decentralized design economies: 3D NFTs on tezos via hicetnunc
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you need a 3d model to continue

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### introduction

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**relevant examples**

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Introduction

what is a blockchain?
what are consensus mechanisms?
what are NFTs?
what is tezos?
what are dapps?
what is hicetnunc?
relevant examples

A blockchain is a growing list of records, called blocks, that are linked together using cryptography.

Blockchains are typically managed by a peer-to-peer network for use as a publicly distributed ledger, where nodes collectively adhere to a protocol to communicate and validate new blocks.

https://en.wikipedia.org/wiki/Blockchain
Consensus mechanisms (also known as consensus protocols or consensus algorithms) allow distributed systems (networks of computers) to work together and stay secure.

For decades, these mechanisms have been used to establish consensus among database nodes, application servers, and other enterprise infrastructure. In recent years, new consensus mechanisms have been invented to allow cryptoeconomic systems to agree on the state of the network.

https://ethereum.org/en/developers/docs/consensus-mechanisms/
introduction

what is a blockchain?

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relevant examples

proof-of-work (BTC, ETH, ...)

Proof-of-work is done by miners, who compete to create new blocks full of processed transactions. The winner shares the new block with the rest of the network and earns some freshly minted tokens. The race is won by whosever computer can solve a math puzzle fastest – this produces the cryptographic link between the current block and the block that went before. Solving this puzzle is the work in "proof-of-work"

proof-of-stake (XTZ, ADA, ...)

Proof-of-stake is done by validators who have staked tokens to participate in the system. A validator is chosen at random to create new blocks, share them with the network and earn rewards. Instead of needing to do intense computational work, you simply need to have staked your tokens in the network. This is what incentivises healthy network behaviour.

https://ethereum.org/en/developers/docs/consensus-mechanisms/
introduction

A non-fungible token (NFT) is a unique and non-interchangeable unit of data stored on a blockchain. NFTs can be used to represent easily-reproducible items such as photos, videos, audio, and other types of digital files as unique items (analogous to a certificate of authenticity), and use blockchain technology to establish a verified and public proof of ownership. Copies of the original file are not restricted to the owner of the NFT, and can be copied and shared like any file. The lack of interchangeability (fungibility) distinguishes NFTs from blockchain cryptocurrencies, such as Bitcoin, Tezos, etc.

https://en.wikipedia.org/wiki/Non-fungible_token
introduction

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Tezos is a decentralized, open-source proof of stake blockchain network that can execute peer-to-peer transactions and serve as a platform for deploying **smart contracts**. The native cryptocurrency for the Tezos blockchain is the tez which has the symbol XTZ.

The Tezos network achieves consensus using a liquid proof-of-stake model. Tezos features an on-chain **governance model that enables the protocol to be amended** when upgrade proposals receive a favorable vote from the community. This feature allows Tezos to avoid hard forks that other blockchains have to contend with.

https://en.wikipedia.org/wiki/Tezos
Due to its energy-efficient proof-of-stake algorithm which became a popular topic amid concerns of the energy requirements of alternative proof of work platforms, Tezos has been selected by brands to build their Non-Fungible Tokens (NFTs) platforms and fan experiences. OneOf, a music NFT platform backed by Quincy Jones, as well as Red Bull Racing and McLaren Racing have selected Tezos to build their NFT platforms on, citing energy-efficiency as a main reason.

https://en.wikipedia.org/wiki/Tezos
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A decentralized application (dapp) is a computer application that runs on a decentralized computing system.

DApps have been popularized by distributed ledger technologies (DLT) such as the Ethereum blockchain, where DApps are often referred to as smart contracts.

https://en.wikipedia.org/wiki/Decentralized_application
introduction

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what is hicetnunc?

Hicetnunc (here and now in latin) was initiated and developed by Rafael Lima, a Brazilian developer and is currently maintained by him and a community of contributors.

https://www.hicetnunc.xyz/about
https://github.com/hicetnunc2000/hicetnunc

relevant examples

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relevant examples

hicetnunc is a decentralized application (dapp) which allows its users to manage decentralized digital assets, serving as a public smart contract infrastructure on Tezos Blockchain.

IPFS OBJKTs can be minted and traded by permissionless means. This experiment was designed intending to imagine alternative crypto economies.

https://www.hicetnunc.xyz/about
https://github.com/hicetnunc2000/hicetnunc

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relevant examples

- Alex Crouwers - [Grief](#)
- Galo Canizares - [NFT House](#)
- Alex Grasser - [Realtime Collaborative Architecture](#)

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what is a wallet?

making a tezos wallet with kukai.app

receiving your first transaction
What is a wallet?

A cryptocurrency wallet holds one or more kinds of tokens (fungible or non-fungible). Wallets are often interfaces to interact directly with the blockchain.

Making a Tezos wallet with Kukai.app

Receiving your first transaction
what is a wallet?

making a tezos wallet with kukai.app

receiving your first transaction

1. Go to https://wallet.kukai.app
   ⚠ DO NOT GOOGLE SEARCH THIS!
2. Click on “Create new wallet”
3. Click on “Click here to reveal your seed words”
4. Copy these seed words to a txt file.
   ⚠ This txt file should be kept safe. Losing this means losing your wallet and any tokens associated with it.
5. Verify your seed by writing in the words requested.

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wallets

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5. Set a password.
   ⚠ This is like an additional seed word. There is no password reset. Losing this means losing your wallet and any tokens associated with it.

6. Copy your wallet address and send it to Luis via chat

7. Download the encrypted keystore file.
   ⚠ Keep this file safe.

8. Open wallet!
wallets

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receiving your first transaction

Once you’ve shared your wallet id you will receive your first transaction with some tez.
design

supported media on hicetnunc

create a 3d model in Rhino/GR/etc

prepare 3d model for minting

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design

supported media on hicetnunc

create a 3d model in Rhino/GH/etc

prepare 3d model for minting

hicetnunc supports the following media formats:

- GIF
- image: JPEG, PNG
- SVG
- video: MP4, WEBM
- 3D: GLB
- audio: MP3, WAV, FLAC
- PDF
- HTML (ZIP ARCHIVE)
- MD
design

supported media on hicetnunc

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supported media on hicetnunc

create a 3d model in Rhino/GH/etc

prepare 3d model for minting

1. Export 3d model from Rhino as a 3DM file
2. Import the 3dm file in [https://threejs.org/editor](https://threejs.org/editor)
3. Set the environment to “MODELVIEWER”
4. Make final adjustments to the model (materials, etc)
5. Save model as .GLB
creating an NFT

- sync wallet with hicetnunc
- mint NFT
- swap NFT

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creating an NFT

1. Go to https://hicetnunc.xyz
2. Click on “sync”
3. Choose “Kukai Wallet”
4. In the tab that is opened, click on “approve”
5. Go back to hicetnunc and check that your wallet address shows in the ui.
creating an NFT

sync wallet with hicetnunc

mint NFT

swap NFT

1. Go to [https://hicetnunc.xyz](https://hicetnunc.xyz)
2. Click on the ≡ menu and click on “OBJKT (mint)”
3. Fill in the form.
   For editions, choose the number of copies you want to create.
   For royalties, choose a number from 10–25%. These royalties will be paid to you after each sale of this NFT.
4. Click on UPLOAD OBJKT and navigate to where you saved the .GLB file
5. Click on “Upload cover image” and select the image representing your 3d model
creating an NFT

sync wallet with hicetnunc
mint NFT
swap NFT

6. Click “Preview”
7. If preview is ok, click “mint OBJKT”
8. Go to kukai wallet, type in your password, and accept the request.
9. After some time, the transactions will be updated through the blockchain and finally on the hicetnunc ui
creating an NFT

sync wallet with hicetnunc
mint NFT
swap NFT

1. Go to https://hicetnunc.xyz
2. Click on the ≡ menu and click on “manage assets”. Here you should see your 3d model.
3. Click on your 3d model to go to the objkt page
4. Click on “swap”
5. Enter in the number of OBJKT you want to sell
6. Enter in the amount of tez for each OBJKT. (Make this 0.1 or similar so we can all collect it later!)
7. Click “swap”
8. Go to Kukai, enter in your password, and accept the transaction.
9. After some time, the tx will be updated on the blockchain and the hen ui.

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collecting

browse hicetnunc

collect

ecosystem tools

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collecting

* Make sure to share your objkt url with the rest of the participants via the chat

...
collecting

1. Make sure you are synd’ed to hicetnunc
2. Browse hicetnunc for your colleagues OBJKTs
3. Click on “collect”
4. Go to Kukai
5. Enter in your password and accept the request.
6. After some time the tx will be reflected on the blockchain and in the hicetnunc ui.
collecting

browse hicetnunc

collect

ecosystem tools

- https://objkt.com (alt ui)
- https://henext.xyz (alt ui)
- https://hictory.xyz (latest sales)
- https://artcentral.io/ (analytics)
discussion

on the horizon

+/− web 3 and dapps

opportunities for creative practice, aec ...

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discussion

on the horizon

+/- web 3 and dapps

opportunities for creative practice, aec ...

● DAOs and hDAO
● Collaborative contracts and royalty splitting
● https://www.henvote.xyz/

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discussion

on the horizon

+/- web 3 and dapps

opportunities for creative practice, aec ...

What are the consequences (positive or negative) of Web 3 where dapps are integrated into all aspects of our online experience?
What are some opportunities you see enabled by blockchain technologies for creative practice and the AEC industry?

What opportunities do you see for creative practice and the AEC industry on the horizon, +/− Web 3 and dapps?
Luis E. Fraguada
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Thank you!

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