

# *NFT Shop and Making Sense of the NFT Art Market. Is NFT a blessing or a curse to digital art?*

Varvara Guljajeva <sup>a b \*</sup> and Mar Canet Sola <sup>c \*</sup>

<sup>a</sup> CMA, Hong Kong University of Science and Technology (Guangzhou), China

<sup>b</sup> ISD, Hong Kong University of Science and Technology, Hong Kong

<sup>c</sup> Baltic Film, Media and Arts School, Tallinn University, Estonia

## **Abstract**

In 2021, the concept of NFTs gained worldwide attention when a digital artist known as ‘Beeple’ sold his work *Everydays: The First 5000 Days* for 69 million US dollars at Christie’s, placing him among the top three living artists by sale value (Kastrenakes, 2021). Since then, “non-fungible token” (or “NFT”) has rapidly become a high-scoring term on Google Trends and there has been corresponding growth in the number of artists, collectors, and platforms dealing with NFTs.

Because of the many NFT platforms, the enormous volume of NFTs, the involvement of various cryptocurrencies, the fluctuating prices, and unpredictability of trends, navigating the NFT art market is very complicated. In an attempt to engage in this new sphere of speculation (and to speculate about it), we opened a physical NFT Shop at an abandoned gas station. Besides NFT art, we offered conversation and warm coffee to visitors. Surprisingly, we found almost everyone we met had heard about NFTs, although few demonstrated any in-depth knowledge.

Our NFT Shop was expressly concerned with displaying only ‘clean’ NFTs, thereby underlining the environmental impact of typical blockchain technology. Tezos, a cryptocurrency known as a clean and eco-friendly ‘crypto’, is gaining popularity in the NFT art market as an alternative to Ethereum, which has a high carbon footprint (McDonald, 2021) and high minting cost. According to Memo Akten’s *A guide to eco-friendly CryptoArt*, the cost of transactions in Ethereum fluctuates between \$100-\$1000 (Akten, 2021), which is in stark contrast to Tezos where exchange fees are currently below a dollar. The high energy consumption of blockchain has generated strong opposition, especially among artists. Thus, many alternative NFT platforms such as *objkt* and *fx(hash)* use Tezos and brand themselves as an eco-friendly and affordable marketplaces.

Despite the availability of relatively clean cryptos, many digital artists prefer not to be associated with CryptoArt of any kind. At the same time, the general audience for art largely assumes that all digital art is NFT art. From the perspective of digital artists, it is difficult to say whether NFTs are a blessing or a curse. On the one hand, the art market has become receptive to digital formats so many artists now have the opportunity to make a living from their art. On the other hand there remains much that seems ‘unclean’ about NFT markets, although all transactions are entirely transparent.

---

\*Both authors contributed equally

It is in this context that this paper and our art project NFT Shop aim to offer a framework for making sense of the NFT marketplaces and thus help to demystify the concepts of NFT and related platforms.

*Keywords:* NFT, NFT art, CryptoArt, NFT art market, NFT platform, art market, cryptocurrency, digital art, generative art, metaverse, blockchain.

## 1 Introduction

NFT is an acronym for ‘Non-Fungible Token’. NFTs are unique entries on a blockchain that cannot be replicated. This quality makes NFTs well-suited for digital assets, such as art, collectibles, and in-game objects, as it proves the ownership and originality of a particular work and can enable the author to secure royalties from the use, sale or distribution of their work.



Figure 1: NFT Shop at UIT Festival in Tartu, 18 - 21 Aug 2021 by Varvara & Mar. © Varvara & Mar 2021.

Since NFTs make use of blockchain technology, they are mainly traded with cryptocurrency, and consequently, the NFT game is hyper-commercialized and volatile. At the time of writing this article, on 1 August 2022, the 24-hour average trading volume of the NFT market is nearly 29 million USD with a volume of 25,679 sales<sup>1</sup> (the volume of the entire crypto market is over 108 billion USD<sup>2</sup>), which is much lower than its recent peak on the 1st May 2022 when value of all NFT trading reached 811 million USD<sup>3</sup>. Because NFT is traded in cryptocurrency the volatility of the crypto market directly impacts the NFT market. Thus, if crypto is down the value of NFTs will also fall and vice-versa.

NFTs first gained popularity in gaming in 2017. As we now know, “early investors obtain thousandfold returns by selling unique digital collectibles” (Wang et al., 2021): CryptoPunk (released in June 2017) and CryptoKitties (released in Oct 2017) were among the first NFTs on Ethereum and today both cost huge sums of money to invest in. Initially launched as an experiment, the rise in popularity of CryptoKitties caused a temporary bottleneck slowing transactions on the Ethereum network in late 2018<sup>4</sup>. Today, the price of a single CryptoKitty can be six figures or more depending on the particular Kittie.

When it comes to NFT art, the pivot point was the sale of Beeple’s NFT-based digital artwork *Everydays: The First 5000 Days* at Christie’s auction for over 69.3 million USD at the end of Feb 2021 (Riegelhaupt, 2021). This was also the first time Christie’s would accept payment in cryptocurrency Ethereum (Thaddeus-Johns, 2021). This occasion triggered huge interest in NFTs, which resulted in a growing number of minted and collected NFTs and the appearance of new platforms and galleries that focus especially on NFT art.

In addition to the huge sale price at Christie’s, the COVID pandemic may also have contributed to the growth of the NFT art market (Luke et al., 2021). Since most of the usual physical exhibition spaces were closed, art fairs could not take place and people instead attended to their computer screens. The art scene was forced to embrace digital and new commercial formats like NFTs, which proved to be potentially very profitable. While the NFT art market was booming, traditional art market sales experienced a decline

---

<sup>1</sup>Data source Market Tracker (1 Aug, 2022) <https://nonfungible.com/market-tracker>

<sup>2</sup>Data source Coingecko (1 Aug, 2022) <https://www.coingecko.com/en/global-charts>

<sup>3</sup>Data source Market Tracker (1 Aug, 2022) <https://nonfungible.com/market-tracker>

<sup>4</sup>The Inside Story of the CryptoKitties Congestion Crisis. 2018. <https://consensys.net/blog/news/the-inside-story-of-the-cryptokitties-congestion-crisis/>

until in-person or hybrid online/in-person events were allowed again (Gaskin, 2022).

Interestingly, when the Covid pandemic declined, NFTs exhibitions also began to take place in physical space, although all the transactions continued to be made online. In March 2021, Superchief (Alter, 2021) opened the world’s first physical NFT art gallery in New York and was quickly followed by many others. This new kind of gallery is typically a space full of screens where the different NFT are displayed. In September 2021, the first NFT art fair ‘Digital Art Fair Asian - NFT Hong Kong’ was organized (Navlakha, 2021). More recently, in March 2022, the first NFT permanent museum opened in Seattle <sup>5</sup>. We have not even mentioned the metaverse, which seems to be the natural place for NFTs. In summary, there can be no doubt that the NFT art market is very dynamic and its growth is accelerating rapidly.

On the flip side, NFTs have received lots of criticism. The first problem is the carbon footprint of blockchain technology. A number of cryptocurrencies, like Ethereum (ETH), are very computation expensive. This means that every minting or transaction of an NFT in this cryptocurrency is not environmentally friendly. For this reason, many artists and the general public are against all NFTs and missing the point that there are also eco-friendly technologies available, such as Tezos. Digital and NFT artist Memo Atken has written a guide to eco-friendly CryptoArt where he explains basic concepts of the NFT art market and introduces ways in which their use can be more eco-friendly (Akten, 2021). In summary, it is way better to use clean NFTs than energy-expensive ones based on EHT. Moreover, Tezos is very much community-oriented and inclusive.

Besides the environmental issue, Paul Slocum warns us of the hype surrounding blockchain technology and argues that NFTs are no better than the traditional way of selling digital art. Based on more than 10 years of experience, he shares the following: “The concerns about extreme overinvestment in the dot-com bubble were not about the technology itself. This widespread backlash by mainstream software developers to a new technology like crypto and NFTs is unlike anything I’ve ever seen in the software industry” (Slocum, 2022).

---

<sup>5</sup>World’s first NFT museum in Seattle aims to ‘pull back the curtain’ on blockchain art. 2022. <https://www.weforum.org/agenda/2022/05/worlds-first-nft-museum-seattle/>



Figure 2: Replacing fuel with Tezos and diesel with gas fees, and hijacking corporate identity in the NFT Shop at UIT Festival in Tartu, 18 - 21 Aug 2021 by Varvara & Mar. © Varvara & Mar 2021.

## 2 Making sense of the NFT art market

Despite the many available sources of information, the majority of people find it difficult to understand the idea behind NFTs and even more difficult to make sense of the NFT art market. Actually, the same can be said about the crypto-economy in general. One reason for the complexity is decentralization: there are not just one or two big players and a single cryptocurrency but many NFT platforms operate across a variety of cryptocurrencies, so there is a vast array of different online information. In addition, everything happens extremely fast: “The NFT market is less than four years old and has boomed in 2021.” (Wang et al., 2021).

As a method for making sense of the NFT art market, we propose three clusters of NFT platforms by volume of sales: large, medium, and small-scale. The large markets are those with over 300,000 non-fungible tokens, like Open Sea, hic et nunc (before it closed down), objekt, and Rarible. These platforms do not have any artist selection process: everyone who wants can sell NFTs on these platforms. This also means that there is a wide



Figure 3: Intervening an information display of an abandoned gas station that had formerly shown gas prices and now showed Tezos at NFT Shop in Tartu. © Varvara & Mar 2021.

range of content of various qualities. One needs to be very knowledgeable in NFT art to purchase something valuable. In addition, one needs to watch out for potential forgeries. Mario Klingemann's NFT, which is a screenshot of a tweet, illustrates well the problem: "I screengrabbed your NFT, now I own it." and Mario replies to the tweet, "I screengrabbed your tweet, now I sell it." (Klingerman, 2021)

The medium-scale group is represented by platforms with sales between 10,000 and 300,000, such as Art Blocks, fx(hash), SuperRear, Nifty Gateway, and Foundation. These platforms demonstrate some kind of selection filter, either by restricting entry or limiting the type of art they show, or both. For example, Art Blocks and fx(hash) are known as platforms for generative art. Last but not least, the small-scale platforms are the most restricted ones, with the lowest sale volume accordingly: less than 10,000. Those are, for example, Feral File, Endless Ways, and a\terHEN. The small-scale NFT art venues operate like a gallery in a traditional sense: they curate each exhibition (often a curator is invited

for that purpose), and the artists shown are by invitation only. Usually, these platforms do not ask artists to pay the ‘gas’ (computation energy) fees for producing their token, but just to make a new work for the exhibition. Also, the minting of each NFT is controlled by a platform.

To sum up, the large-scale NFT marketplaces are big because there are no theme or genre restrictions, curatorship, or artist selection methods. They allow total freedom so long as one pays the fees. Middle-scale markets demonstrate some filtering in the selection of artists: either they employ a board of experts, as with ArtBlocks, or they include artists based on recommendations from other members as is the case with Foundation. In addition to restricting access by portfolio and professional network, we see genre-based restrictions as another characteristic of this group. A number of platforms, like fx(hash) or ArtBlocks, display generative art exclusively. The final group, small-scale markets, have the strongest filters and are the closest to traditional exhibitions in terms of selectivity and format. Typically, these are artist- or gallery-run platforms with regular curated exhibitions showing established artists, making an easy and safe environment for NFT art buyers.

Another significant factor in the variety of formats is the blockchain technology behind the platforms, or in other words, the cryptocurrency they operate in. As mentioned before, Ethereum (ETH) requires lots of calculations and thus energy. This results in high gas fees for minting an NFT. On average, it costs around 300 euros to convert a digital asset into an NFT (it was much less expensive before the cost of Ethereum increased) and the process also has a cost in its carbon footprint. Despite these drawbacks, many users invest for the potential of high earnings (EHT has grown over 1000% since it started <sup>6</sup>), by which we mean millions of dollars. For example, Refik Anadol <sup>7</sup> made 13 million USD and Casey Reas<sup>8</sup> nearly 7 million USD. Since blockchain is completely transparent one can follow every transaction that takes place on the platform.

The eco-friendly option, like Tezos, may be less profitable in terms of quick crypto-cash profit, but is a better option in the long run. Also, because of its accessibility and lower energy use, Tezos tends to be more inclusive due to its low gas fees and lower sale prices, and it has created more communities due to the artist having been involved in the construction

---

<sup>6</sup>Data from <https://www.statista.com/statistics/806453/price-of-ethereum/>

<sup>7</sup>Data from <https://cryptoart.io/artist/refikanadol>

<sup>8</sup>Data from <https://cryptoart.io/artist/reas>

of the platforms like *hic et nunc*.

### 3 From an abandoned gas station to an NFT Shop

In general, society is not used to such high volatility of prices, except perhaps gas prices. So, when we were offered an abandoned gas station as a location for our artwork during UIT Festival in the south of Estonia, the idea of placing an NFT Shop seemed obvious to us. More precisely, the NFT Shop was part of the urban art festival UIT, which took place in Tartu, Estonia, during 18th to 21st August 2021. That year's festival theme was parasite architecture, which made us think about crypto and the NFT market, its ecological footprint, and the changing economy in general. We do not identify ourselves as NFT artists, but when all these topics rolled out, the NFT shop in a closed-down gas station made perfect sense (see Figure 1). Similarly, Marina Abramović explained the reason behind her own first NFT *The Hero 25FPS*: "I didn't do NFTs for a while because I needed to find the right concept." (Lambo, 2022)

In order to create a true experience for the audience, we hijacked the corporate branding of the old gas station (this particular one was Olerex previously). We prepared uniforms, made the NFT Shop logo, and sprayed the building over with related visuals; on the shop shelves, we placed our NFTs on the second- (or already third-) hand monitors as trading commodities, and most importantly, we managed to intervene in the information screen that had originally displayed the fuel prices (see Figures 2 and 3); thus we were able to change the Tezos rate and related gas prices daily, just as regular gas stations normally do. The parallels between these two economies were particularly important for this project, and we think we managed to draw out the similarities effectively.

In addition to the clean NFTs (all based on Tezos), we also had coffee and popcorn machines at the shop. The hot coffee and tasty popcorn encouraged people to stay for a longer and engage in conversation about the NFT art market (see Figure 5). In the end, we were engaged in speculative discussions about the speculative nature of NFT and crypto markets in general. Blockchain is stored somewhere in the cloud, making the concepts around it elusive and difficult to understand. Moreover, the financial gains may appear fictitious until the time comes to declare tax, and then dreams of wealth begin to melt



Figure 4: NFT Shop receiving the customers. © Varvara & Mar 2021.

away. In the worst case, one might be accused of money laundering and have all one's assets frozen, as recently happened with the Latvian NFT artist Ilja Borisovs (Escalante-de Mattei, 2022).

All kinds of people stopped by the NFT Shop: festival visitors, curious locals checking out a new business in the neighborhood, random people passing by, and people with an interest in crypto (see Figure 4). The latter group recognized the cryptocurrency logos on our walls. Some so-called crypto miners and/or traders visited the NFT Shop a second time, returning with friends. It is likely that they identified closely with our topic and wanted to share their experience and knowledge. It is known that crypto traders and miners often work alone from home and lack physical community; thus they may have appreciated the opportunity to share some crypto gossip (predictions about what goes up and what goes down) in person. At the same time, the audience on Twitter was also following the project (Twitter is the main communication channel for NFT-related posts).

Regarding the aims of this art project, we intended to offer conversation to the audience about speculations around the speculative NFT art market. We talked about the opportunities and risks of the NFTs, and about crypto in general. The environmental impact was discussed a lot. Most had heard that NFTs consume a considerable amount of energy, but



Figure 5: Discussing NFTs at the NFT Shop. © Varvara & Mar 2021.

they were unaware of eco-friendly options and identified all NFTs with a single cryptocurrency and platform. In addition, we had heated debates over the meaning of art and its value. The main worry expressed during these conversations was about rapidly fluctuating prices, and thus, the seriousness or reliability of the NFT art market versus the traditional one.

Participation in the NFT art market implies a steep learning curve: besides deciding on the platform(s), one needs to make a wallet, buy cryptocurrency, and familiarize oneself with the procedures of NFT, like minting, selling, and even burning if necessary. Hence, we showed the interested visitors how to make a wallet and mint an NFT. In addition, we explained the difference between platforms and cryptocurrencies, which ones are known as eco-friendly and which ones are not. We ourselves used *hic et nunc* at that time (before it got closed down), which ran on Tezos and was classified as a clean NFT platform. For us, it was an important choice not to engage with Ethereum-based NFT art markets.

When it comes to the NFTs on sale at NFT Shop, all of them were our artworks specially created for this project. Some of them were AI-generated, slowly progressing videos, and the others were video poems made with Snap Chat filter humorously and critically addressing crypto economy and hyped art market: Money God, Signal of the World, Poor Banana,

and Sharkie (Guljajeva and Canet Sola, 2021). The works were in line with the NFT Shop concept: they were displayed as commodities on old screens on the shop's shelves and the audience was encouraged to participate in critical discussion. By the end of the day, we had succeeded in selling zero NFTs in our NFT Shop, and sold one of our branded caps. People were interested in the prices but found it too complicated to purchase crypto and create a wallet. We should note that the ultimate purpose of the project was not to sell NFTs.

It was, of course, fun to intervene in the old gas station and re-open it under the new economy, manipulating the virtual concepts for the physical world. Our feeling is that NFTs are more about the art of making money than they are about art itself, and our intervention with the NFT Shop in a formal gas station really underlined this fact: the potential buyers were searching for the best deals, and the sellers were trying to take as big a cut from the deal as possible. In other words, it is a Wild West with very volatile prices.

## **4 DISCUSSION: Is NFT a blessing or a curse to digital art?**

Because of the abundance of information and its fast pace, NFTs and crypto generally have been very difficult to navigate. One needs to follow a large volume of sources and discussions in order to properly understand the NFT market. Of course, by participating in NFT art markets, one will obtain direct and valuable experience, but not everybody becomes a millionaire overnight. Sadly, money has been the main motivation for most players in this field, with few exceptions.

The positive aspect is that NFTs may enable many digital artists to finally become able to make a living from their practice, and a few have become millionaires already. Generative art has succeeded in establishing its position in the NFT art market, which cannot be said about its position in the traditional art market. There are some successful platforms showing only generative art, like Art Blocks in ETH and its alternative fx(hash) in Tezos. However, success cannot be taken for granted. For example, in one interview, Refik Anadol explained that he typically works 18 hours a day (Lacey, 2022).

Traditionally, the art market has been a platform for artist validation. Interestingly,

the top-selling NFT artists, according to Cryptoart.io, have nothing to do with the pioneers of digital art, nor are these top-selling NFT artists the most exhibited ones in the contemporary art scene despite their record sales. This shows that mostly newcomer artists have succeeded in the NFT art sector, are often they are very young and unknown creators (Bruner, 2021). Thus, it is difficult to claim that NFT art represents digital art entirely. Furthermore, the top NFT art sales list is dominated by the artists who sell in Ethereum markets. The reason is that ETH trades are far more expensive than Tezos markets.

When we look at the list of top NFT art sales we see another serious issue with the market: the lack of gender diversity in the NFT space. The top selling female artist is Monica Rizzolli in 14th place and there are very few women to be found across the whole of the top 100. The current NFT art community is foundation for the future of NFT art, and so this gender imbalance threatens to repeat the same patterns that have prejudiced the traditional art market throughout its long history.

The digital art community has been polarized in its attitudes towards NFTs (Charlesworth, 2021), and many digital (or also non-digital) artists prefer to have nothing to do with them. The topic has been the source of intensive Twitter debates, with polarized opinions expressing either love or hate. This polarization can also be seen in the ways in which artists have engaged with NFTs in their art practice. Some artists have dedicated the whole of their last year's art production to NFTs, the least engaged have experimented a little, and a larger proportion of artists did not engage with it all. Although NFTs have already been around for several years, the topic continues to provoke strong opinions.

At the same time, interest from established institutions and powerful figures in the contemporary art should not be overlooked. Art Basel Miami had an entire NFT section in Tezos (Uttam, 2021). Marina Abramovic has minted her first NFT and is also supporting new NFT creators<sup>9</sup>. Hans Ulrich Obrist, together with Beeble, Christiana Ine-Kimba Boyle from Pace Gallery and Sydney Xiong from APENFT, have engaged in an online panel on NFT artworld organized by ArtReview and APENFT<sup>10</sup>. All this, together with big sales in prestigious auction houses, helps to validate NFT art and its market.

Furthermore, the use of NFTs has succeeded in popularizing new formats and aesthetics

---

<sup>9</sup><https://nft.circa.art/>

<sup>10</sup>Talk: How the NFT Artworld Can Create New Agency. 2022. <https://artreview.com/talk-how-nft-artworld-can-create-new-agency-hans-ulrich-obrist-christiana-ine-kimba-boyle-beeble-sydney-xiong/>

in art. For example, popular formats such GIFs or short loop videos have been used by artists like Xcopy, Hackatao, and John Karel. Generative art has found a genuine innovative use for the blockchain. Platforms like Art Blocks and fx(hash) take advantage of the new opportunities provided by these new formats, using the blockchain to store code and a set of seed variables on the chain that define each unique creation. These NFTs are typically coded in JavaScript, often using p5.js library and the seed variables define one among the millions of variations that can emerge from this generative principle made by the artist. Some artists, like Marina Abramovic, have developed an innovative format with which to sell their video performance – Abramovic enabled collectors to purchase each individual frame of the video as an NFT edition of one. Moreover, NFTs are not limited to static creations - Refik Anadol mapped Gaudí's iconic Casa Batlló building facade in Barcelona and sold the video of the dynamic mapping as an NFT at Christie's New York (Lekka Angelopoulou, 2022). Lastly, NFT paradigm has been inspiring artists for conceptual and critical projects, like NFT Shop.

So, is NFT a blessing or a curse for digital art? It is probably too early to say. We know that some digital art formats, like generative art, have found their niche in the NFT art market, while others have not. In our opinion, one of the main problems with the NTF is that it has been defined as digital art, which it is not. In the end, NFT is a technological solution to prove the digital object's provenance and deliver royalties to the author in both the first and the secondary sales. Another positive impact for the artist has been the growth of attention in digital art, widening the audience and increasing the number of digital art exhibitions related to NFTs both online and in physical venues.

Many parties have challenged NFT on ideological grounds since the platforms suddenly began generating huge profits, but perhaps some NFT artists resonate with Andy Warhol's philosophy of merging business and art, as described in his 1975 book: "Being good in business is the most fascinating kind of art. During the hippie era people put down the idea of business—they'd say, "Money is bad," and "Working is bad," but making money is art and working is art and good business is the best art." (Warhol, 1977)

## 5 Conclusion

The NFT art market offers novel models for the cultural economy, but NFTs and blockchain technology generally are not as green as they may first appear. Behind these technologies are energy-intensive computations, expensive infrastructure, and high-speed networks. We face ecological issues everywhere, no matter what we do, but we must still make choices and determine some limits. For example: Why is calculation- and thus energy-intensive crypto such as Ethereum used at all, particularly when there are alternatives, such as Tezos, in which the resources required to perform a transaction are equivalent to a tweet. And shouldn't we put a limit on the volume of NFT minting? And should we grow up and discard our naive beliefs about the opportunities that NFTs may offer for getting rich quick?

Sadly things often get out of hand whenever big money is at stake: trading and minting volumes increase, and energy consumption follows. We need to ask ourselves what kind of innovation we really want. Eco-friendliness should be a top priority in every business sector. The detrimental environmental impact of NFTs has prompted vociferous opposition among art communities, and with reason. Many are skeptical about the crypto-economy and do not want to invest so much of their time following its topics and being active in social media, which are the key components to success on the NFT market.

As we have discussed in this article, opinions about NFTs are often polarized: some being very enthusiastic and while others are pessimistic. There is no doubt that NFTs have revolutionized the art market, introducing new capital and new players who are exploiting NFTs and the crypto-economy, as we can see from the various NFT-related programs and venues that have appeared in the past couple of years, and there is particular excitement about the Web3 novel paradigm, which offers innovative business strategies for immaterial digital creation.

The aim of our art project NFT Shop was to discuss NFTs and explore future scenarios. We hijacked the corporate branding of an old fossil-fuel business, highlighting the similarities between these economies and also the underlying fact that NFTs are not essentially about art but about making money with art and crypto-speculation. If Andy Warhol were alive today, he would surely be a CryptoArtist.

## Acknowledgements

NFT Shop is an art project by Varvara & Mar commissioned by UIT festival curated by Kadri Lind and Marie Kliiman, Tartu, Estonia (18.-21. aug 2021). MSC is supported as a CUDAN research fellow and ERA Chair for Cultural Data Analytics, funded through the European Union's Horizon 2020 research and innovation program (Grant No.810961).

## References

Memo Akten. A guide to ecofriendly cryptoart (nfts). 2021. URL <https://github.com/memo/eco-nft>. Accessed on August 3, 2022.

Rebecca Alter. Screen time at the 'world's first physical nft gallery,' whatever that means. *VULTURE*, 2021. URL <https://www.vulture.com/2021/04/superchief-first-physical-nft-art-gallery-whatever-that-means.html>. Accessed on August 3, 2022.

Raisa Bruner. Teen artists are making millions on nfts. how are they doing it? *Time*, 2021. URL <https://time.com/6093982/nft-art-teens-money/>. Accessed on August 3, 2022.

J.J. Charlesworth. Why the artworld loves to hate nft art. *Artreview*, 2021. URL <https://artreview.com/why-the-artworld-loves-to-hate-nft-art-beeple-christies-grimes/>. Accessed on August 3, 2022.

Shanti Escalante-de Mattei. Latvian nft artist said he's had \$8.89 m. Seized amid money laundering investigation author profile picture. *Artnews*, 2022. URL <https://www.artnews.com/art-news/news/ilja-borisovs-shvembl-dr-nft-artist-millions-seized-latvia-investigation-1234635164/>. Accessed on August 3, 2022.

Sam Gaskin. Art market overcomes pandemic downturn to reach \$65.1b in 2021. *OCULA*, 2022. URL <https://ocula.com/magazine/art-news/global-art-market-overcomes-pandemic-downturn/>. Accessed on August 3, 2022.

Varvara Guljajeva and Mar Canet Sola. Video poems. 2021. URL <http://var-mar.info/video-poems/>. Accessed on August 3, 2022.

Jacob Kastrenakes. Beeple sold an nft for \$69 million. Through a first-of-its-kind auction at christie's. *The Verge*, 2021. URL <https://www.theverge.com/2021/3/11/22325054/beeple-christies-nft-sale-cost-everydays-69-million>. Accessed on August 3, 2022.

Mario Klingerman. Screenshot this NFT, 2021. URL <https://opensea.io/assets/ethereum/0x9498e391ca49722988fc4da4d0d8c9c987ce8961/36>. Accessed: August 3, 2022.

- Hester Lacey. Digital artist refik anadol: ‘it’s time for us to find a function for art’. *Financial Times*, 2022. URL <https://www.ft.com/content/71ac83cb-5200-46c1-8fe8-5012a689b239>. Accessed on August 3, 2022.
- Angel Lambo. Marina abramović charges into the metaverse. The cult performance artist discusses her first-ever nft release, ‘the hero 25fps’, and fostering the next generation of web3 creatives. 2022. URL <https://www.frieze.com/article/marina-abramovic-hero-nft-interview-2022>. Accessed on August 3, 2022.
- Sofia Lekka Angelopoulou. Dynamic nft of gaudi’s iconic casa batlló by refik anadol sells at christie’s for \$1.38m. ‘LIVING ARCHITECTURE: CASA BATLLÓ’ BY REFIK ANADOL. *Designboom*, 2022. URL <https://www.designboom.com/art/dynamic-nft-gaudi-casa-batllo-refik-anadol-christies-05-12-2022/>. Accessed on August 3, 2022.
- Ben Luke, Anny Shaw, and Helen Stoilas. Wtf are nfts? why crypto is dominating the art market, 2021. URL <https://www.theartnewspaper.com/podcast/wtf-nfts>. Accessed: August 3, 2022.
- Kyle McDonald. Ethereum emissions: A bottom-up estimate. *arXiv preprint arXiv:2112.01238*, 2021.
- Meera Navlakha. Take a walk through mesmerizing photos of hong kong’s nft art fair. *Mashable*, 2021. URL <https://mashable.com/article/nft-hong-kong-art-fair>. Accessed on August 3, 2022.
- Rebecca Riegelhaupt. Results: Beeple’s purely digital nft-based work of art achieves \$69.3 million at christies. *Christies*, 2021. URL <https://www.christies.com/about-us/press-archive/details?PressReleaseID=9970&lid=1>. Accessed on August 3, 2022.
- Paul Slocum. Nfts problems. 2022. URL <https://www.qotile.net/nft/>. Accessed on August 3, 2022.
- Josie Thaddeus-Johns. Beeple brings crypto to christies. *The New York Times*, 2021. URL <https://www.nytimes.com/2021/02/24/arts/design/christies-beeple-nft.html>. Accessed on August 3, 2022.
- Payal Uttam. Mint your own nft at art basel miami beach. Energy-efficient blockchain platform tezos to host exhibition and talks program at the fair. *Artbasel*, 2021. URL <https://artbasel.com/stories/mint-your-own-nft-at-art-basel-miami-beach>. Accessed on August 3, 2022.
- Qin Wang, Rujia Li, Qi Wang, and Shiping Chen. Non-fungible token (nft): Overview, evaluation, opportunities and challenges. *arXiv preprint arXiv:2105.07447*, 2021.
- Andy Warhol. *The philosophy of Andy Warhol: from A to B and back again*, volume 75. Houghton Mifflin Harcourt, 1977.