Fifth Summit on New Media Art Archiving

Workshop Report

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Minting, displaying and connecting archives through the Blockchain

Workshop Report

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Abstract

Given the possibilities that technologies like Blockchain are providing for the storage, security and preservation of online assets within a decentralized and distributed ledger, and given the need to continue to provide access to distribute knowledge and culture within small and large communities across the Internet. For this event, I am proposing a workshop to share how storing online assets on the permissionless blockchain can be used as a way to bring archives that live within local or centralized servers to a wider audience.

Keywords

Connecting archives, Blockchain, education

Introduction

Given the need to continue providing access to distribute knowledge and culture in small and large communities through the Internet with the help of tools such as platforms and networks that can help circumvent biopolitical and technological censorship. The engineering structure of permissionless blockchains can be a solution for some of the problems surrounding the privatization and control of public networks dependent on central servers held by governments and private companies with territorial and economic interests.

The blockchain has proven to be a system for recording and preserving information that can be difficult to manipulate or remove by third parties once it is deployed in it [1]. This aspect makes public blockchains attractive to those who have experienced acts of censorship on the Internet trying to access services banned in some territories: Cuba, Afghanistan, Democratic Republic of the Congo, Iran, Iraq, Mali, Venezuela, and so on [2]. Permissionless blockchains can be resilient networks for the ordinary citizen in some of these territories, providing access to the funds needed to sustain basic daily life, receive family funding and participate in a wider cultural and financial community online.

Given the side effects that any open technology running online can bring to societies, and given the malicious behaviors of some users, blockchain technology can be seen as a Pandora's box that awakens symptoms existing in our contemporary societies: pollution, greed, selfishness, corruption, misogyny. But this technology has also given hope to the pursuit of democratic sovereignty, self-government, and higher community collaboration and participation.

Workshop proposal

Most of our cultural knowledge is in the hands of a few servers. The information stored on these servers risks being altered by political and economic interests. The web 2.0 has proved to be a privatized network controlled by political interests that limits content to certain territories, embargo policies are an example of this. Building websites that connect and preserve information and digital assets while utilizing centralized server-based web 2.0 architecture to provide horizontal access to larger communities is like swimming in the same pool. Why not use a public blockchain network to preserve, share, and connect digital files?

For the 5th Summit on New Media Art Archiving at ISEA2025, I proposed a workshop to share some of the non-code tool solutions implemented by creators from NFT ecosystems for storing assets online on the blockchain using a user-friendly interface. Blockchain-based platforms can be useful tools not only to connect libraries and digital archives, but also to preserve them inside and outside the blockchain, creating future collaborations and bridges between art restorers, artists, creators, researchers and curators.

The proposal consisted of an introductory workshop for a non-programmer audience. In the workshop, It was

proposed the use of the Manifold Studio framework for the creation of proxy smart contracts on the test network of the Ethereum blockchain, Sepolia.

Manifold Studio is a framework created by some of the blockchain developer communities with the aim that a wider audience of artists and content creators without knowledge of code can have access to the sovereignty of their digital assets and NFT through the deployment of proxy smart contracts at a lower cost.

As every transaction within the blockchain has a monetary cost as part of its security prevention against reentrancy attacks, and by its consensus protocol; for this workshop I used the test-net blockchain of Ethereum called Sepolia to claim no valid ERC20 tokens needed to mint the archives during the practice exercise. Using a test network is the best practice to run the exercises contemplated in the workshop for two simple reasons: it is cost-free for users and maintains an ecosystem on the blockchain.

The workshop has been organized in three blocks: 1- introductory basics of blockchain, 2- minting files as NFT tokens on the Ethereum blockchain, 3- connection of archives owned by different users in a common website.

In the first topic we shared basic information about what a blockchain is, its benefits and problems for ordinary users and some security tips. Then we saw some basic strategies for minting non-fungible tokens used by artists like the use of marketplace smart contracts and own smart contracts, talking about their differences and consequences. Also we talked about the common marketplaces used by artists on Ethereum and Tezos blockchains for selling their artwork, as the three front-end framework solutions for non-coders frequently visited by the artist community: Manifold, Nifty Kit, Thirdweb.

After reviewing the basic introductory part, we moved on to workshop practice beginning with: how to set up an external account (EOA) on the Ethereum blockchain. Each participant was asked to download the Metamask wallet and set up a personal account on their own devices. Having an EOA address account is similar to having an user id, it represents your identity as an user in the blockchain and consists of a 42-character hexadecimal address. After setting each EOA, it came to the part of interacting with the Sepolia network for doing the claim of eth coins to each metamask wallet individually.

The second subject focused on the process of minting digital assets as NFT. One of the objectives of the workshop was to share ways of using blockchain technology further that the uses implemented by artists and galleries focused on the distribution, collection and traceability of digital art. This technology can also be used by cultural actors like academics and researchers to store and distribute knowledge and information within a global and immutable distributed ledger. The second workshop practice shared how to upload digital content such as html, jpg, png, obj, pdf files into Arweave (a peer-to-peer distributed network and an open ledger system for storing data) by creating ERC721 tokens, an NFT token type[1]. Tokens are generated through smart contracts, which is why it was mandatory to create first a smart contract using the proxy smart contract of Manifold Studio. The reason for using Manifold Studio is because it is a framework that implements secure contracts, its interface is quite intuitive and has zero subscription costs for artists (2025). After each participant had deployed their smart contract personally, it came the part of uploading the digital archive into the blockchain as NFT. There was no limit on the amount of content uploaded; it depended on the number of archives, customization of tokens and coins in reserve.

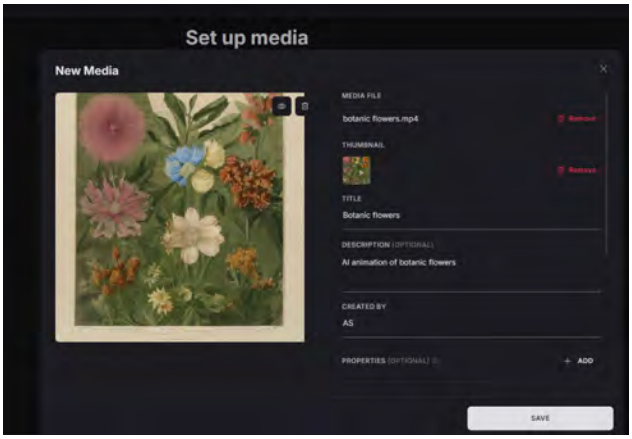

Figure 1. Example of the NFT minting process in Manifold Studio. Still of the PowerPoint presentation. CC-BY

The last part of the workshop was to create a single web page that connects all archives uploaded to the blockchain in the previous exercises. This can be useful for connecting archives that reside in different EOA, meaning there is no need to migrate or duplicate the information to another server for distribution or research purposes. Digital archives can be gathered by embedding each NFT on a shared website. In this way, the ownership of distributed digital content is not so easily compromised within an open network because it is backed by the blockchain. This practice can be considered ethical because the user's property rights are respected by code.

To do this part of the exercise, we created a url page in the Manifold Studio platform adding the links of each NFT (archive) previously minted by each participant during the

[1] On-chain minting of digital assets like jpg, mp4, obj... is quite expensive due to the limitation of blockchain storage, so most of the associated content in the NFT is stored outside the blockchain to a P2P solution such as IPFS and Arweave or local servers. The NFT is a type of token with a unique identifier number that certifies the scarcity of a digital asset. In the Ethereum blockchain each NFT is stored with its metadata containing the information and url link to the location of the associated content. There are only a few NFT collections minted on-chain, many of them are generative art and the PFP collectibles CryptoPunks.

workshop. It only took a few steps to set up a web page with all the files uploaded as NFT. This is a brief example of how using blockchain tools developed to interact with large communities can serve to improve interoperability between archives in academic environments by connecting libraries, content and information online.

The reason for doing this workshop was to share the good uses of this technology outside the constant noise of market strategies and sales speculation, seeing how this network can be used to store history, culture and knowledge for a larger online community in a secure, decentralized, traceable and accessible environment.

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Author Biography

Pre-doctoral student hired by the Community of Madrid and PhD candidate in the line of artistic production research of the Doctorate Program in Fine Arts at the Complutense University of Madrid (UCM), graduated in Fine Arts from ISA in Cuba and with a Master's degree in Research in Art and Creation from UCM, Spain. Her line of research focuses on post-media studies and disruptive emerging technologies: blockchain, Web3 and NFT. As a visual artist, she has worked with video installation, emerging media, NFT and photography. Her artwork has been exhibited at events such as the Biennial of Havana XI (2012) and XII (2015); NFT.NYC 2023, New York (2023); Casa de América, Madrid (2021-2018); The Approach, Centro Cultural Español Miami, Art Basel Miami (2016).

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