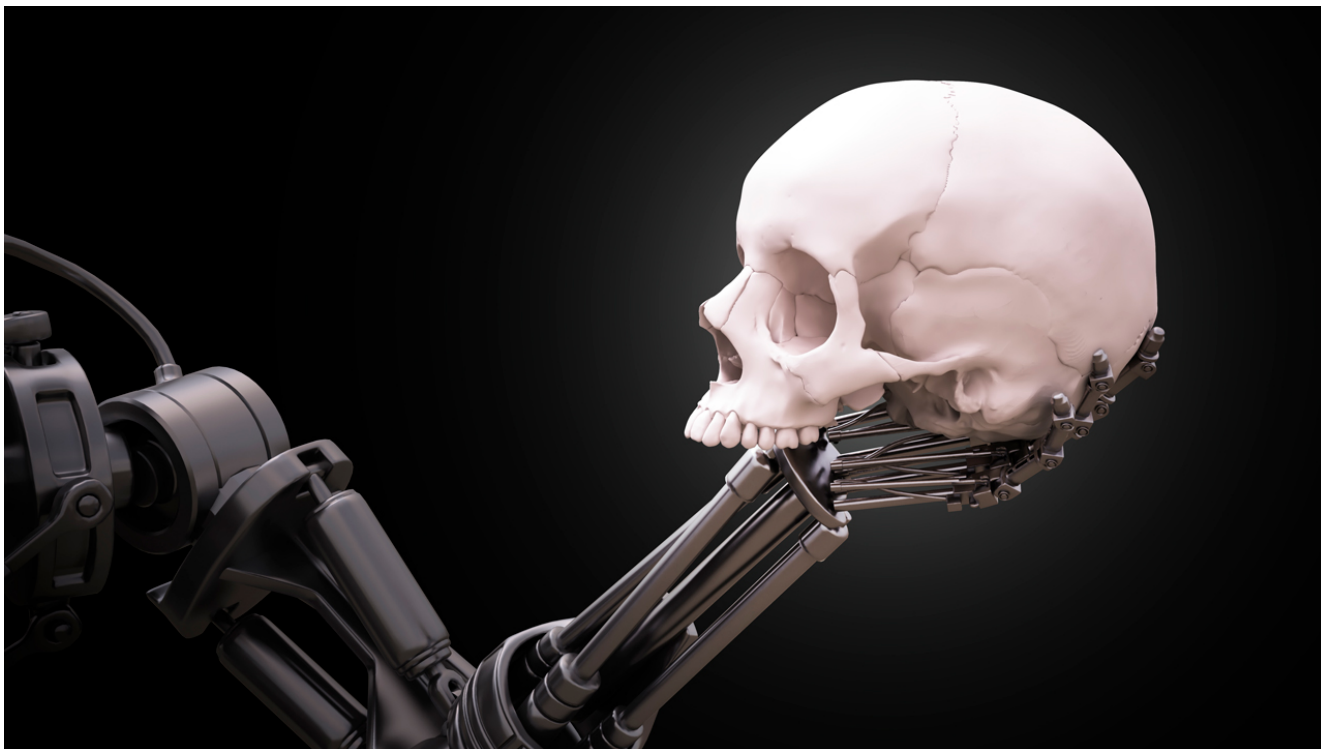


Kinky and absurd: The first AI-written play isn't Shakespeare—but it has its moments

Artificial intelligence generates a story about a robot trying to understand humanity

26 FEB 2021 • BY [SOFIA MOUTINHO](#)



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One hundred years ago, a play by the Czech author Karel Čapek introduced the word "robot," telling the story of artificial factory workers designed to serve humans. Now, in a metanarrative twist, a robot itself has written a play. And it premieres online today.

"It's a kind of futuristic *Little Prince*," says dramatist David Košťák, who oversaw the script. Like the classical French children's book, the 60-minute production—*AI: When a robot writes a play*—tells the journey of a character (this time a robot), who goes out into the world to learn about society, human emotions, and even death.

The script was created by a widely available artificial intelligence (AI) system called GPT-2. Created by Elon Musk's company OpenAI, this "robot" is a computer model designed to generate text by drawing from the enormous repository of information available on the internet. ([You can test it here](#).) So far, the technology has been used to write [fake news](#), [short stories](#), and [poems](#). The play is GPT-2's first theater production, the team behind it claims.

Here's how it works: First, a human feeds the program with a prompt. In this case, the researchers—at Charles University in Prague—began with two sentences of dialogue, where one or two characters chat about human feelings and experiences. The first input they gave to the AI, for example, was: "Hello, I am robot and it is a pleasure to invite you to see a play I wrote." The software then takes things from there, generating up to 1000 words of additional text.

The result is far from William Shakespeare. After a few sentences, the program starts to write things that sometimes don't follow a logical storyline, or statements that contradict other passages of the text. For example, the AI sometimes forgot the main character was a robot, not a human. "Sometimes it would change a male to female in the middle of a dialogue," says Charles University computational linguist Rudolf Rosa, who started to work on the project 2 years ago.

That happens because the program doesn't really know the meaning of the sentences, says Chad DeChant, an AI expert at Columbia University. "It just puts together words that are likely to be used together, one after the other," says DeChant, who was not part of the play but

is curious to watch it. As it keeps going, there is more room for nonsense.

To prevent that, the team didn't let GPT-2 write the entire play at once. Instead, the researchers broke the show down into eight scenes, each less than 5 minutes; each scene also only contained a dialogue between two characters at the same time. In addition, the scientists sometimes changed the text, for example altering the passages where the AI changed the character's gender from line to line or repeating their initial text prompt until the program spat out sensible prose. Rosa estimates that 90% of the final script was left untouched, whereas 10% had human intervention.

Because the computer didn't come up with the whole script itself, DeChant says he wouldn't call the play "AI created." He believes it will take about 15 years for the technology to be good enough to generate a complex and cohesive text like a theater play from beginning to end. But he thinks the experiment is still a nice way to show audiences what AI is currently able to do and "get people excited about it."

Rosa says the fact that the program is generating line after line of mostly intelligible writing is remarkable in of itself. "Ten years ago, you could only generate a sentence that looked like a sentence if you were really lucky."

Still, Košťák says the resulting text was tough for the actors to interpret, especially because the AI was not very good at staging the type of action and emotion needed to make a play work. "One of the actresses told me it was the most challenging work of her career," he says.

The play may be a challenge for the audience as well. Tomáš Studeník, a Czech entrepreneur and AI fan who came up with the idea for the project, notes a particular scene where a boy asks the robot to tell him a joke. The robot says that when the boy gets old and dies, and the boy's children and grandchildren are also dead, he, the robot, will still be around. "It is funny and, at the same time, it sends shivers down your spine when a piece of metal is joking about your mortality," Studeník says.

The AI author was also a bit kinky. Košťák says sex and violence kept showing up in the script. In one of the scenes, an initial prompt about euthanasia ended up in a fight between characters about who had whose finger in whose anus.

Don't blame the computer, Košťák says. The AI only reflects what people have been writing about on the internet, without any filter or shame. "It is like a child that listens to his parents at home talking about something that they wouldn't talk about in public," he says. "Then the kid goes to school and starts to talk about it openly."

If you want to judge the play's suitability for yourself, [it debuts today at 1 p.m. EST](#). There will be English subtitles.

doi: 10.1126/science.abh2844

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