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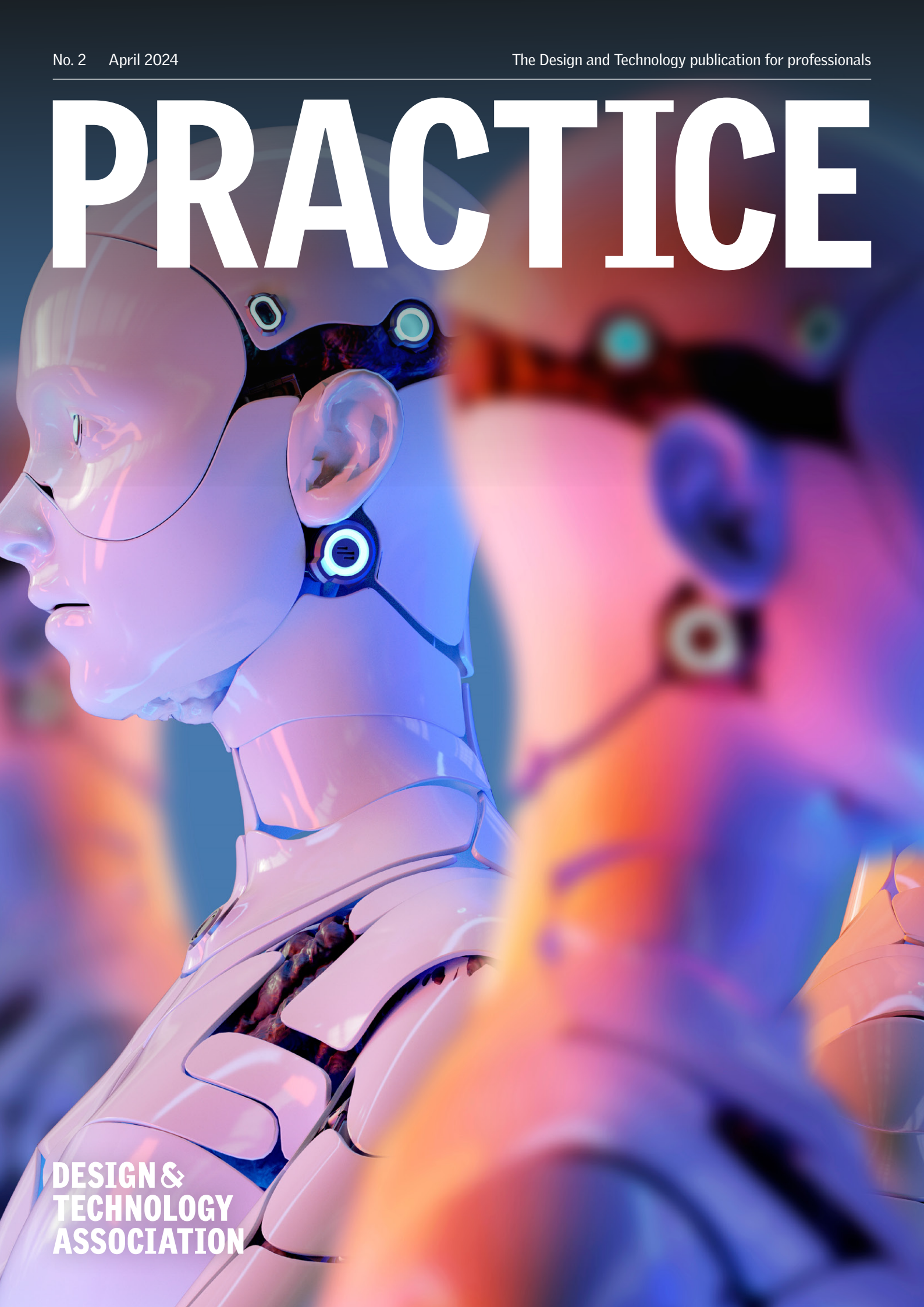
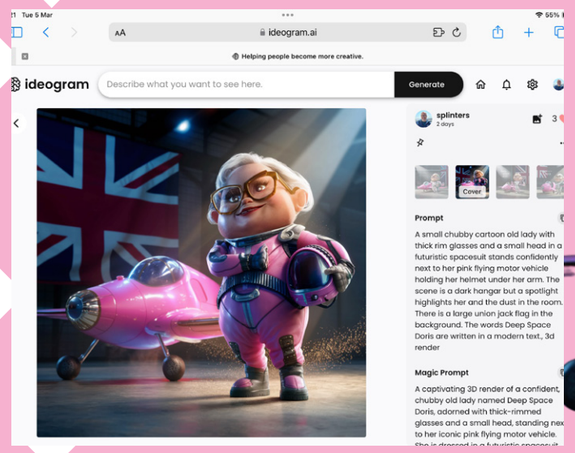


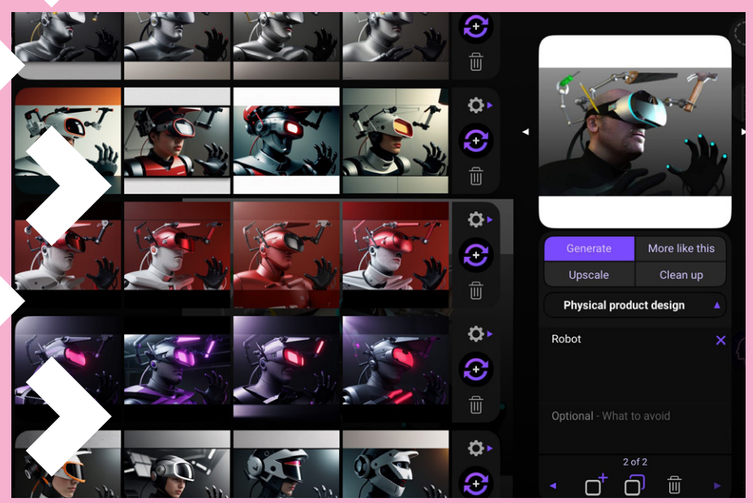
DESIGN & TECHNOLOGY ASSOCIATION

Artificial Intelligence in Design and Technology

Paul Woodward, Curriculum Consultant at the Design & Technology Association

From the era of black and white TVs to the emergence of video gaming and the internet, the recent surge in Artificial Intelligence (AI) has reshaped perspectives on technology, particularly in the realm of design education.





Having lived in seven decades I have seen a lot of technological developments, from a time when black and white TVs with three channels were the norm, I saw the emergence of video gaming in my teens and at University in the 1990's I was captivated by 3D CAD and the potential for Virtual Reality. A few years later, like many others, I discovered this new thing called the internet and this fascination with technology has continued to this day. Much of what has happened since has seemed like an inevitable and steady development of technology but it's the advent of AI that has been as surprising as it is scary and also caused me to reevaluate my relationship with technology, especially in the context of teaching Design and Technology.

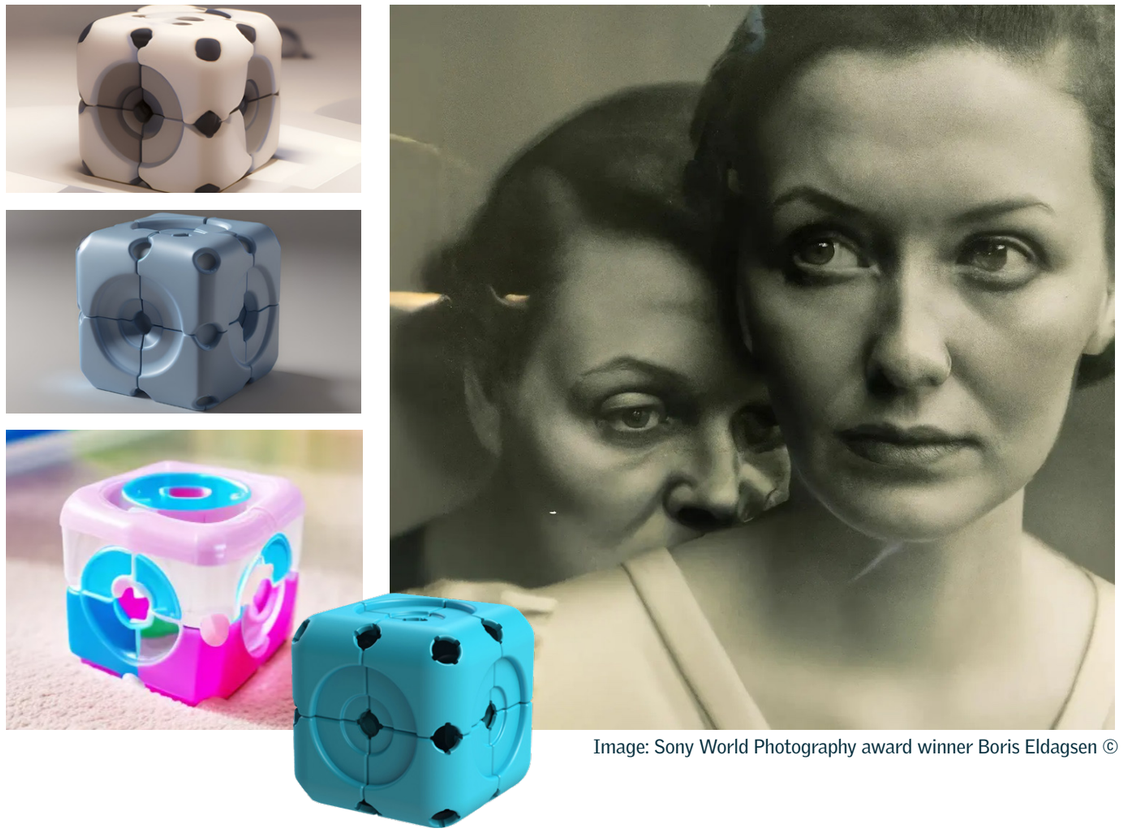


Image: Sony World Photography award winner Boris Eldagsen ©

AI Development

The development of AI over the last year has received an almost evangelical reaction from many sectors, but the first time I became aware of its creative potential to *'fool'* us was when the winner of the Creative category in the Sony World Photography award revealed his image was produced from prompts entered into Dall-E 2, an AI text to image generator developed by OpenAI. This company was also responsible for AI chatbot ChatGTP. whose ability to create complete works from prompts saw an emerging distrust of AI and how it might be used to 'cheat' in educational settings.

Fast forward a year and I decided to explore the world of AI and how it relates to design education and the production of creative media. I have to say I was not prepared for the rabbit hole I was about to disappear into.

Sora AI

Initial research first led to Sora AI which is a text-to-video generator. If you haven't seen the videos of this on the internet, be prepared to be amazed, but also spare a thought for the videographers, drone operators and music video producers who might find work drying up as anyone with access to the platform will eventually be able to generate lifelike videos in seconds.

Once I picked my jaw up off the floor, it was time to delve into something more related to D&T and, at the time of writing, the apps and sites referred to are currently free to access.

Text to Image Generator

Ideogram.ai claims to be the most effective text-to-image generator available but, given how fast this technology is moving, it's likely to be replaced by something better by the time you read this article!

From a very descriptive text prompt, it was able to generate something very close to what I was picturing in my head. It also uses AI to create a 'Magic Prompt' which essentially adds even more detail to your prompts. Both of these platforms (like many others) use text prompts to create visual media, and that means anyone can create images that once required skilled and experienced digital artists.

Modelo.ai takes a different approach as it requires a 3D model to be loaded. This can then be rotated to create the required view before text prompts will produce something much more advanced.

Vizom.ai takes a hybrid approach as it can work from images as well as 3D models so you have more flexibility when generating new content from additional text prompts. It's great for producing high-quality realistic renders from your own material.

Finally, Hypersketch is an iPad app that has really caught my attention. While it is free, it will be limited to those with an iPad and pencil although an iPhone version is in beta.

This is where I first really understood the potential of AI to aid creativity. While text-to-image generators require no artistic input other than the quality of the prompt, Hypersketch can work from simple sketches and prompts to create a range of creative concepts. It can also work from existing images, like Vizcom, but I found the results in Hypersketch to be very close to what I was imagining in my head, and the large variety of generated images meant there was something close to what I wanted, and I could then regenerate further ideas from this.

AI Education

So, a lot of tech and a lot of fun to play around with, but what does this mean for teachers and students? Well, the first thing we need to accept is that this sort of technology will only progress and become commonplace and free access means that most of your students are probably already using it.

As a designer who has spent a lifetime in creative disciplines honing my illustration and visualisation skills, I can't help but feel a little cheated that such outcomes can now be produced without any real artistic skills. As an educator, I value any method of helping young people to visualise and communicate the ideas in their head. Used responsibly, this will literally change lives, but we inevitably focus on how it can be used to 'cheat'.

In a lifetime of using and endorsing the latest technology, this is the first time I have felt conflicted about technology and that is because of the lack of authentic, tangible outcomes that you can truly own as an asset.

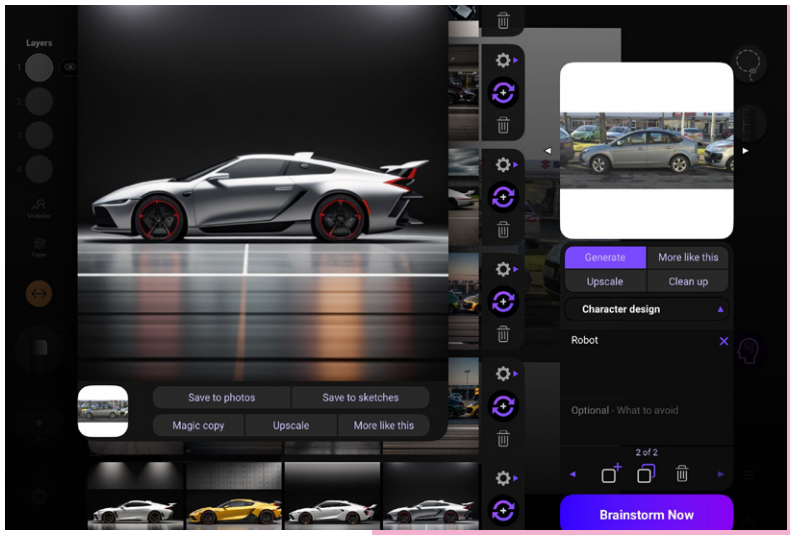
The images generated are random and flattened meaning you can't change the logo or font as a layer or apply filters to it as you might in Photoshop. Likewise, the models and renders are virtual and, while AI already lets you generate a 3D object from drawings, it won't generate the feature history that engineers still require when editing parts and components.

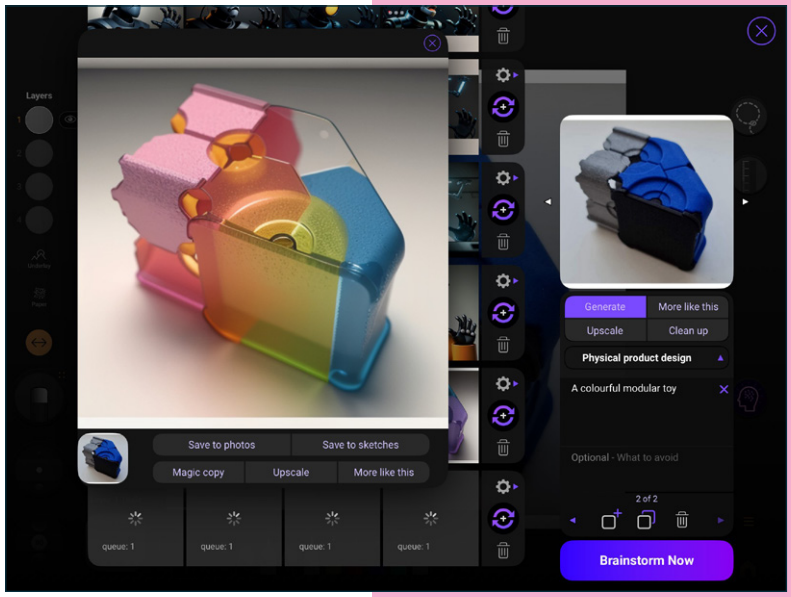
CAD

CAD is already utilising AI in ways that aid productivity such as Solid Edge which uses AI to predict your next process making it more intuitive to work with, or with Generative design (topology) which can reduce materials and weight while improving strength and durability.

As for AI in the classroom and use in NEA's, there is the potential to use AI to generate better ideas than you can imagine yourself, but if you have to describe them in detail, isn't that just linking up your creative imagination with the results, and that way we are not limited to our artistic or technical ability? Isn't this also a great way for those with barriers to drawing or using CAD to help communicate, and eventually realise, their ideas?

It is definitely an area to watch closely but explore the apps and websites listed here and see for yourself how they might help stimulate ideas and aid creativity in your department. If we use them responsibly, they could be a great tool for use in Design and Technology.





Links

Sora
openai.com/sora

Vizcom
vizcom.ai

Ideogram.ai
ideogram.ai/login

Modelo Ai
modelo.io/?hl=en

Hypersketch
hypersketch.com