

Welcome to the AI future?



The launch of ChatGPT late last year has school teachers, conference organizers, Google and others worried, for different reasons. Where should we draw the line when it comes to artificial intelligence?

Artificial intelligence (AI) has the potential to revolutionize many fields, including astronomy. In recent years, astronomers have begun to increasingly rely on AI to analyse large datasets, identify patterns and make predictions. While the use of AI in astronomy has brought many benefits, it also comes with some pitfalls that need to be considered.

One of the major benefits of AI in astronomy is the ability to analyse and process vast amounts of data quickly and accurately. Astronomy generates huge amounts of data from telescopes, satellites and other instruments, and it can be overwhelming for humans to analyse all of this information. AI algorithms, on the other hand, can quickly and efficiently process this data, identifying patterns and trends that might not be immediately obvious to humans. This can save astronomers a lot of time and effort, and allow them to make new discoveries more quickly.

AI can also help astronomers make predictions and forecasts. For example, AI algorithms can be used to analyse data on the movements of celestial bodies and make predictions about their future behaviour. This can help astronomers plan observations and make more accurate forecasts about things like the likelihood of a comet hitting the Earth or the likelihood of a particular exoplanet being habitable.

In addition to these practical benefits, the use of AI in astronomy can also help to advance our understanding of the Universe. By identifying patterns and relationships in data that humans might not have noticed, AI can help to uncover new insights and theories about the way the Universe works. This can lead to

new discoveries and a better understanding of the cosmos.

Despite these benefits, there are also some pitfalls to consider when using AI in astronomy. One of the main concerns is the accuracy of the predictions and forecasts made by AI algorithms. While these algorithms can be very accurate, they are only as good as the data they are trained on. If the data are incomplete or biased, the predictions made by the algorithms may also be flawed. This can lead to incorrect or misleading conclusions.

Another concern is the potential for AI to replace human astronomers. While AI algorithms can be very effective at analysing data and making predictions, they cannot replace the human ability to ask questions, make creative connections and think critically about the data. There is a risk that the reliance on AI could lead to a reduction in human creativity and curiosity in the field of astronomy.

In conclusion, the use of AI in astronomy has the potential to bring many benefits, including the ability to analyse and process large amounts of data, make predictions and forecasts, and advance our understanding of the Universe. However, it is important to be aware of the pitfalls of AI, including the risk of inaccurate predictions and the potential for it to replace human thinking and creativity. By being mindful of these potential pitfalls, astronomers can make the most of the benefits of AI while also maintaining the unique strengths of human intelligence.

The above text was written by ChatGPT, a conversational language-model chatbot launched by OpenAI on 30 November 2022. We asked it to “write a 500-word editorial on the benefits and pitfalls of AI to astronomy research” and it did so in a matter of seconds. The content is somewhat generic and the style formulaic, but it is at least correct if incomplete. And ChatGPT is very upfront about its own limitations, especially concerning training: it was trained on data up until the end of 2021. As an example, we also asked it to tell us the most exciting astronomy to look forward to in 2023. Highlights include:

- The launch of the James Webb Space Telescope: This long-awaited successor to the Hubble Space Telescope is set to launch in March 2023, and it is expected to revolutionize our understanding of the Universe.
- The arrival of the OSIRIS-REx spacecraft at asteroid Bennu: In 2023, the OSIRIS-REx spacecraft is set to arrive at asteroid Bennu, where it will collect a sample of surface material and return it to Earth for analysis.
- The first manned mission to Mars: In 2023, NASA and SpaceX are set to launch the first manned mission to Mars, with the goal of establishing a permanent human presence on the red planet.
- The potential discovery of new exoplanets: With the launch of the James Webb Space Telescope and the ongoing work of other telescopes and spacecraft, 2023 could be the year that we discover a plethora of new exoplanets.
- The observation of a supermassive black hole: In 2023, astronomers will have the opportunity to observe a supermassive black hole in unprecedented detail, thanks to the Event Horizon Telescope. This global network of telescopes will allow astronomers to capture the first-ever image of a black hole, giving us a glimpse into the mysteries of these mysterious objects.

Aside from the exoplanet one – and arguably, JWST is mainly for exoplanet characterization rather than discovery – the predictions are all incorrect, by years. AI is a tool, after all. It is not a complete replacement for humans. Our Editorials will continue to be written by the editors. But by all means use AI to do tedious or time-consuming tasks. You might find more time to be creative or disruptive. And that is a good way to start 2023.

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