UNIVERSITY of NICOSIA

Session 8

What Is A Metaverse?

META511: Non-Fungible Tokens (NFTs) and the Metaverse

We are here

1. What is an NFT?
2. Copyright and Provenance in NFTs
3. PFPs
4. Art NFTs
5. Generative Art
6. Key considerations in the NFT space
7. Gaming NFTs

Week 8 → 8. What is a metaverse?

9. Trends in visualization technology
10. Financing models for NFTs and the metaverse
11. Off-chain objects and the broader environment
12. A vision for the future

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What is a Metaverse

- Compare and contrast various metaverse frameworks
- Understand the history of earlier or proto-metaverses and implications for future development of (a) (the) metaverse
- Understand which parts of the stack in a metaverse are open vs closed and what the implications are for digital governance

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This is an educational course only

- We will discuss various projects, individuals or NFTs in this course
- These projects, tokens or the individuals associated with them, are only referenced for educational purposes
- Nothing in this course should be taken as a recommendation to buy or sell an NFT or token or any other financial instrument or security
- More generally, cryptoassets are extraordinarily volatile investments. Please take care if you are buying cryptoassets
- The information provided during this session does not, and is not intended to, constitute legal advice.
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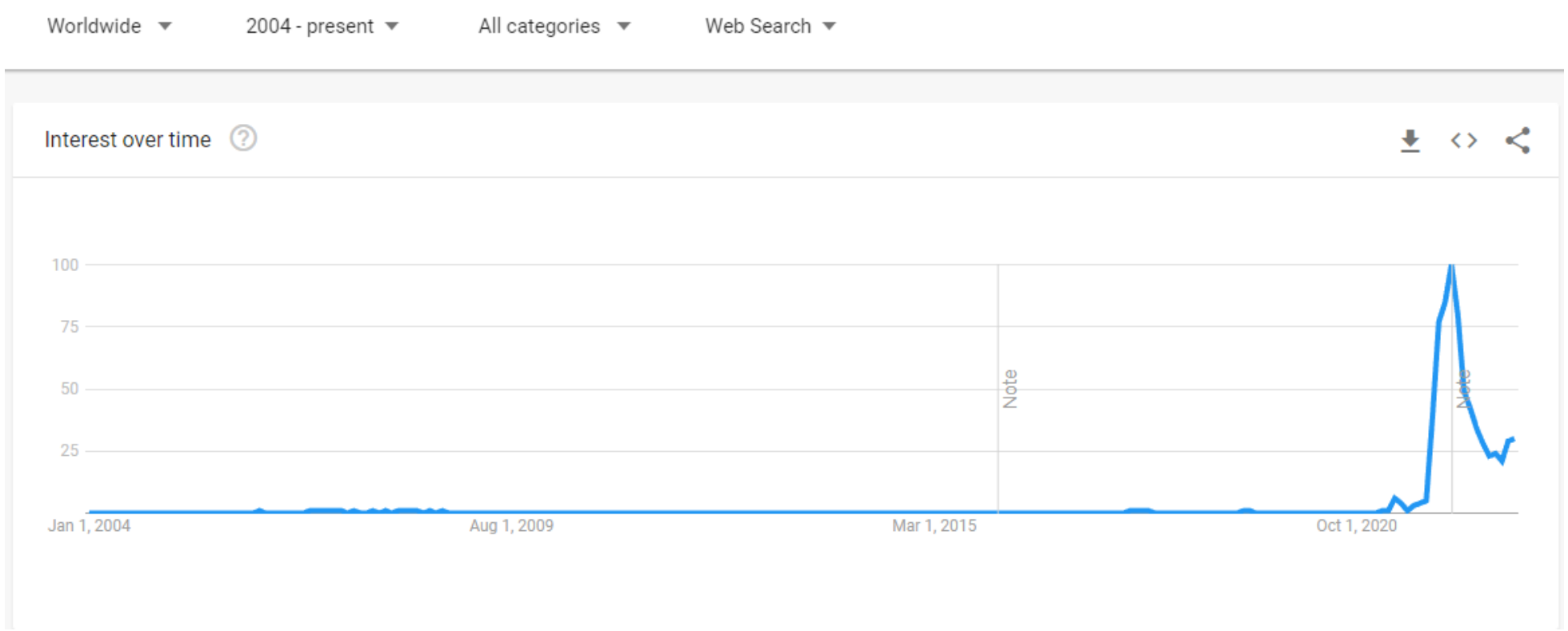
Session 8: What is the Metaverse?

1. Metaverse Frameworks

There is a lot of recent interest in the metaverse…

Google Trends: 2004 to Present



Source: Google Trends

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…and many different definitions.

- Aspirational definitions
  - "The metaverse seems to be whatever people's imaginations dream it to be." -McKinsey
  - "It's partly a dream for the future of the internet." –The Verge
  - " "A seamless convergence of our physical and digital lives" –Onyx, JP Morgan
- Technical definitions
  - "Realtime 3D social medium where people can create and engage in shared experiences as equal participants in an economy with societal impact" – CEO EPIC Games
  - "A massively scaled and interoperable network of real-time rendered 3D virtual worlds which can be experienced synchronously and persistently by an effectively unlimited number of users with an individual sense of presence, and with continuity of data" – Matthew Ball
- Conceptual definitions
  - "But the metaverse is not 3D or 2D, or even necessarily graphical; it is about the inexorable dematerialization of physical space, distance, and objects." –Jon Radoff
  - "The metaverse is the moment in time where our digital life is worth more than our physical life." –Shaan Puri

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Potential Framework (UNIC EUBOF Report)

- **Universal Impact:** Across norms, disciplines, cultures, or other barriers, creates new opportunities. This generalized impact is technology driven

- **Persistence:** In a way that cohesive and shared experiences establish a “new world”

- **Adaptability:** Allowing users to immerse themselves in a limited or ample capacity according to their needs.

Source: UNIC EUBOF Report

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Potential Framework (Giaglis Framework)

Technology properties

- Photorealism
- Immersiveness
- Persistence

Governance properties

- Data ownership
- Openness
- Censorship resistance

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Potential Framework (Giaglis Framework)

- **Technology properties**
  - **Photorealism**: degree to which the metaverse world resembles the physical world and is sufficiently indistinguishable from it for the casual observer.
  - **Immersiveness**: degree to which users can (or must) embed themselves inside the world to use it, for example by wearing a VR headset.
  - **Persistence**: degree to which the interaction experience 'follows' users in their daily lives in an always-on fashion.
- **Governance properties**
  - **Data ownership**: degree to which users own the assets they possess in the virtual world (such as avatars, objects, land, etc.) and can take them off the metaverse to be used in other virtual worlds.
  - **Openness**: degree to which the virtual world is open to developers to create new spaces, experiences, objects, and applications.
  - **Censorship resistance**: degree to which users can be prohibiting from accessing the virtual world, restricted in their experiences, or kicked off the metaverse, by some centralized authority who 'owns' and controls the world.

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Potential Framework (6529 Framework)

The **internet** with **better visualization** and **persistent digital objects**

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Potential Framework (6529 Framework)

I do not believe that, in the long-run, “the metaverse” and “the internet” will be separate things

The **internet** with **better visualization** and **persistent digital objects**

3D visualization in the browser (short-term) leading to AR/VR (long-term)

Avatars, art, metaverse spaces, wearables, etc

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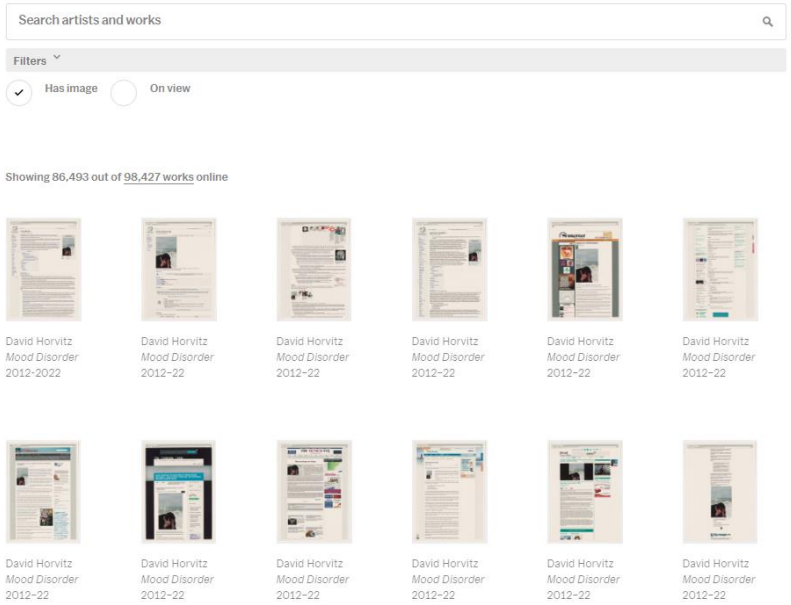
3D Visualization In The Browser?

MoMA Website



6529 Museum
Generative Art Gallery

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Singular or Plural?

Metaverses
(now)

Metaverse
(future?)

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Session 8: What is a Metaverse?

2. Metaverses?

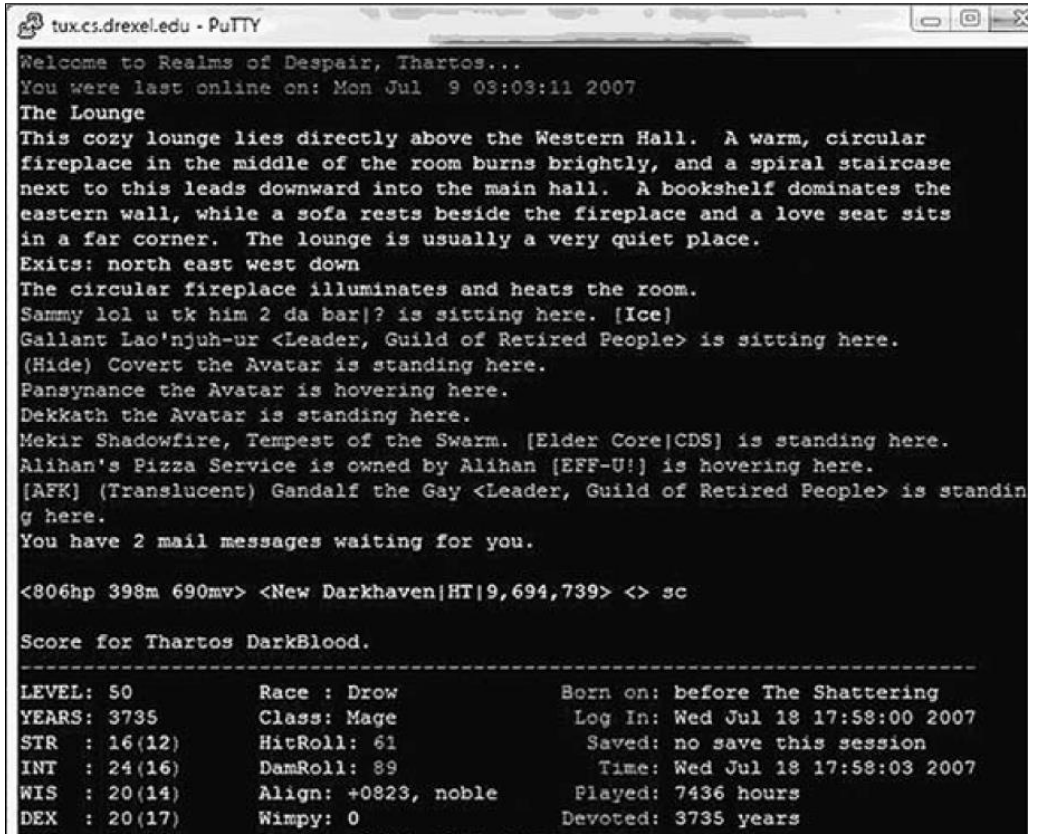
MUDs: A primitive shared virtual world experience

Outside literature, the precursors to the Metaverse find their roots in the 70's pop culture, science fiction, and fantasy realms, and emerged as evolutions of fantasy tabletop games.

- Multi-User-Dungeons (MUDs)
  - MUDs were text-based environments where users could replicate the playthrough of traditional tabletop roleplaying games such as DnD.

This is the interface of Starcraft, a popular MUD →

- The top text is the story and description of the environment.
- The middle text is the chat between users
- The bottom of the screen includes the vital statistics of the player.



Source: A Social History of Virtual Worlds

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tinyMUDs: MUDs with non-interactive graphical elements

- tinyMUDs
  - TinyMUD the first of many similar attempts, was an evolution of MUDs developed by James Aspnes.
  - TinyMUDs incorporate some visual elements and allowed for more interaction between players, showcasing the social capabilities of virtual worlds.
  - Participants could create game elements, meaning that they were no longer mere consumers or actors but active developers in the world.
  - however, this social interaction remained limited due to technological constraints, e.g., it didn't evolve into a virtual economy.
- Example of a TinyMUD developed for Apple II →
  - The player is now graphically represented with two swords.
  - However, there is still no interaction with game elements.

Source: A Social History of Virtual Worlds

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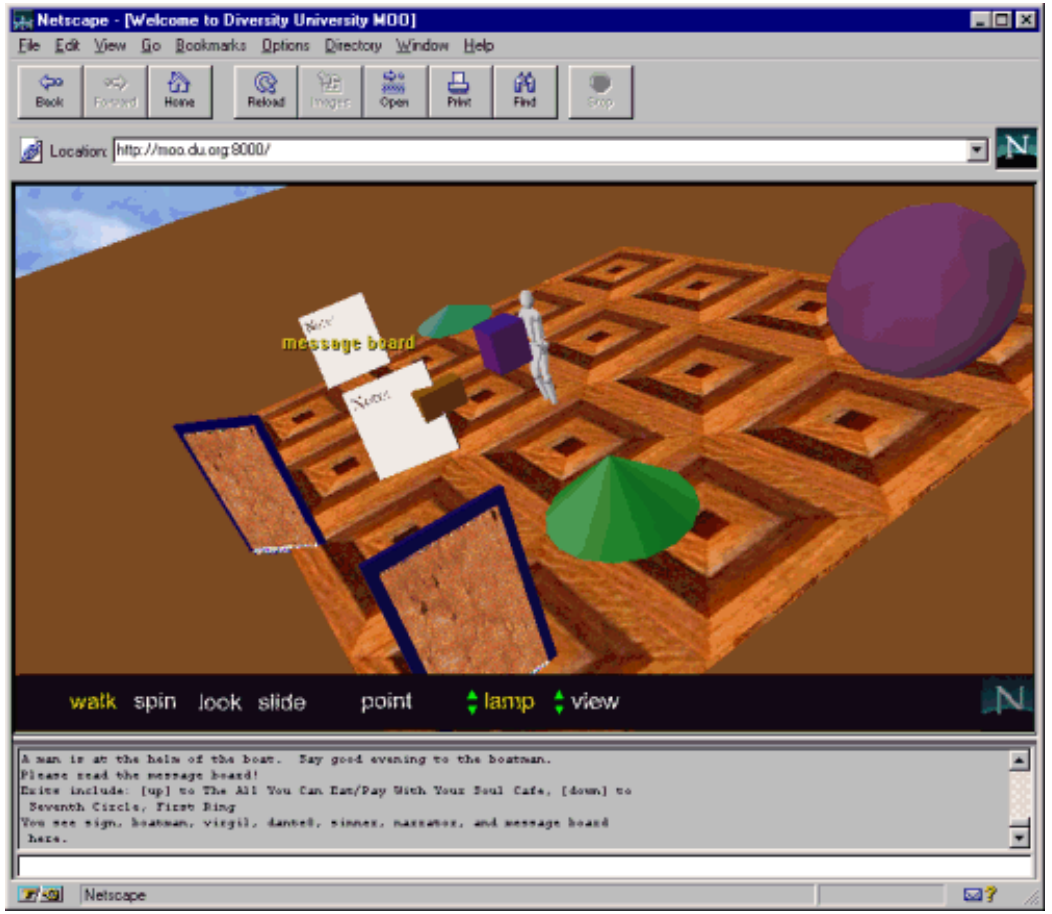
MOOs: Graphics as an integral part of virtual worlds

- MUD Object Oriented (MOO)
  - MOOs facilitated greater socialization in virtual worlds, allowing users to interact with other user-created items within the virtual world.
  - They became customizable environments **and attracted communities outside gaming**.
  - MOOs were primarily text-based environments with a “coating’ of interactive graphical front ends.
  - As more graphical elements were introduced, the social aspects those virtual worlds increased.



Source: MUDs, MOOs, WOOs, and IRC,University of Oxford

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MMORPGs: Social and recreational virtual experiences

- Each iteration of virtual worlds relied on technology becoming better, cheaper, and more accessible.
- The main factors of this development are:
  1. Realism
  2. Ubiquity
  3. Interoperability
  4. Scalability
- Those came together in the development of MMORPGs*.
- The graphical and interactive nature of MMORPGs established the social aspect of virtual worlds:
  1. Collaboration in MMORPGs created a strong social system
  2. Players supported social systems outside of MMORPGs
  3. This opened the door to non-gamers

*MMORPG stands for Massively Multiplayer Online Role-playing Games. The depicted is World of Warcraft (WoW). Source: A Social History of Virtual Worlds

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Virtual Worlds: Recreational and social virtual worlds

- The increased socialization of gaming virtual worlds gave rise to social or recreational virtual worlds.
  - As those worlds increasingly mirrored the real one, and users became “virtual residents”.
  - The social, financial, and entrepreneurial dynamics which first emerged in MMORPGs became an integral part of their experience.
- Recreational and virtual social worlds offered:
  - Business opportunities.
  - Embassies and other public services.
  - University campuses and social spaces.
  - Teaching and training.
  - All while maintaining the sci-fi or fantasy element.
- We can draw a direct line from recreational virtual worlds to proto-metaverses, and from those to the first metaverse experiences.

The image depicted is Second Life

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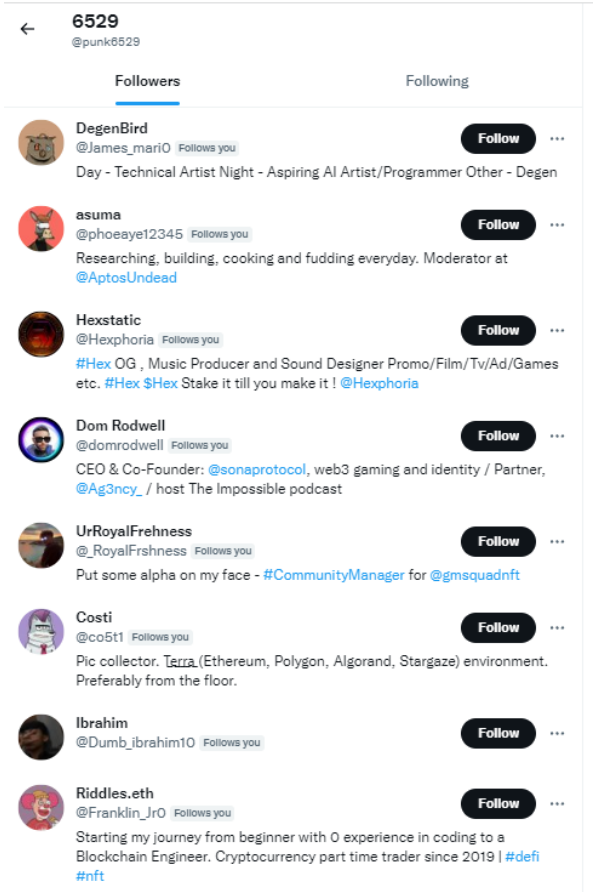
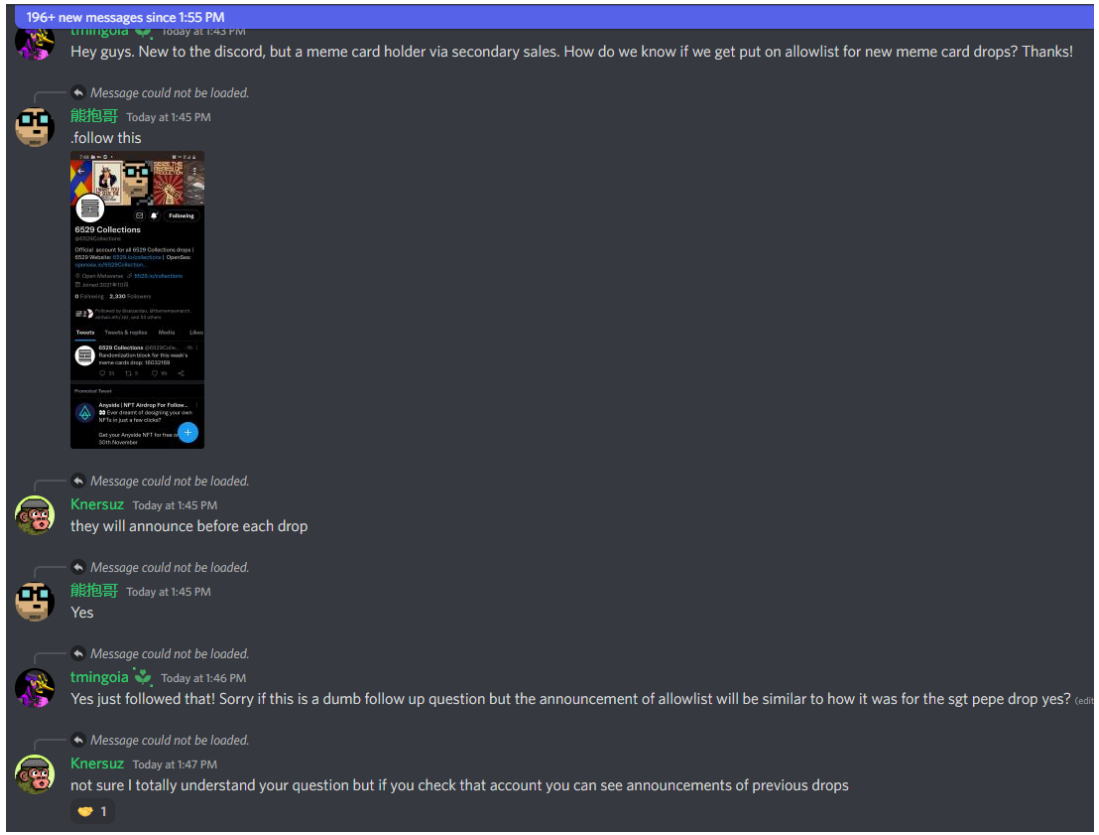
Social Media: Is NFT twitter & discord a metaverse?





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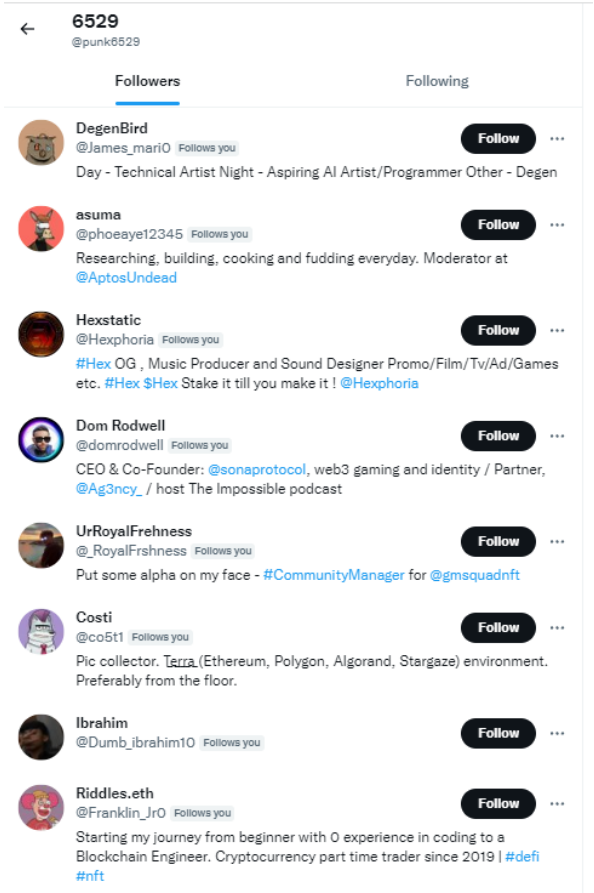

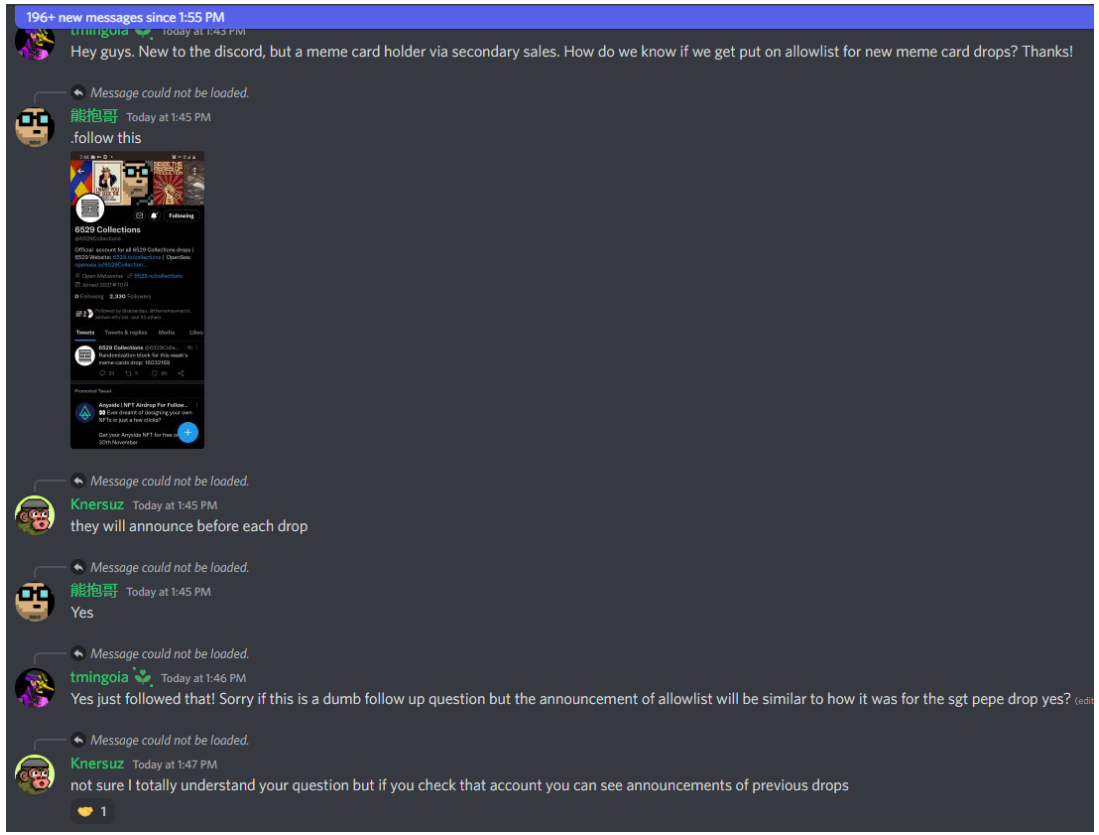

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Pokemon Go

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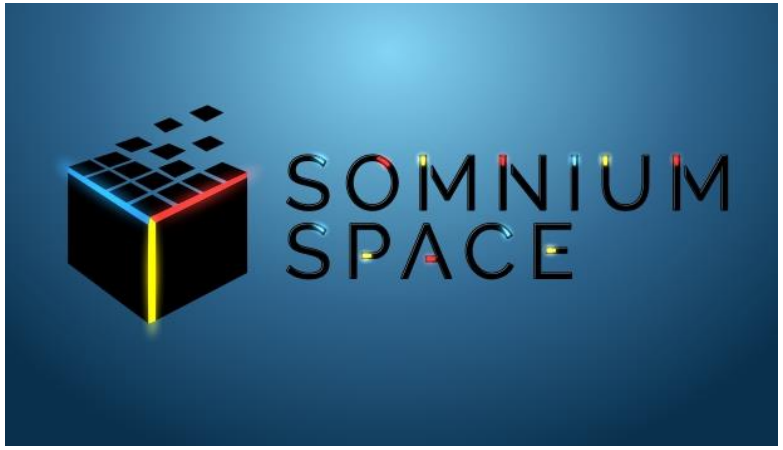
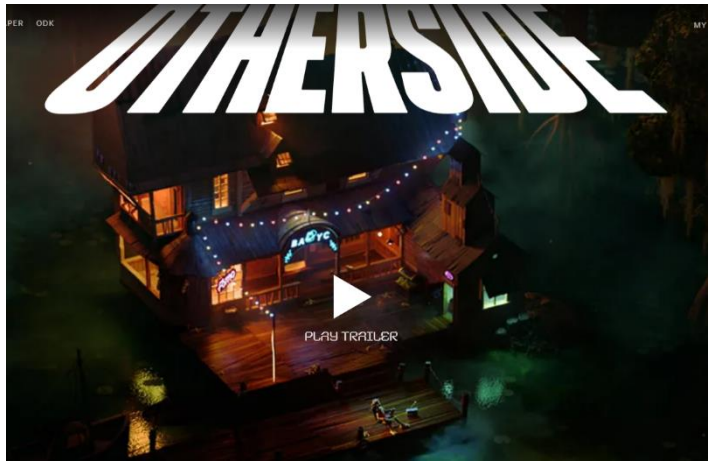
NFT-Based Metaverses





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Games

Is it a game or is it a metaverse?

Does it matter?

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What is an “open metaverse?”

Less open

- Interoperability?
- Ownership of digital objects?
- Multiple governance models?
- Open clients?
- Multiple rendering environments?

More open

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Session 8: What is a Metaverse?

3. Conclusions

Takeaways from week 8

- The metaverse is challenging to define due to its early stage, potential vast impact, and the general challenges associated with identifying and defining normative shifts.
- There are multiple frameworks that can be used to define (the) or (a) metaverse
- The "6529" framework is that, in time, the metaverse will just be the internet with better visualization and persistent digital objects
- Metaverses are not new – various social interactive services – MUDs, games, social media – can be thought of as earlier/proto metaverses
- The architecture of the winning metaverses and how open or closed it is will likely have significant socio-political implications in the coming decades

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Session 8: What is a Metaverse?

6. Further Reading

Further Reading

- Metaverse Report: A report produced by the EU Blockchain Observatory and Forum Experts Panel and team for the metaverse
- NFTs and the Metaverse Revolution – Research Perspectives and Open Challenges: An article that contributes an analysis of the current status of virtual worlds with a focus on the emerging blockchain-based metaverse and articulates the open challenges and research perspectives for the emerging space of blockchain-based metaverses.
- Framework for the Metaverse: An Essay by Matthew Ball around the emergence of the metaverse
- The business hauntology of the Metaverse: Short article by Lambis Dionysopoulos for Meta's vision for the metaverse
- Hey, Facebook, I Made a Metaverse 27 Years Ago: Article reporting the evolution of virtual words
- Online world or metaverse?: An article discussing the different between online worlds and metaverse(s)
- A social history of virtual worlds: A chapter on the social history of virtual worlds
- Archaeology of virtual worlds: An article on the history and emergence of virtual worlds
- Play between worlds: Book exploring online game culture

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Further Reading

- Living a second life: Public reception of past virtual worlds
- Name that metaverse: A short article referring to past virtual worlds
- My Virtual Life: A journey into a place in cyberspace where thousands of people have imaginary lives. Some even make a good living.
- At Law School, 'Second Life' in the Cards, and the Course Catalogue: Harvard law school in the metaverse
- Sweden to open embassy in second life: Sweden became the first country on Wednesday to open an embassy in the virtual world Second Life
- The metaverse is here – and it's full of Pokémon: John Hanke the CEO of Niantic, a company that makes the wildly popular Pokémon Go mobile game in partnership with Nintendo and the Pokémon Company, says about the metaverse

Metaverse enablers:

- Hardware and the Metaverse: An article which focuses on the role of Hardware in 'The Metaverse'.
- Networking and the Metaverse: An article which focuses on the role of Networking in 'The Metaverse'.
- Compute and the Metaverse: An article which focuses on the role of Compute in 'The Metaverse'.

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Questions?

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