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NFTs and AI converge in a dynamic digital art world at ArtScience Museum

Timely new exhibition Notes From the Ether: From NFTs to AI explores how emerging technologies are transforming the future of art



SINGAPORE (15 August 2023) – ArtScience Museum’s latest exhibition, *Notes From the Ether: From NFTs to AI*, offers a gateway into a new frontier of digital art driven by technologies that are shaping artistic expression today. Running from 19 August to 24 September, this show invites both enthusiasts and newcomers to encounter artworks by contemporary artists who are pushing the boundaries of creativity through Non-Fungible Tokens (NFTs) and Generative Artificial Intelligence (AI).

Across time, artists have led the way in challenging conventions and adopting new technologies to expand their canvas of creative expression. The rapidly developing fields of blockchain and AI have taken the world by storm in recent years, with NFTs allowing for clarity of ownership and authentication, as well as the development of new online communities. Generative AI has also shot to prominence in the past year due to new platforms such as ChatGPT and Midjourney, which have the potential to serve as powerful co-pilots in the creation of art. However, these new technologies also raise complex societal issues about the future of artistic expression, which are explored in *Notes From the Ether*.

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Curated by Deborah Lim from ArtScience Museum, and independent curator Clara Che Wei Peh, *Notes From the Ether* brings together 20 artists to explore these new realms. Among them are pioneers such as Simon Denny, Holly Herndon, Rhea Myers, Jonas Lund and Memo Akten. They are joined by important contemporary digital artists including Emily Xie, Sarah Friend, AI artist Botto and local artists jo+kapi. Collectively these artists are bridging the gap between human and machine in their artistic endeavours, and raising questions about the challenges these new technologies pose on a personal and societal level.

Visitors to the exhibition will experience cutting-edge installations and interactive showcases. From vibrant images created in code to self-portraits generated in collaboration with the machine, this exhibition explores a future where art, culture and technology seamlessly converge.

"ArtScience Museum is pleased to present Singapore's first museum exhibition exploring the phenomena of NFTs and generative AI. *Notes From the Ether* brings together 20 artists who operate at the cutting edge of contemporary art and technology. Whilst NFTs and generative AI have undoubtedly transformed our understanding of what art can be, at the same time these new technologies raise complex issues around ownership, authorship and the automation of creative labour, which warrant deeper consideration at a societal level. *Notes From the Ether* emerged from a process of Rapid-Response Curation – a new approach in museum curation in which curators address recent trends, current topics or social concerns. We have put this exhibition together more rapidly than usual as we feel that these new technologies are shifting our understanding of art and the process of creation more broadly, and so quickly and profoundly, that we needed to reflect on this now. We are grateful that our curator, Deborah Lim, together with independent curator Clara Che Wei Peh, rose to the challenge of producing this exhibition this year. The show they have curated is vibrant and dynamic and will appeal to curious minds wishing to learn more about contemporary digital art," said Honor Harger, Vice President of ArtScience Museum and Attractions at Marina Bay Sands.

"The interdependence of humans and technology is symbolic to me of a desire for constant progress and innovation, and the emerging technologies of NFTs and generative AI have taken over our social consciousness in the recent year. Artists have historically adopted the latest technologies to push the boundaries of their works, and *Notes From the Ether* profiles 20 artists with cutting-edge artistic practices. I hope that visitors approach the exhibition with openness and curiosity to these topics, prompted to do further research into how technology is changing our world," said Deborah Lim, Curator of Exhibitions at ArtScience Museum.

"*Notes From the Ether* is one of Southeast Asia's first institutional exhibitions addressing art on the blockchain and the impacts of generative AI. It is a timely reflection on how artists have innovated around these emerging technologies thus far while providing a glimpse into what is to come. The exhibition starts with code and the basic building blocks of computer art before ending by asking questions about our collective futures as human and machine become increasingly intertwined," said independent curator Clara Che Wei Peh. "While many of these works are

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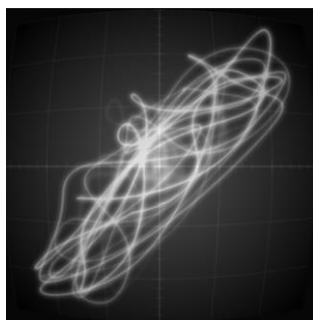


technologically complex, they speak to ideas and themes familiar to all of us – of connection, collaboration and identity. I am honoured to have the opportunity to develop this exhibition as a guest curator at ArtScience Museum and be a part of this important discussion,” she added.

Notes From the Ether: From NFTs to AI Galleries and Highlights

1: Coded Possibilities

The first gallery is dedicated to the origins of digital art, showcasing works created with code and algorithms—the very building blocks of computers.



Series 0 Synth Poems #8 (still), 2022 by DEAFBEEF

Series 0 Synth Poems by DEAFBEEF consists of one-minute pieces which incorporate FM (frequency modulation) synthesis. Originally used for broadcast radio and later expanded into audio synthesis, FM synthesis creates rich and harmonic sounds. The audio channels are then mapped to an oscilloscope which is an instrument that displays and examines electronic signals, to produce a visualisation of an audio wave. A trained electrical engineer, sound recordist and musician, DEAFBEEF generates and stores sound and video using the foundational computing language, C, and the Ethereum blockchain, thereby demonstrating that artists do not require complex tools to produce dynamic digital works.



L to R: *Memories of Qilin #714 (2022)*; *Memories of Qilin #809 (2022)* by Emily Xie

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A generative artist and software engineer, Emily Xie creates lifelike textures, patterns and forms with algorithms. Her artwork series *Memories of Qilin* explores the concept of folklore through code, evoking mythological imagery of dragons and phoenixes that draw inspiration from Japanese woodblock prints and classical Chinese paintings with their vibrant colours, patterns, and forms.

Larva Labs, Aaron Penne and Tyler Hobbs demonstrate how geometric patterns and shapes can be formed using algorithms and code, while Harm van den Dorpel navigates the boundaries between the organic and programmed.

2: Co-Creation

With advancements in AI, artists have been increasingly collaborating with machines in a bid to explore new approaches to artmaking. In this gallery, Botto – a fully autonomous artist that generates art based on community feedback – builds upon the idea of human-machine co-creation.



L to R: *Learn Adieu* (2022); *Travel Study* (2022); *Attempt Deepen* (2022) by Botto

Conceptualised and designed by artist Mario Klingemann and software collective ElevenYellow, Botto creates new art from its AI-powered art engine. Its creations are then selected by a computational taste model and Botto's several thousand community members vote for their favourite pieces each week. The selected artwork is then minted as an NFT as a finalised work.

Four printed copies of Botto's artworks from 2021 to 2022 are on display in the gallery, illustrating its versatile artistic language.

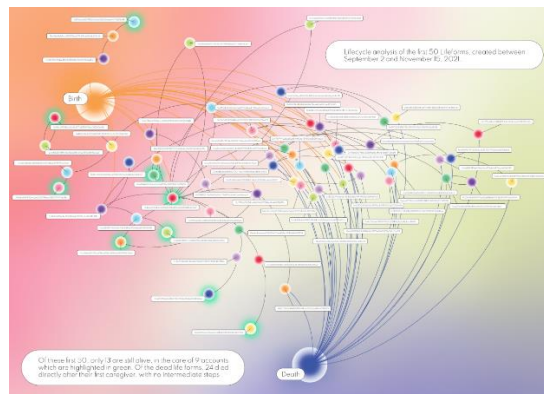
Designed to run autonomously and exhibit its own agency, Botto also shows visitors how machines can express themselves creatively. It reimagines artmaking while challenging established notions of authorship and agency.

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3: Networked Systems

Networked systems refer to a group of interconnected devices or nodes which share resources and information, taking the form of computer networks such as the Internet or social networks like organisations and communities. The gallery spotlights an emerging networked system – the blockchain – through three artworks created by Sarah Friend, jo+kapi and Burak Arikan. These artworks are designed to evolve over time as audiences interact with them.



Lifeforms (diagram), 2022 by Sarah Friend

In Sarah Friend's *Lifeforms*, visitors will encounter an NFT that relies on regular care from its collectors to survive and thrive. A collector must give a *Lifeform* away within 90 days of receiving it, or it will “die” in their wallets. Through the continuous transfer of *Lifeforms*, this project subverts the expectations of an NFT by creating connections and social networks on the blockchain that foster a sense of community and care among collectors.



ENZYME 1.0 (2023) by jo+kapi

With *ENZYME 1.2.*, jo+kapi – a collaboration between local media artists and creative technologists Jo Ho and Kapilan Naidu – questions the constant trading and transferal of digital

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art that is encouraged by the NFT market. By scanning a QR code, visitors can choose and "purchase" one of five AI-generated NFT artworks. Each time the artwork is scanned, a pixel appears until the artworks are eventually obscured over time, reflecting the degradation of digital files with every transaction and transfer.

4: Physical-Digital

Amidst the blurring lines between physical and virtual reality, this gallery presents artworks by Sarah Meyohas, Mitchell F Chan, Rhea Myers, Simon Denny and Jonas Lund that highlight the nuanced interplay between tangible and intangible art.

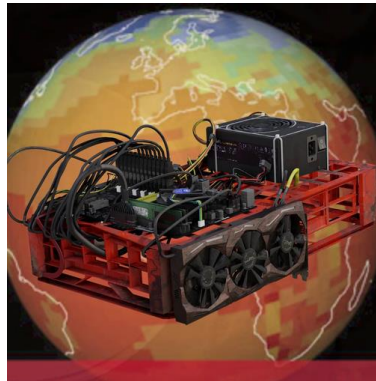
Each of the works address the volatility of value, ownership and interaction with regards to the adoption of blockchain for the authentication and distribution of artworks. Some contemplate if an artwork is valuable if an artist deems it so, while others facilitate a multi-dimensional and long-term relationship between the artist and the collector that extends beyond the screen.



Bitchcoin (still), 2015 by Sarah Meyohas

As a conceptual artist and pioneer in the field of crypto art, Sarah Meyohas launched her own blockchain and token project titled *Bitchcoin*. Driven by her fascination with the immaterial value of cryptocurrencies and art investment, *Bitchcoin* offers a way for collectors to literally invest in her future. The value of *Bitchcoin* tokens created in 2015 are backed by physical pressed petals related to the artist's 2017 *Cloud of Petals* series.

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NFT Mine Offset ETH Ethereum Miner 3 GPUs (still), 2021 by Simon Denny

Next, the *NFT Mine Offset* series by Simon Denny responds to the perceived environmental costs that are incurred by using crypto networks such as Ethereum. He purchased five secondhand Ethereum mining computers and worked with a gaming illustrator to produce detailed 3D portraits of the mining computer to form new digital artworks. Upon releasing these artworks as NFTs, he removed the mining computers from the Ethereum network completely and donated the processing power from the machines' Graphical Processing Units (GPUs) to climate research. This offset mimics the carbon offsets that companies are trying to achieve in the physical world.

5: Expanded Self I



L to R: *x | o 34* (2022); *x | o 40* (2022); *x | o 45* (2022) by Holly Herndon and Mathew Dryhurst

The next gallery immerses visitors in experiments of digital identity – a reminder that digital technology is becoming an extension of the physical self especially with the rise of generative AI, deepfakes and personable chatbots. Multidisciplinary artists Holly Herndon and Mathew Dryhurst survey this new landscape in their practices. The *CLASSIFIED* series introduces 80 AI-generated self-portraits that capture the many facets of “Holly Herndon”, as envisioned by what the machine knows of her. Three of these portraits will be featured in the exhibition.

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Next, *Holly+* is Holly Herndon's digital twin, developed in collaboration with Herndon Dryhurst Studio, Never Before Heard Sounds and Voicemod. It is an AI-driven voice tool that has the capability to take any audio input and reinterpret it in Herndon's voice. Here, *Holly+* is presented as an interactive installation, designed to encourage visitors to freely create art within a custom-built recording booth with real-time voice transfer. By experimenting with her own intellectual property and releasing her voice to the public, Herndon not only highlights the creative possibilities of AI voice models but also sets precedent in a rapidly-evolving music industry with a permissive approach to copyright.

6: Expanded Self II

This gallery continues the conversation through the explorative lens of Ninaad Kothawade and Rimbawan Gerilya, who echo and expand on Holly Herndon's artworks in *Expanded Self I*.



Consume (still), 2023 by Ninaad Kothawade

In *Consume*, Ninaad Kothawade creates self-portraits using AI to question the artist's relationship with technology as well as explore the boundary between the self and the machine. His work involves feeding an AI model with photos of himself to generate variations of his likeness. The animation weaves together 1,800 images and loops back with differing iterations of the artist's likeness to reflect the back-and-forth process of working with technology, which can be both a blessing and a burden.

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Solitary Grave I (still), 2022 by Rimbawan Gerilya

In *Solitary Grave I*, Rimbawan Gerilya speculates what AI agents and machines would do if they experienced death. Using an AI-generated face, Gerilya imagines funeral and burial practices that AI agents might hold for each other, mirroring human cultures and traditions. Visitors are encouraged to rethink what separates humans from machines by imagining a world where machines gain sentience and succumb to mortality.

7: Collective Futures

Technologies are evolving exponentially across every industry, from healthcare to law to art. Humans are augmented or vastly extended with avatars and other digital personas, changing notions of the self and identity. The final gallery attempts to portray humanity's collective future in terms of societal developments and human-machine interactions.

Artist Memo Akten addresses this interconnectedness between humans and machines through two captivating artworks, emphasising that everything coexists in a complex ecosystem.



Deep Meditations: A brief history of almost everything (still), 2018 by Memo Akten

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Deep Meditations is a large-scale video and sound installation. It celebrates life, nature, the universe, and the personal experiences of human beings in relation to the world. The work is a contemplative and spiritual journey, which reflects the imagination of an artificial neural network through shifting images and sounds. In this hour-long film, visitors are invited to acknowledge how all living and non-living beings are interconnected, across time and space, from the smallest microbes to galaxies of the universe.

Finally, visitors can leave their own stamp on the world of digital art through a special collaboration between akaSwap, TZ APAC and ArtScience Museum titled *Chaos & AI Research*. They can co-create artworks by uploading any photo of their choice, which will be transformed by AI into art on the Tezos blockchain. Visitors can take home a little piece of the exhibition by choosing to mint their artwork as an NFT.

In conjunction with the exhibition, there will be an artist talk with Memo Akten aimed at engaging visitors in deeper conversations about AI.

Notes From the Ether: From NFTs to AI will run from 19 August to 24 September 2023.

Tickets and Reservations

Tickets are available for purchase at all Marina Bay Sands box offices and online. It is recommended that guests pre-purchase tickets online in advance due to limited capacity and timed entry of the exhibition.

For more information on *Notes from the Ether* please visit

<https://www.marinabaysands.com/museum/exhibitions/notes-from-the-ether.html>

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About Marina Bay Sands Pte Ltd

Marina Bay Sands is Asia's leading business, leisure and entertainment destination. The integrated resort features Singapore's largest hotel with over 2,200 luxurious rooms and suites, crowned by the spectacular Sands SkyPark and iconic infinity pool. Its stunning architecture and compelling programming, including state-of-the-art convention and exhibition facilities, Asia's best luxury shopping mall, world-class dining and entertainment, as well as cutting-edge exhibitions at ArtScience Museum, have transformed the country's skyline and tourism landscape since it opened in 2010.

Marina Bay Sands is dedicated to being a good corporate citizen to serve its people, communities and environment. As one of the largest players in hospitality, it employs more than 11,000 Team Members across the property. It drives social impact through its community engagement programme, Sands Cares, and leads environmental stewardship through its global sustainability programme, Sands ECO360.

For more information, please visit www.marinabaysands.com

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About ArtScience Museum

ArtScience Museum is a major cultural institution in Singapore that explores the intersection between art, science, technology and culture. It is the cultural component of Marina Bay Sands. Since its opening in February 2011, ArtScience Museum has staged large-scale exhibitions by some of the world's major artists, including Leonardo da Vinci, M.C. Escher, Salvador Dalí, Andy Warhol and Vincent Van Gogh, as well as exhibitions that explore aspects of science and technology – including particle physics, big data, robotics, palaeontology, marine biology and space science. For more information, please visit www.marinabaysands.com/museum.html

Media Enquiries

Julia Tan: +65 8380 4031/ julia.tan@marinabaysands.com
Sarina Pushkarna: +65 9298 5728/ sarina.pushkarna@marinabaysands.com

For hi-res images, please click [here](#). (Credit images as indicated in the captions)

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Appendix I – Full list of participating artists

Names	Names
Memo Akten	Tyler Hobbs and Dandelion Wist
Burak Arikan	jo+kapi
Botto	Larva Labs
Mitchell F Chan	Jonas Lund
DEAFBEEF	Ninaad Kothawade
Simon Denny	Sarah Meyohas
Harm van den Dorpel	Rhea Myers
Sarah Friend	Aaron Penne
Rimbawan Gerilya	Aluan Wang
Holly Herndon & Mathew Dryhurst	Emily Xie