本·施耐德曼，是马里兰大学信息学院的联盟教授，主要从事人机交互、用户界面设计、信息可视化和社交媒体方面的研究工作。

写译:

请根据提示翻译下列句子。

1. 他渴望成为他们的下一届领导人。（aspire）

参考答案: He aspired to be their next leader.

请根据提示翻译下列句子。

2. 我突然意识到我把钱包忘在家里了。（dawn on sb）

参考答案: It suddenly dawned on me that I'd left my wallet at home.