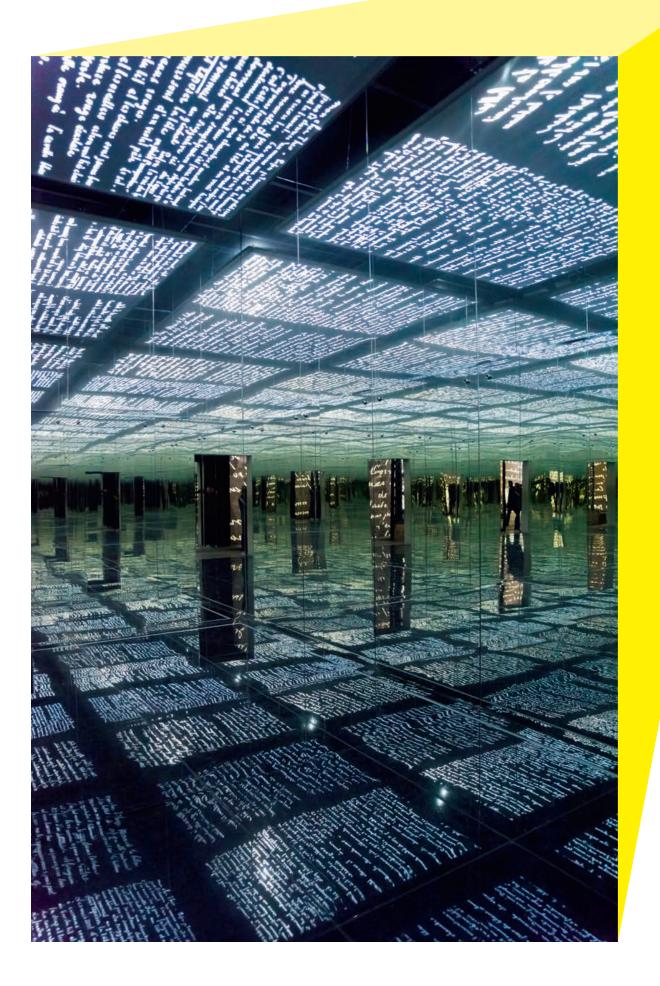
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In the digital age, the way we consume art is changing. We took a trip to Paris's latest immersive 3D attraction to find out how new technologies are giving culture a whole new dimension









Previous & this page / Digital show Van Gogh, Starry Night has been wowing visitors at Paris's Atelier des Lumières since February and runs until the end of this year rt institutions really love Vincent van Gogh. In the past year alone galleries in London, Houston, Frankfurt and Amsterdam have all hosted major exhibitions of the artist's work. But there's one show in Paris that stands apart from the rest.

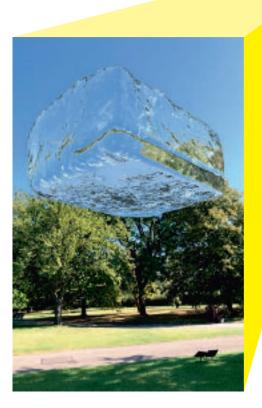
Van Gogh, Starry Night, which has been showing at the city's first digital-art museum, Atelier des Lumières, since February, features no paintings or drawings. Instead, visitors are treated to a 30-minute loop of 2,000 works cast onto the walls of the converted 19th-century foundry, by 140 state-of-the-art laser video projectors.

In the vast, darkened space, black-and-white drawings appear line by line, as if sketched by a giant invisible hand. The globe-like lights of *The Starry Night* ripple underfoot, while orange and yellow tones from his famous wheat fields swirl and pulse on 10m-high walls. Set to a booming soundtrack that flows from Janis Joplin to Puccini, the 3D show is trippy and beguiling, like sitting in the middle of an animated dream sequence.

At the end of the loop, as the walls go black and credits roll, the room echoes with applause. "It's different," remarks a silver-haired British woman in the crowd, astonished. "It's so different."

Since opening in April 2018, the Atelier des Lumières ("Workshop of Lights") has entertained visitors – 1.2 million in its first nine months alone – with splashy light-and-sound shows that turn classic works of art into larger-than-life multimedia spectaculars. In a city known for its traditional institutions, it offers a remarkable alternative to the Louvre – and a sign that our consumption of art is changing in a dramatic way. » "It's not a competition between real paintings and digital... it's a voyage into art"





Clockwise from left-Hito Steyerl's Actual RealityOS at the Serpentine, London; KooJeong A's density, AR ice cube for Frieze; Nick Cave's Soundsuits on an Apple [AR]T walk; MORI Building DIGITAL ART MUSEUM: teamLab Borderless

"It's not a competition between the real paintings and the digital paintings. It's something new," says Michael Couzigou, director of the Atelier. "It's another view, it's another world, a voyage into art."

While he says the digital art centre isn't meant as a replacement for traditional galleries, it does makes art accessible for those who find going to big cultural institutions intimidating. Most of the 4,000-or-so daily visitors are families, young people or students. "They come because some of them think museums can be boring," explains Couzigou. While silence is still required of them, visitors can see the show from different angles, whether sitting or standing. "Or you can lie down on the floor and just dream," he says.

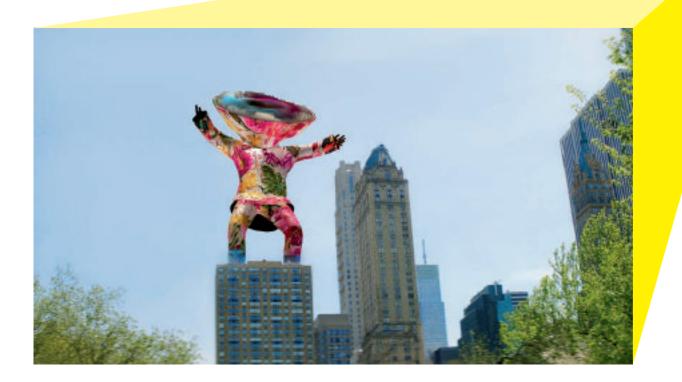
Purists might frown but, thanks to advancements in technology and the proliferation of personal devices like smartphones, we're already living in a digital world. Why shouldn't today's art be presented in a way that speaks to that reality?

It's not just places like the Atelier des Lumières, as well as the broadly similar ARTECHOUSE – now

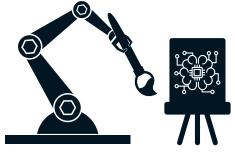
in Washington, Miami and New York – that are playing around with the new possibilities that technologies afford. Some artists are creating works that only exist in the digital sphere.

From its headquarters in London, the Acute Art lab has collaborated with a number of internationally renowned contemporary figures – including Marina Abramović, Jeff Koons, Antony Gormley and Olafur Eliasson – on those that incorporate virtual reality (computer-generated 3D environments), augmented reality (computergenerated images superimposed on a live view of the real world) and mixed-reality (a blend of real and computer-generated environments).

In September, it was responsible for a floating ice cube by South Korean artist Koo Jeong A, which appeared to visitors (smartphone dependent) in London's Regent's Park – an AR first for the Frieze London art fair. The team's latest VR project, now on view at the Julia Stoschek Collection in Berlin, immerses visitors into the drug-addled brain of Norwegian artist Bjarne Melgaard. » HTO STEVERL, POWER PLANTS, INSTALLATION VIEW, INAPRIL - 6 MAY 2019, SERPENTINE GALLERIES, AR APPLICATION DESIGN BY AVHAM GHRAOW, Developed by Ivanjo Getov, Luxlood, Courtesy of the Artist, Andrew Kreps Gallery New York) and esther Schipper Gallery (Berlin) Photograph © 2019 Readsreads.info; Koo Jeong A, Density (2019), From the Series Prereduisties 7, Auguented Realith Courtesy the Photograph © 2019 Readsreads.info; Koo Jeong A, Density (2019), From the Series Prereduisties 7, Auguented Realith Courtesy the







Rise of the robot artists

New technologies aren't just helping us to see art in different ways, they're creating their own forms of expression.

Take Generative Adversarial Networks, or GANs. These are AI systems that can be fed with examples of a particular genre and that then output something in the same vein. The most famous example is the controversial *Portrait of Edmond de Belamy*, which sold last year at Christie's for US\$432,500.

Similar to these are Creative Adversarial Networks, or CANS, which try to create novelty rather than consistency when outputting their artistic efforts. One – AICAN – was behind the first solo gallery exhibit from an Al artist, *Faceless Portraits Transcending Time*, which ran earlier this year at the HG Contemporary gallery in NYC.

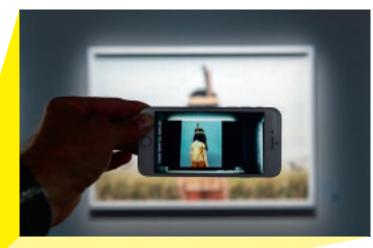
Then there are actual robot artists, like Ai-Da, a realistic humanoid named after Ada Lovelace, the world's first female programmer. Known for her "jagged, fragmented" style, Ai-Da has already made \$1 million from art sales. Be in no doubt: in the art world at least, the future is here. ai-darobot.com Acute Art's artistic director Daniel Birnbaum, who previously served as director of Stockholm's Moderna Museet, sees the roots of these projects in the Bell Labs' Experiments in Art and Technology (EAT) programme from the 1960s on. EAT famously saw the likes of Robert Rauschenberg, John Cage and Lucinda Childs working with engineers to create avant-garde performance artworks that incorporated wireless sound transmission, sonar and video projection – the latest technologies of the time.

The work of EAT has been heavily referenced for the past 50 years, but now the latest technologies are providing a quantum leap in the genre, providing exciting new digital landscapes to explore.

"It seems very clear that the new technologies – AR and VR and mixed-reality – are visually very, very strong," says Birnbaum.

As a result, he says, projects that use this tech are becoming more popular. Just this year, The Louvre's new VR *Mona Lisa* was unveiled as part of its blockbuster da Vinci exhibition; Ian Cheng's video-game simulations wowed the Venice Biennale; and Apple's [AR]T walks, produced in collaboration with New York's New Museum, pioneered a curated approach to public art – like *Pokémon GO* but with virtual sculptures by Nick Cave, Cao Fei and Carsten Höller instead of cute critters.

"Our mission is to develop new tools to make museum collections accessible"



At the same time, exhibitions – from *Rembrandt* at the Mauritshuis museum in Amsterdam to the Serpentine's Hito Steyerl retrospective in London – are incorporating companion smartphone apps that are triggered to respond to visual cues. They can present the viewer with more information or behind-the-scenes "Easter eggs" that gamify otherwise low-fi gallery experiences.

But while the technology has come a long way – far past what could have been conceived 20 years ago – digital art is still in its infancy. "Things are not quite developed yet," says Birnbaum. "It's not that one cannot develop quite fantastic works. It's more like, 'How do they reach an audience?"

He points to VR as an example: the most sublime works are still presented through "vulgar" helmets that are often heavy and restrictive, which limits their appeal, and prolonged exposure to VR has been known to cause motion sickness.



From left Fotografiska's Saga Wendotte exhibition has a companion app; Danish-Icelandic artist Olafur Eliasson has collaborated with Acute Art; the VR Mona Lisa at the Louvre



Many institutions aren't equipped with the technology to show different types of digital art – be it the number of cutting-edge cameras used to illuminate the Atelier des Lumières, or enough VR headsets to accommodate their regular flow of visitors (the Louvre welcomed a record 10.2 million people last year, for example). This limits the reach of such works, which further compounds the issue of access.

There is, however, now a way to bring digitised art works to you wherever you are. Google Arts & Culture, a non-profit arm of the internet search company, has helped more than 2,000 institutions digitise their collections, and its app provides free access to world-class art. The Art Projector feature lets users project works on to their own walls, while the Pocket Gallery function allows you to walk the halls of a curated virtual space, taking in the complete works of Vermeer or a group show dedicated to colour.

"Our mission is to be an innovation partner for the cultural sector through technology, developing new tools to help museums preserve their collections and make them accessible," says Lucy Schwartz, who manages Google Arts & Culture initiatives and collaborations in the UK. "We're thinking about how technology can allow people to experience culture in new ways, too."

The future of digital art is as hard to pin down as the future of gaming, entertainment or social media. Like those industries, what is possible will ultimately depend on how technology progresses. Both Schwartz and Birnbaum envision future AR experiences that merge seamlessly with the viewer's surroundings. They, along with Couzigou, are confident that VR headsets will eventually become sleek, light and sophisticated enough to overcome their current hurdles.

But whatever comes next, there will surely be an audience for it. In 2018, teamLab Borderless, the immersive museum from art collective teamLab in Tokyo, welcomed 2.3 million visitors – more than any other museum dedicated to a single artist. With 2.1 million visitors, the Van Gogh Museum in Amsterdam came a close second. *Norwegian flies to Paris, New York, London, Venice, Berlin and Amsterdam. Book flights, a hotel and a rental car at Norwegian.com*

Digital art to see this autumn



Machine Hallucination

Los Angeles artist Refik Anadol combines artificial intelligence and video projections to inaugurate the digital art space at ARTECHOUSE, New York. Until 17 November. artechouse.com/nyc



Bjarne Melgaard Working with Acute Art, the subversive Norwegian artist presents a virtualreality exploration into the Dark Web at the Julia Stoschek Collection in Berlin. Until 15 December. jsc.art/exhibitions



I Magma

Jenna Sutela's "machine oracle" at London's Serpentine divines the future using artificial intelligence and sends its predictions to your smartphone via an app. Until 12 January. serpentinegalleries.org