SCIECON NFT SYMPOSIUM

The promise and perils of NFT marketplace

Date
12/3/2021

Program Committee

Prof. Luyao Zhang, Chair
Zichao Chen, co-Chair
Yufan Zhang, co-Chair

Xinyu Tian, Commissioner
Tianyu Wu, Commissioner
Zesen Zhuang, Commissioner

Jiayi Li, Ambassador
Lewis Tian, Ambassador

SCIECON ACCELERATOR

SYMPOSIUM SCHEDULE

9:00-9:05 P.M.

Opening Remarks
Prof. Luyao Zhang, Zichao Chen and Yufan Zhang

9:05-9:11 P.M.

Article One
Zichao Chen (Presenter) and Yufan Zhang

9:12-9:18 P.M.

Article Two
Yufan Zhang (Presenter) and Zichao Chen

9:19-9:25 P.M.

Article Three
Xinyu Tian and Zesen Zhuang

9:26-9:32 P.M.

Article Four
Tianyu Wu and Jerry Zhang

9:33-9:38 P.M.

Article Five
Derrick Adam (Presenter) and Lorne Zhang

9:39-9:45 P.M.

Article Six
Rixin Wang

9:45-10:00 P.M.

Panel Discussions
Prof. Luyao Zhang, Prof. Yulin Liu, Dr. Diana Gamborino-Schweizer and Dr. Dustin Becker, Jiayi Li, and Lewis Tian

SCIECON NFT SYMPOSIUM

The promise and perils of NFT marketplace

SCIECON ACCELERATOR

NFT Marketplace 1:
Introduction to NFT and NFT marketplace's mechanism.

SCIECON NFT LAB SYMPOSIUM

Authors
Zichao Chen and Yufan Zhang

Presenter
Zichao Chen

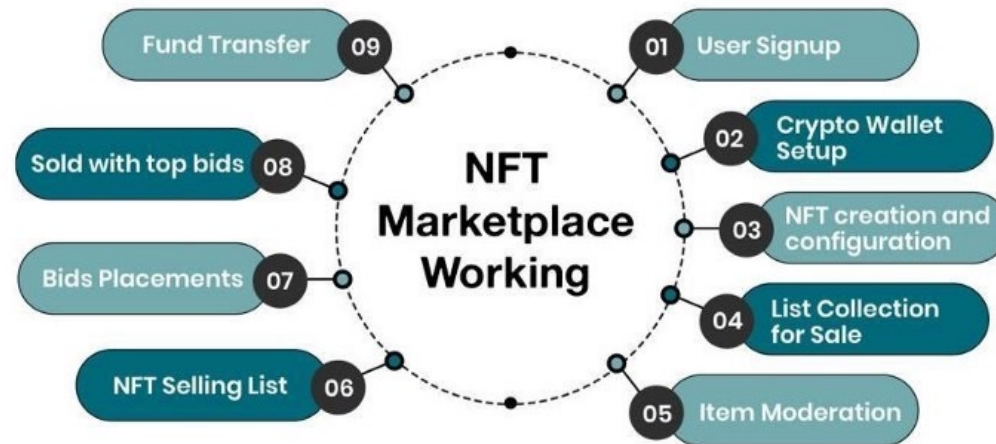**Supervisor**
Prof. Luyao Zhang

Date
12/3/2021

Figure : NFT Marketplace System

Highlight.

1.Why can NFTs sell at such a high price?

"Display Function" "Showing Off Phenomenon"

2. The Technical Standards of NFT

Commonly used token standards include:
ERC-721: the most basic and popular one
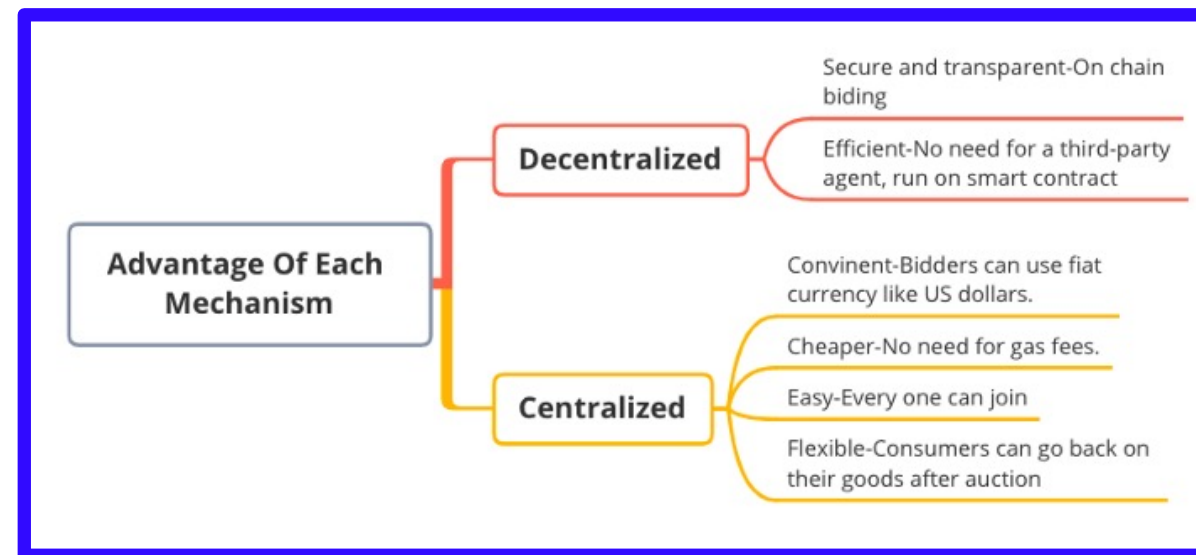ERC-1155: the mainstream standard in
            the game industry
ERC-998: can contain multiple tokens

3. What does the NFT Marketplace Bring Us?

Convenience to buy and collect
New market for artists

4. The two mechanisms of NFT auction

Advantage Of Each Mechanism

Decentralized
- Secure and transparent-On chain biding
- Efficient-No need for a third-party agent, run on smart contract

Centralized
- Convinent-Bidders can use fiat currency like US dollars.
- Cheaper-No need for gas fees.
- Easy-Every one can join
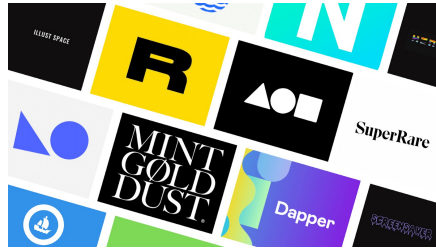- Flexible-Consumers can go back on their goods after auction

Inspiration.

The reason about why we chose these questions as breakthrough points for our article.
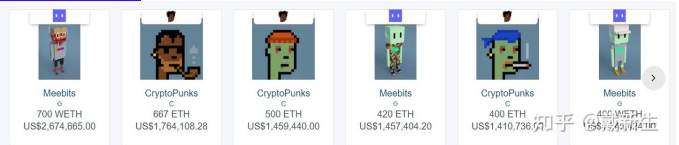
Figure 1: "Everydays — The First 5000 Days" is a collage of all the images that the artist known as Beeple has been posting online each day since 2007.
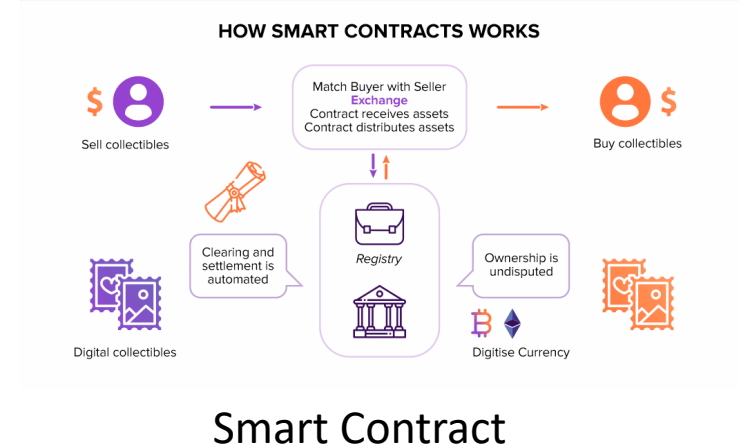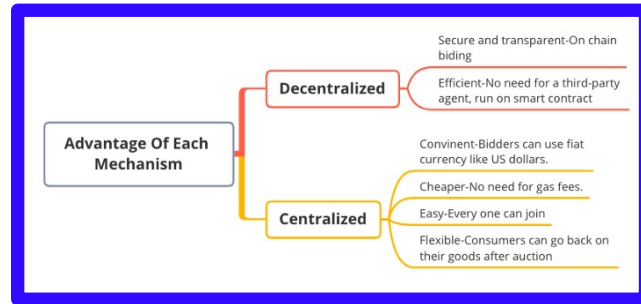
$69,000,000 ?

Over 1,000,000 ?

Coca Cola's NFT

VS.

The definition and features of NFT.

Why are NFTs so expensive?

What does it bring us?

NFT Marketplace

Decentralized or Centralized?

The technical standards.

HOW SMART CONTRACTS WORKS

Sell collectibles

Match Buyer with Seller
Exchange
Contract receives assets
Contract distributes assets

Buy collectibles

Clearing and settlement is automated

Registry

Ownership is undisputed

Digital collectibles

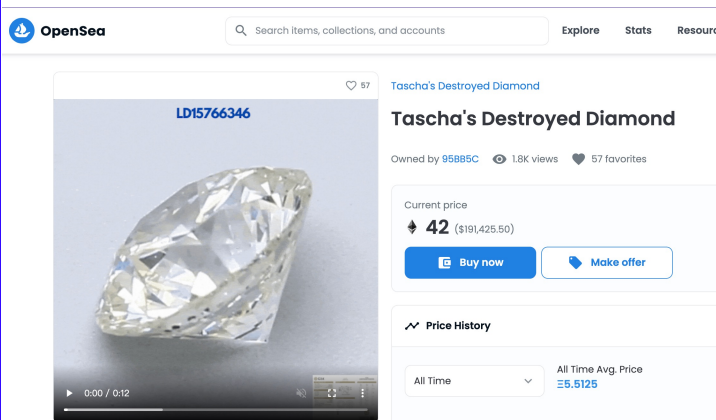Digitise Currency

Smart Contract

Research.

The research process on these topics.

The advantages of each

Limited edition + Artistical + Potential + "Showing Off Phenomenon"
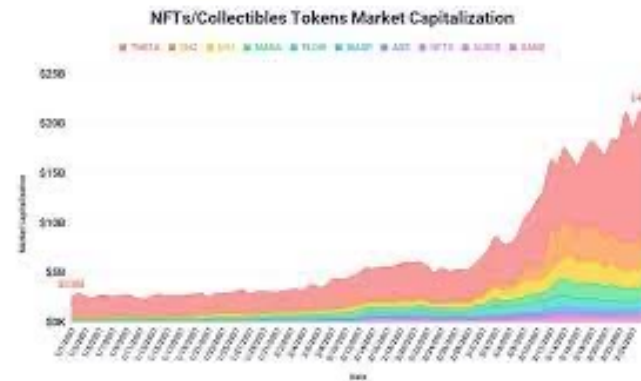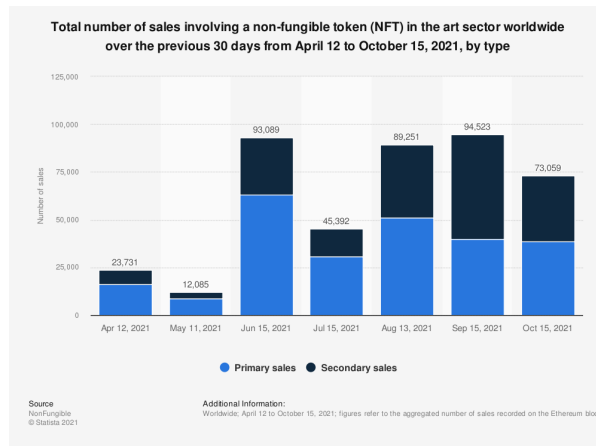
But not limited.

The definition and features of NFT.

Why are NFTs so expensive?

What does it bring us?

NFT Marketplace

Decentralized or Centralized?

The technical standards.

$5000 to $190,000

[ERC-721, ERC-1155 and ERC-998](#)

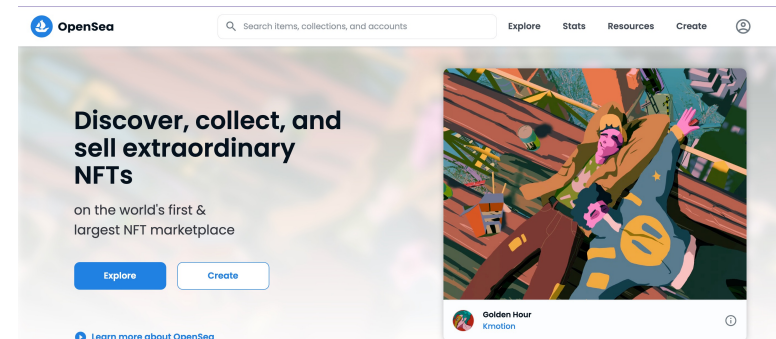# Future Research Direction.

What's next?

NFT Marketplace development data analysis.
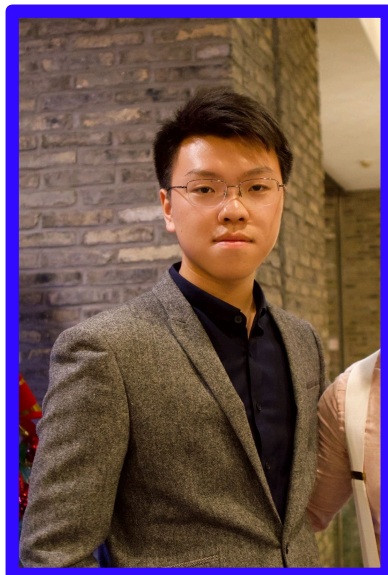

New trading form for NFTs?

AR/VR/Metaverse + NFT ?

More online shop?

Authors.

Zichao Chen

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zichao.chen01@gmail.com

[LinkedIn]

Zichao Chen is the leader of SciEcon research lab. He is a junior student at Duke Kunshan University majoring in data science, dedicated to the research of Fintech and blockchain technology and applications. Before joining SciEcon, he had working experience as an Data Engineer intern in the Internet industry and Business Analyst in the Finance industry. He also has experience in several investment markets and holds a professional qualification certificate issued by the Securities Industry Association of China.

Yufan Zhang

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yz605@duke.edu

[LinkedIn]

Yufan Zhang is the co-Chair of SciEcon NFT research lab, as well as a Junior student at Duke Kunshan University, majoring in Data Science. He has great enthusiasm for disciplines ranging from Data Science, Computer Science, and Finance. Yufan has a solid knowledge foundation of machine learning, graphic design, and programming. He has participated in several interdisciplinary research including Summer Research in Computer Vision at the Institute of Software, the Chinese Academy of Sciences, and the AlphaFold research team under the advisor, Prof Huansheng Cao. Yufan is a powerful force in the workplace and research teams using his positive attitude and tireless energy to encourage others to work hard and succeed.

How to Choose the Right NFT Marketplace for Artists and Collectors.

SCIECON NFT LAB SYMPOSIUM

Authors
Yufan Zhang & Zichao Chen

Presenter
Yufan Zhang

Supervisor
Prof. Luyao Zhang

Date
12/3/2021

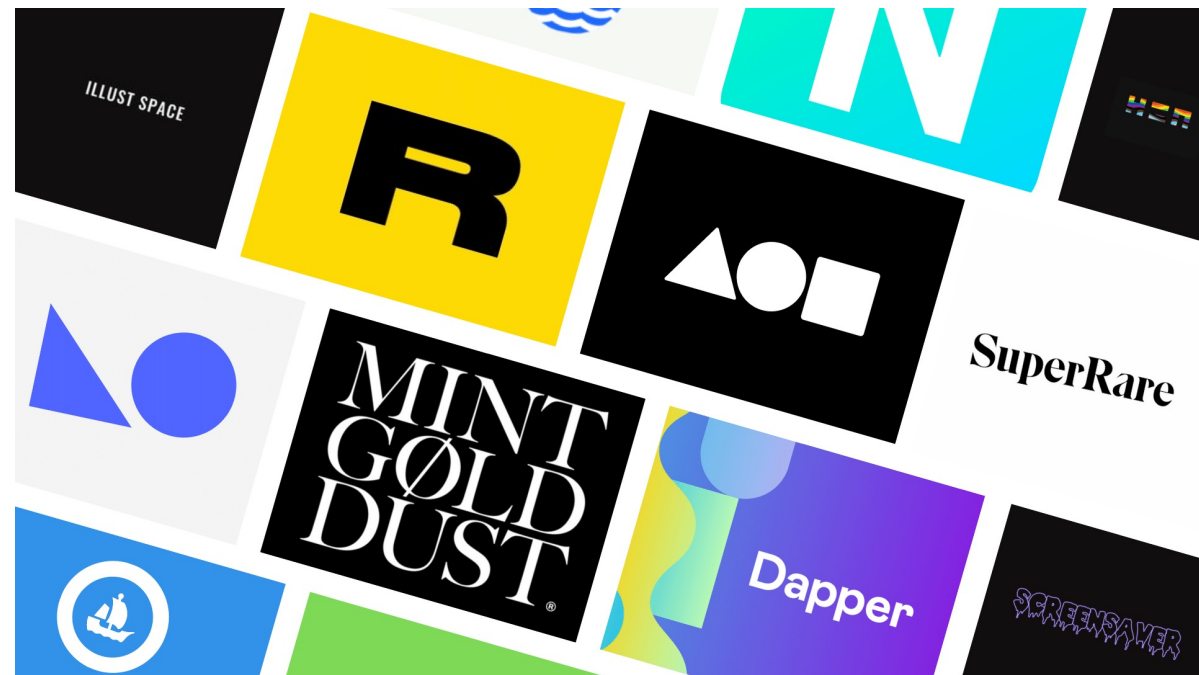Figure from https://blog.gilded.finance/best-nft-marketplace/

Highlight.

To choose the right NFT marketplace that suit your need,

For Artists
Three things to be considered

- Types of NFT Marketplaces
- Fees for NFT Minting
  - Minting Techniques
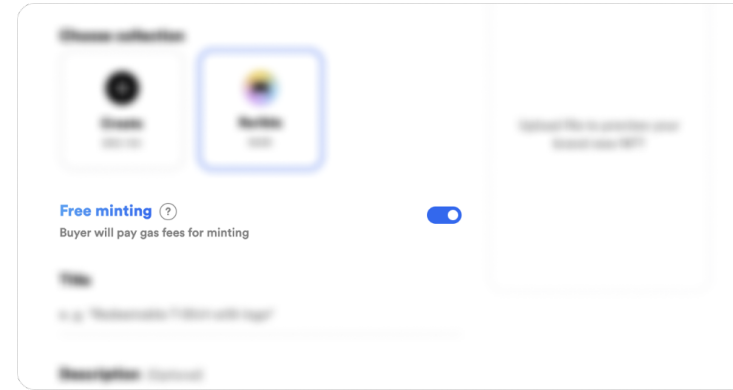 - Blockchain
- NFT Royalties and Token Standards

For Collectors
Three things to be considered

- Categories of NFTs
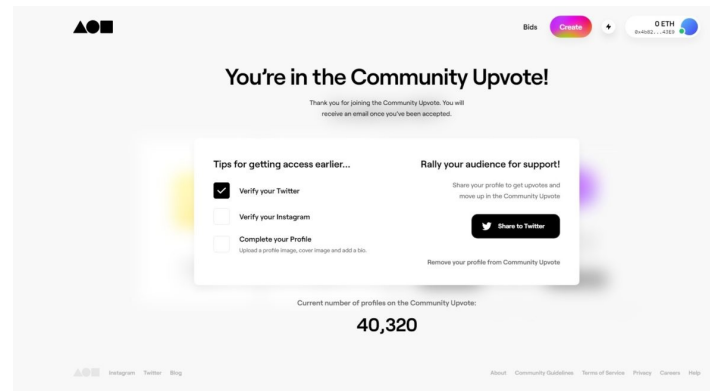- Blockchain
- Payment Methods

For Artists.

## 1 how to create or mint an NFT
the fees for NFT minting

Free minting ⓘ
Buyer will pay gas fees for minting

Lazy Minting Feature Introduced by Rarible in October

2 where to sell NFTs
the type of the NFT marketplace

You're in the Community Upvote!

Thank you for joining the Community Upvote. You will receive an email once you've been accepted.

Tips for getting access earlier...
Rally your audience for support!

Share your profile to get upvotes and move up in the Community Upvote

☑ Verify your Twitter
☐ Verify your Instagram
☐ Complete your Profile
Upload a profile image, cover image and add a bio.

Share to Twitter

Remove your profile from Community Upvote

Current number of profiles on the Community Upvote:

40,320

Community Upvote Mechanism on Foundation

3 how to earn money from the NFTs
NFT royalties and the token standards
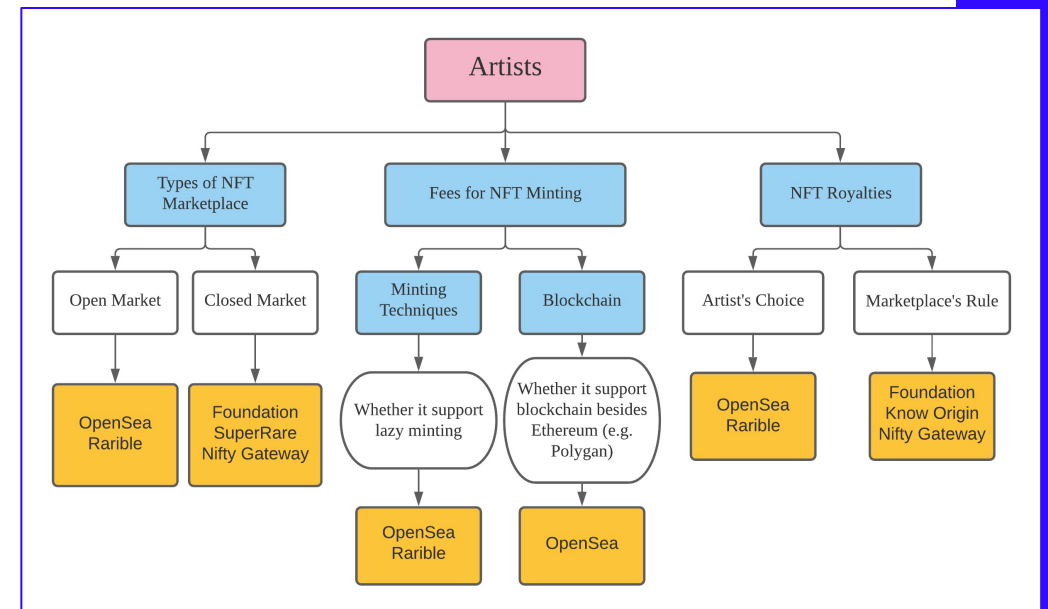
Flowchart to guide artists' decision
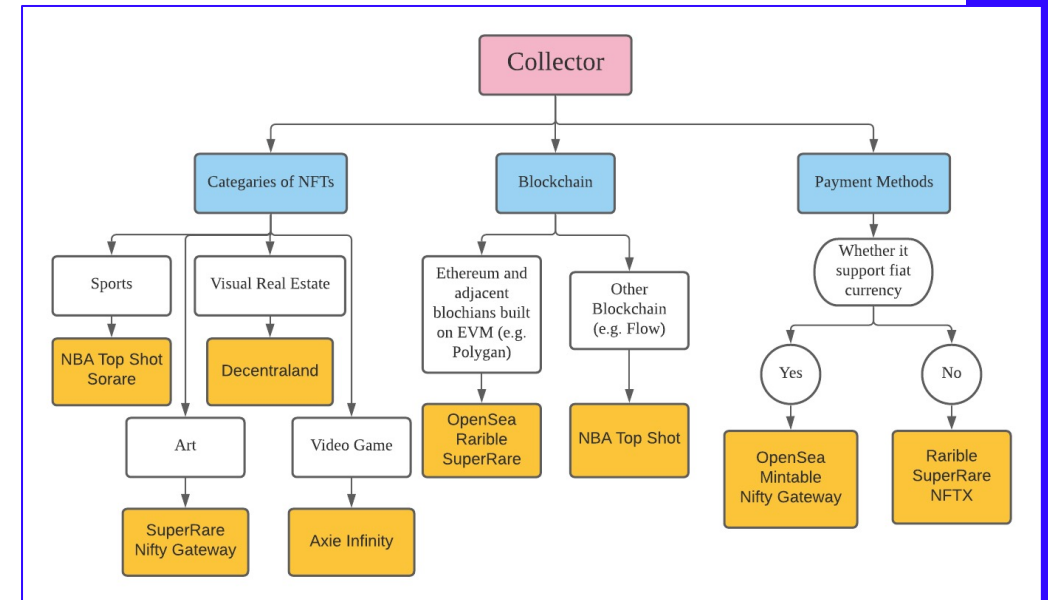
For Collectors.

1 Categories of NFTs
art, collectibles, gaming, etc.

2 Blockchain
scalability, transaction costs, and the degree of decentralization

3 Payment Methods
fiat currency (e.g. USD) or cryptocurrency required

Flowchart to guide collectors' decision

Future Research Direction.

Apply
Machine Learning
on

NFT Market Study

Auction Mechanisms in NFT Marketplaces

...

Authors.

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Yufan Zhang is the co-Chair of SciEcon NFT research lab, as well as a Junior student at Duke Kunshan University, majoring in Data Science. He has great enthusiasm for disciplines ranging from Data Science, Computer Science, and Finance. Yufan has a solid knowledge foundation of machine learning, graphic design, and programming. He has participated in several interdisciplinary research including Summer Research in Computer Vision at the Institute of Software, the Chinese Academy of Sciences, and the AlphaFold research team under the advisor, Prof Huansheng Cao. Yufan is a powerful force in the workplace and research teams using his positive attitude and tireless energy to encourage others to work hard and succeed.

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Zichao Chen is the leader of SciEcon research lab. He is a junior student at Duke Kunshan University majoring in data science, dedicated to the research of Fintech and blockchain technology and applications. Before joining SciEcon, he had working experience as an Data Engineer intern in the Internet industry and Business Analyst in the Finance industry. He also has experience in several investment markets and holds a professional qualification certificate issued by the Securities Industry Association of China.

SciEcon.

A Glance into the Metaverse: the importance of decentralization

SCIECON NFT LAB SYMPOSIUM
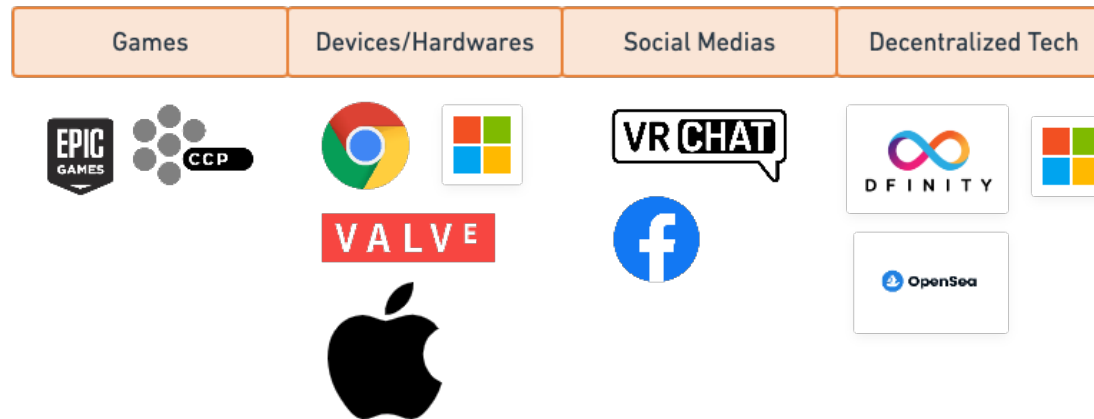
Authors
Xinyu Tian & Zesen Zhuang

Presenter
Xinyu Tian & Zesen Zhuang

Supervisor
Prof. Luyao Zhang

Date
12/3/2021

Highlight.

How far away are we from the Metaverse?

Introduction & Current Status

- How does Metaverse be implemented and applied?

- Why is it so important to have decentralization?
    - Take the DApps for example

Future Developments & Case Study

- What is the most Metaverse-ish platform to date?
    - EVE Online
    - Highlights & Potential developments

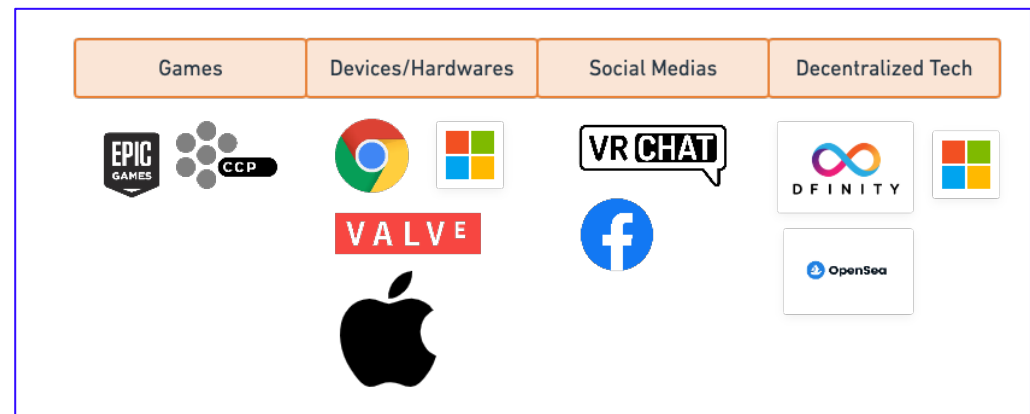# Introduction

1 *What is Metaverse?*
An avant-garde stage of AR

2 *How does Metaverse be implemented and applied?*
The current picture of the Metaverse:

1. The Online Games;
2. The Devices/Hardware;
3. The Social Media;
4. Decentralized Technologies.

Several current projects supporting Metaverse (created by Whimsical).

Technical System

Why is it so important to have decentralization?

Take the DApps for example.

1 **Trust**
A platform you can trust

2 **Risk**
A platform with little collapse risk

Case Study – EVE Online

Metaverse-ish

1 Comprehensive Economic System
Free market, Price Mechanism
Order book...

2 Related with the Real World
Exchange Rate
RMT (Real Money Trade)

Image from Epic Game Store

Case Study – EVE Online

SciEcon.

NOT Metaverse-ish?

Potential?

1 **Centralization**
Information Insecurity

1 **Decentralization – Trust**

2 **Currency Mechanism**
Simple Functionality and Insecurity

2 **Introduction of Crypto & NFT**

Future Research Direction

Construction of the Metaverse

1 *Academic Research:*

Decentralization on the Metaverse

- Mechanism Design in the Decentralized World: Game Theoretical Studies;
- Transactions and Financial Engineering in the Metaverse: NFT and Cryptocurrency.

2 *Project Innovator:*

DeFi and DApps:

- Introducing the pipeline from DeFi projects to DApps;
- Utilizing the features of decentralization to innovate on the Metaverse with DApps.

Authors

Zesen Zhuang

EMAIL: zz229@duke.edu
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Zesen Zhuang is one of the active members in SciEcon NFT research lab, as well as a junior student at Duke Kunshan University majoring in Data Science. **He** has a solid foundation in Computer Science and excels in Data Science courses. His areas of interest include reinforcement learning, algorithmic trading, and decentralized application. He is working under the guidance of Prof. Luyao Zhang on the combined application of algorithmic trading and reinforcement learning. He is also involved in several projects at SciEcon CIC, for which he provides core technical support. He is the Chair of Technology Development at SciEcon CIC, working on exploring the possibilities of decentralized networks.

Xinyu Tian

EMAIL: xt37@duke.edu
LinkedIn

Xinyu Tian is an active member in SciEcon NFT research lab, and a junior student at Duke Kunshan University with her major in Data Science. She is a full admission scholarship recipient and was supported by the 2021 Summer Research Scholarship. She is an interdisciplinary researcher with her passion and research experiences in Machine Learning, Big Data, FinTech, DeFi, and Game Theory. She is also the Chair of Communication in SciEcon CIC, supporting the pioneering SciEcon publications and assisting the SciEcon AMA program.

Explore the sea of NFT

- A US-Legal Perspective

SciEcon NFT Lab Symposium

Authors and Presenters: Tianyu Wul Jiarui Zhang

Supervisor: Prof. Luyao Zhang

Dec 3, 2021

Contents

SCIECON ACCELERATOR

NFT's Ownership and Underlying Intellectual Property Rights

Uniqueness of NFT ownership

**Underlying Intellectual Property Rights**
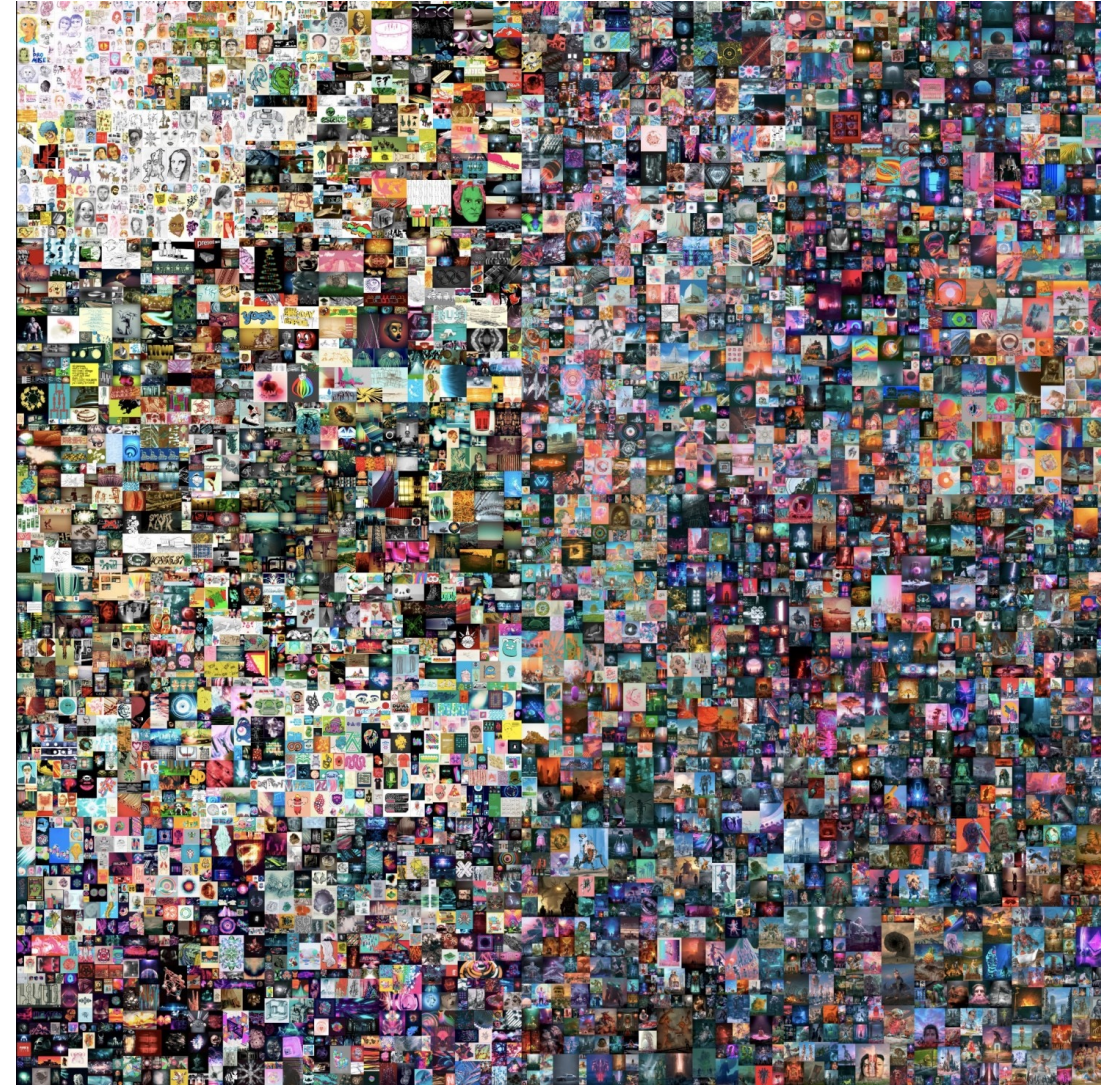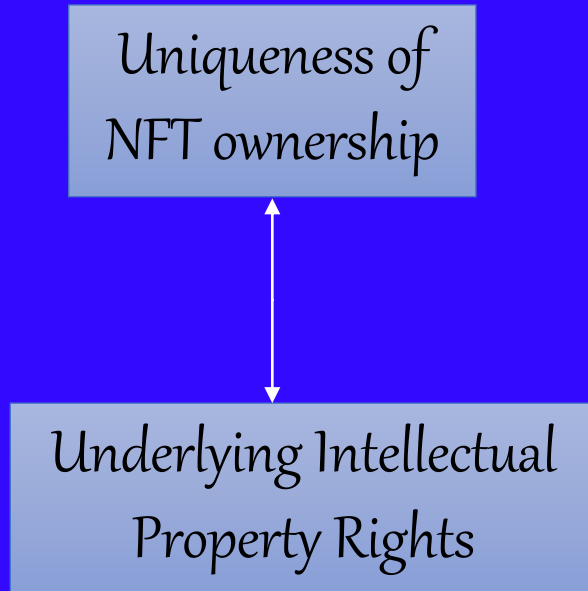
- Only one person can own an NFT.
- People have the right to own, sell, lend, or otherwise transfer the NFT itself.

However,
- The creator or any later owner of the NFT won't own the underlying intellectual property rights, say, the copyright.
- For copyrightable works, except in the case of a work made for hire, the author of a work owns the copyright.

SECTION 2

NFT's Copyfraud & Infringement of Copyright
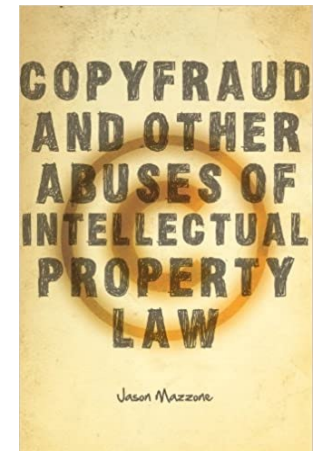
Copyfraud

Centralized administrative mechanism

Infringement of Copyright

- When a person mints an NFT of a public domain work, falsely claiming to own the copyright in the underlying asset as an original work.
- e.g. Rijksmuseum in Amsterdam.

- When a person who is not the author or copyright owner in the underlying asset in which copyright subsists, mints an NFT and misrepresents that they are the author or copyright owner of the work.
- e.g. "pixel whale".

SECTION 3

Transparency, Privacy and Anonymity

Transparency

- No one is capable of manipulating the record of ownership or copying a new NFT.

Privacy and Anonymity

- Centralized platforms requires authentication service to verify user data and offers protection policies to ensure user privacy.

- NFTs guarantee user anonymity by storing personal data into non-fungible tokens that interact directly with smart contracts.

SCIECON ACCELERATOR
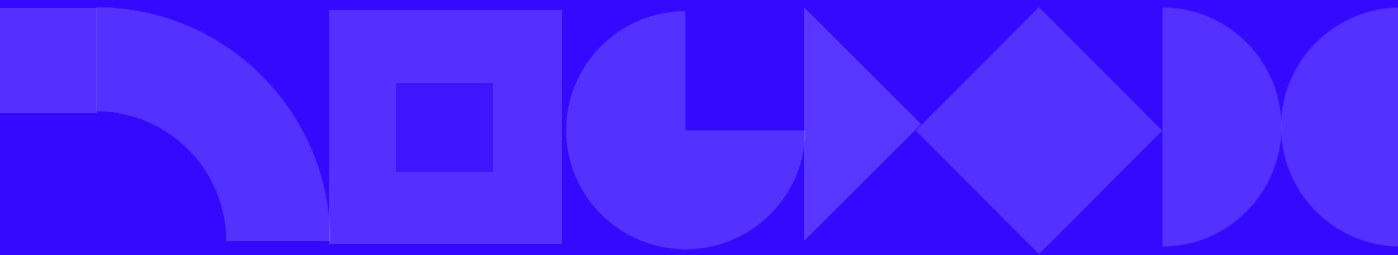
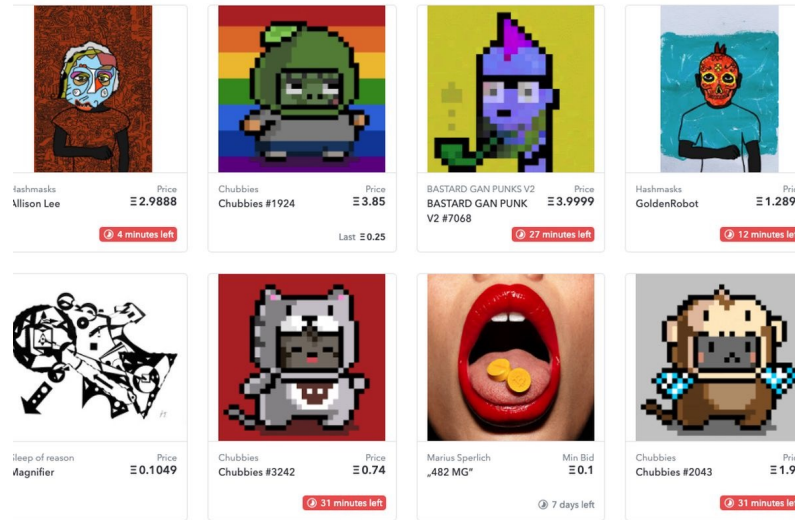SECTION 4

NFT's Royalties

Importance

Royalties

- NFT royalties give you a percentage of the sale price each time your NFT creation is sold on a marketplace.
- Automatic payouts to the author made on secondary sales.
- Artists can have their fair share of the sales from their creations for perpetuity.

- NFT royalties are an excellent opportunity that artists are able to tap into profits from secondary sales.
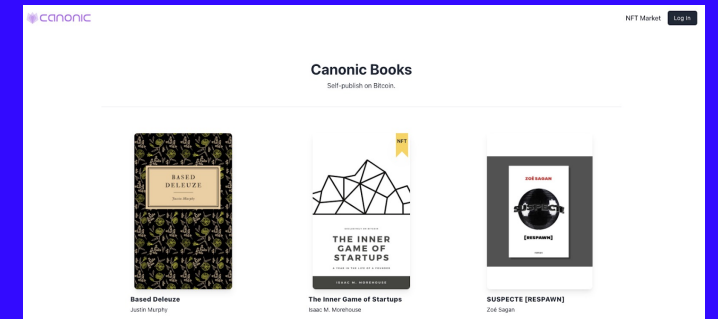
- Democratizing the payments made.

How does the value or the function differ in different types of products, like patents, technology, books or creative arts in terms of privacy, copyright, and ownership?

Determinants of NFT Values

- Chain Security

- On Chain or Off Chain

- Creator's reputation

- Scarcity and Authenticity

- Release pace

- Richness

Book NFT

Buyers' point of view:
(1) the NFT itself (which can be re-sold);
(2) the e-book file redemption code;
(3) an optional print copy if they want it at no extra cost.

Authors' and publisher's point of view:
① Get rid of the intermediaries and bring more financial profits to the authors;
② Generate a stronger motivation for the writer to materials with high quality;
③ Enable authors to track any illegitimate use;
④ Get rid of plagiarism;
⑤ Enable any author or publisher to receive compensation.

Future Research

1) *Technical implementation of the incorporation of NFT royalties and smart contract*

2) *NFT Underlying Intellectual Property Rights Auction Mechanism Design*

Thank you!

We are looking forward to your feedback!

Tianyu Wu is one active member in SciEcon NFT research lab, as well as a junior student at Duke Kunshan University, majoring in Applied Math. He has a solid foundation in Mathematics and excels in disciplinary courses. His areas of interest include quantitative analysis in the financial market, blockchain and cryptocurrency, and game theory. He is also one of the E-Board members of SciEcon CIC, leading the development of the HR management system in the era of transformation.

Email: tw251@duke.edu
LinkedIn: https://www.linkedin.com/in/tianyu-henry-wu/

Jiarui Zhang is a member of SciEcon NFT Lab and a junior at NYU CAS, majoring in Economics and Psychology. He will graduate from the undergraduate program in Fall 2023. His interests include but are not limited to the legal framework of blockchain, economic law, behavioral economics, and international macroeconomics. His research interest is on economic cause and impact of the specific legal regulations and broader legal system.
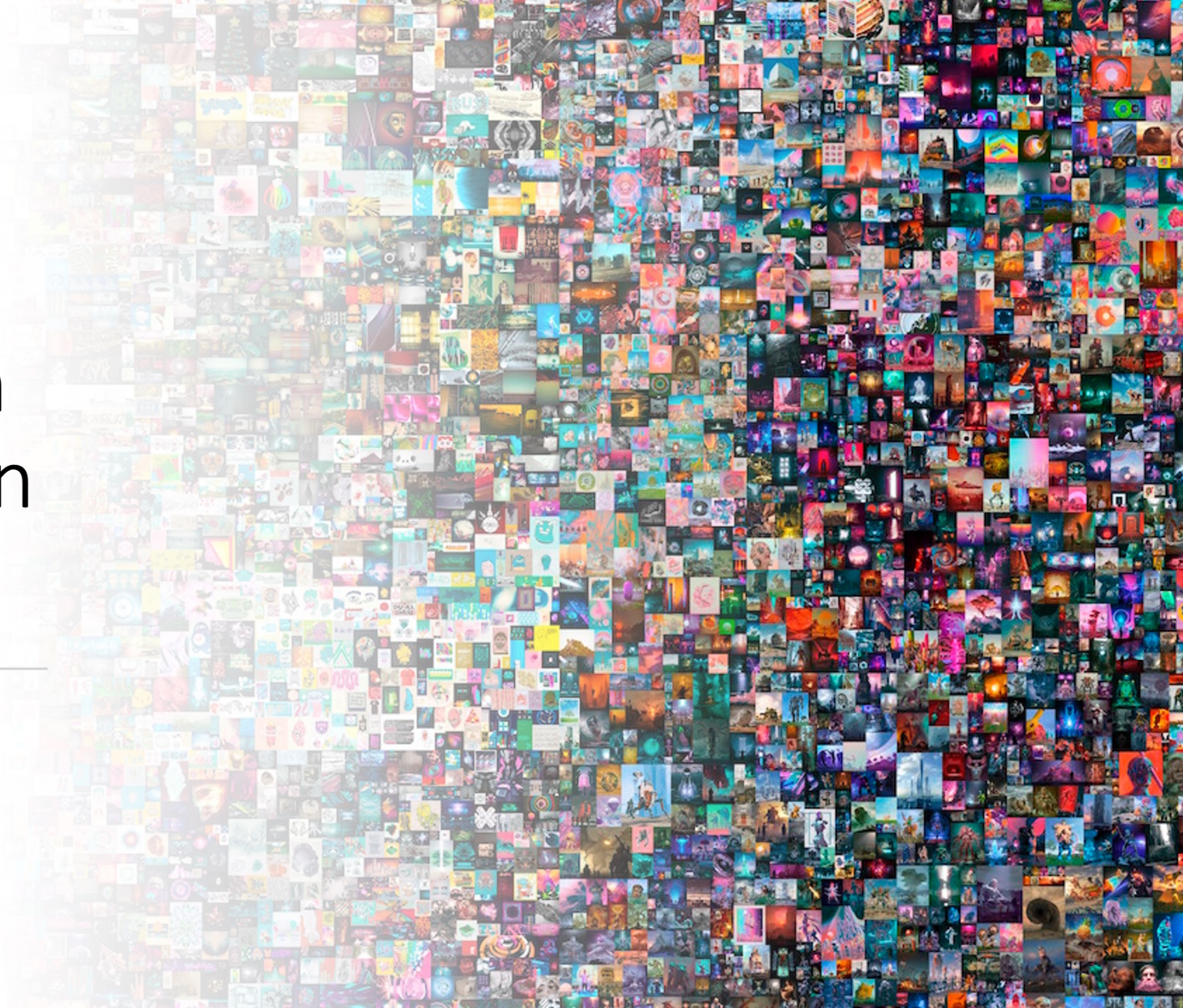
Email: jz3723@nyu.edu
LinkedIn: https://www.linkedin.com/in/jerry-zhang-b31b681bb/

Will the NFT surge maintain its popularity in the long run?
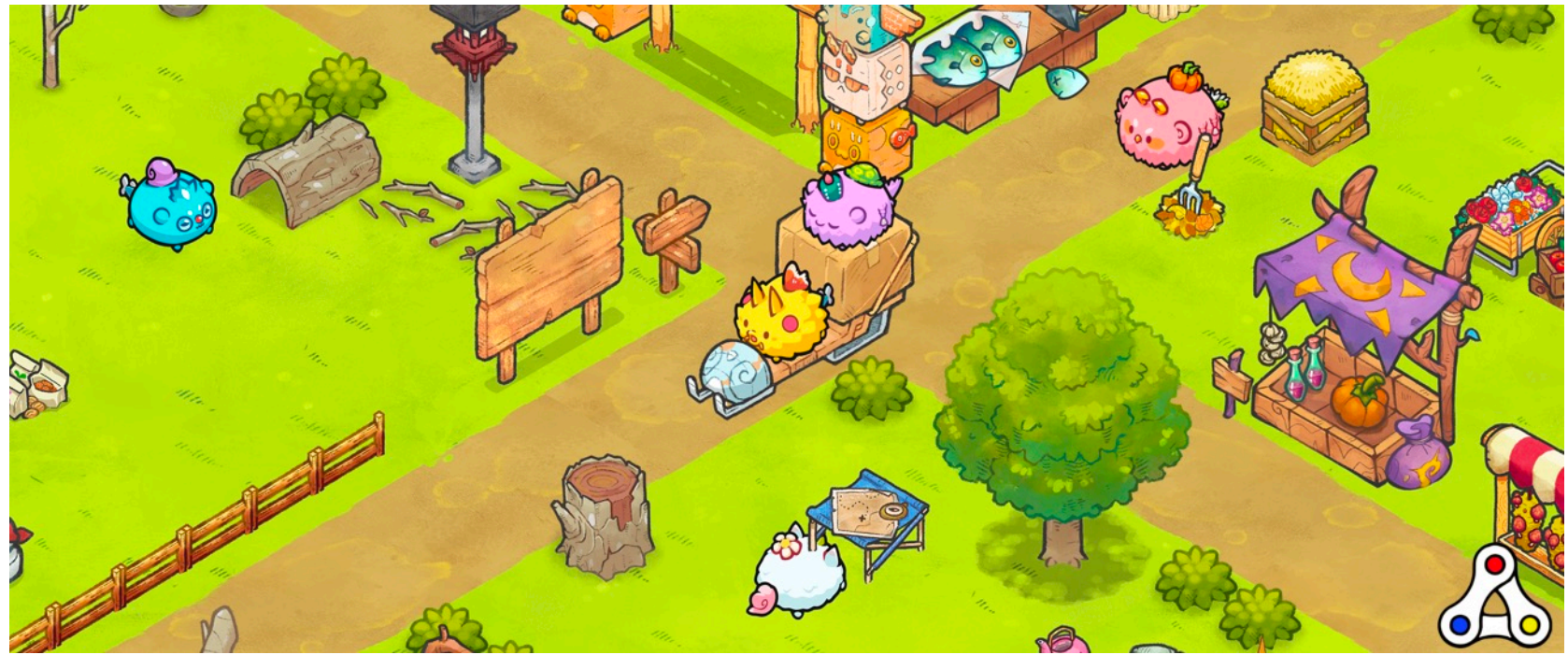
By: Derrick Adam & Lorne Zhang

NFTs

- non-fungible tokens typically held on the Ethereum blockchain. An NFT is a digital asset representing an underlying physical asset, such as art, music, videos, and gaming items.

- Fungibility is the ability of an asset to be exchanged or substituted with similar assets of the same value.
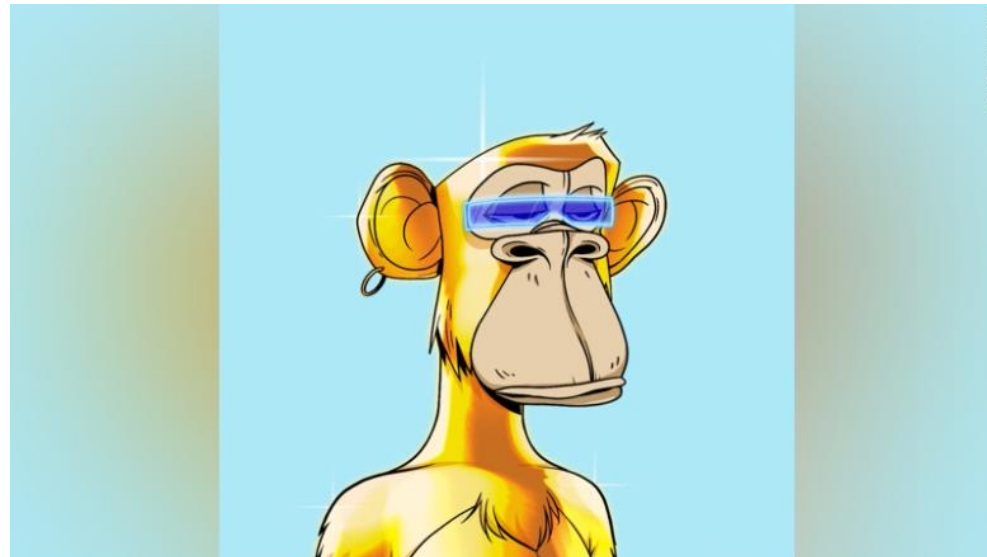
GameFi

Axie Infinity

- turned gaming into a form of labor to make a living all while enjoying the games they love.
- NFTs are introduced into games as unique skins, powerful items, and collectable trophies.

The Role of NFTs

When players obtain the different NFTs within the game, they can trade them around or sell them for Ethereum

One of the biggest marketplaces for NFTs currently is OpenSea

Game mechanics: leveling up an NFT to give it new attributes, playing campaign games, or battling other players vs. legacy gaming systems

To become a GameFi player:

Create a cryptocurrency wallet

Pre-fund crypto wallet

Purchase starter items

Future Use Cases of NFTs:

Real Estate
 - Virtual Real Estate

 - Real World Markets

Logistics

 - Supply Chain Immutability and Transparency

 - Scaling Utility

Domain Name Ownership

- Replacing a Centralized
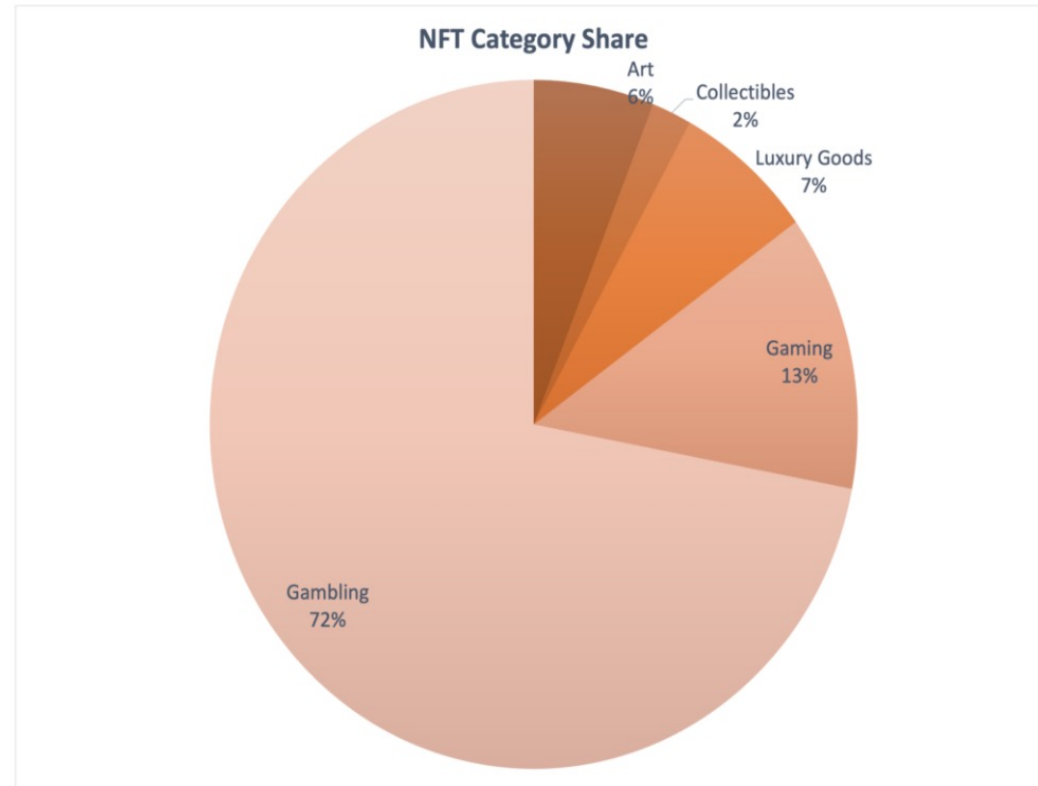   System

Current NFT Market Research

Total NFT Addressable Market				
		2019		2020
Art	$	64.4	$	50.1
Collectibles	$	218.5	$	174.8
Luxury Goods	$	328.8	$	253.9
Gaming	$	144.4	$	177.8
Gambling	$	495.9	$	402.5
Total	$	1,251.9	$	1,059.1

Source: Art Basel, HobbyDB, Bain, NewZoo, IBIS, US Census, Uncomfortable Profit

NFT Volume Booked vs Estimated Rest of 2021
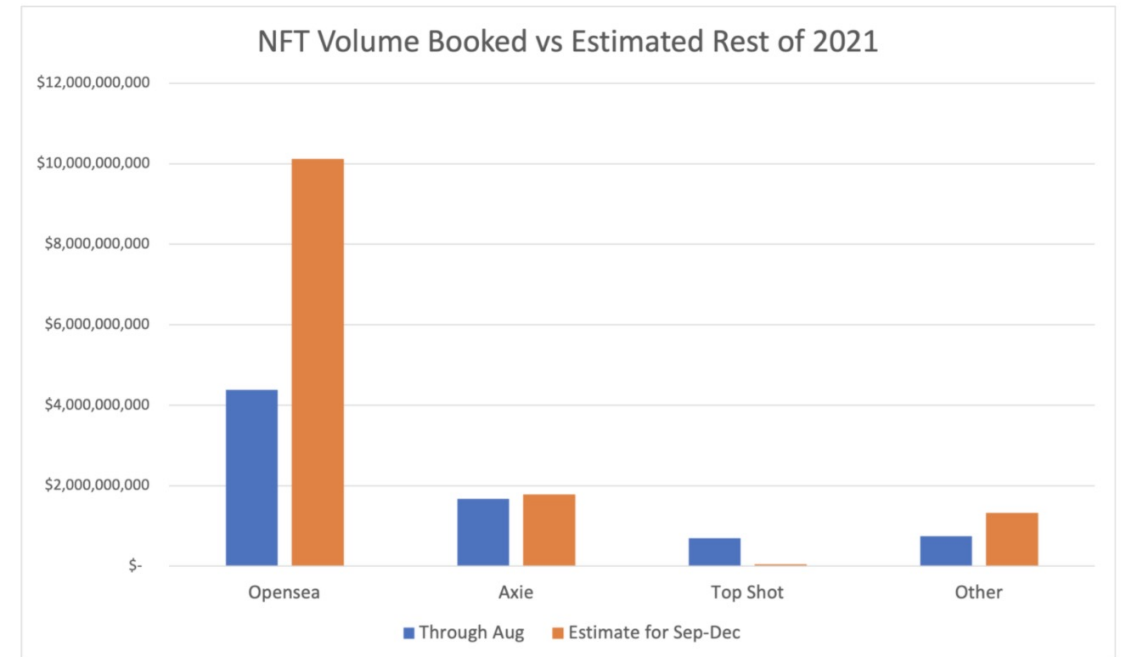
Source: Uncomfortable Profit

Core vs. Speculative

NFT Category Share

- Art 6%
- Collectibles 2%
- Luxury Goods 7%
- Gaming 13%
- Gambling 72%

Source: Uncomfortable Profit

Financial service and investment in the NFT market Place

SciEcon NFT Lab Symposium

Author: Rixin Wang
Supervisor: Prof. Luyao Zhang
12/3/2021

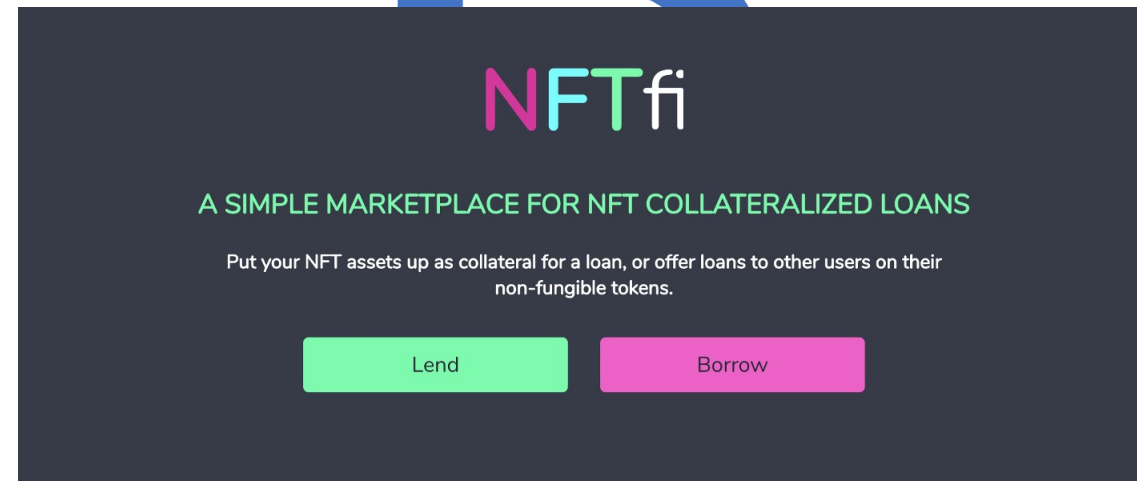# Highlights

NFT-COLLATERALIZED LENDING.

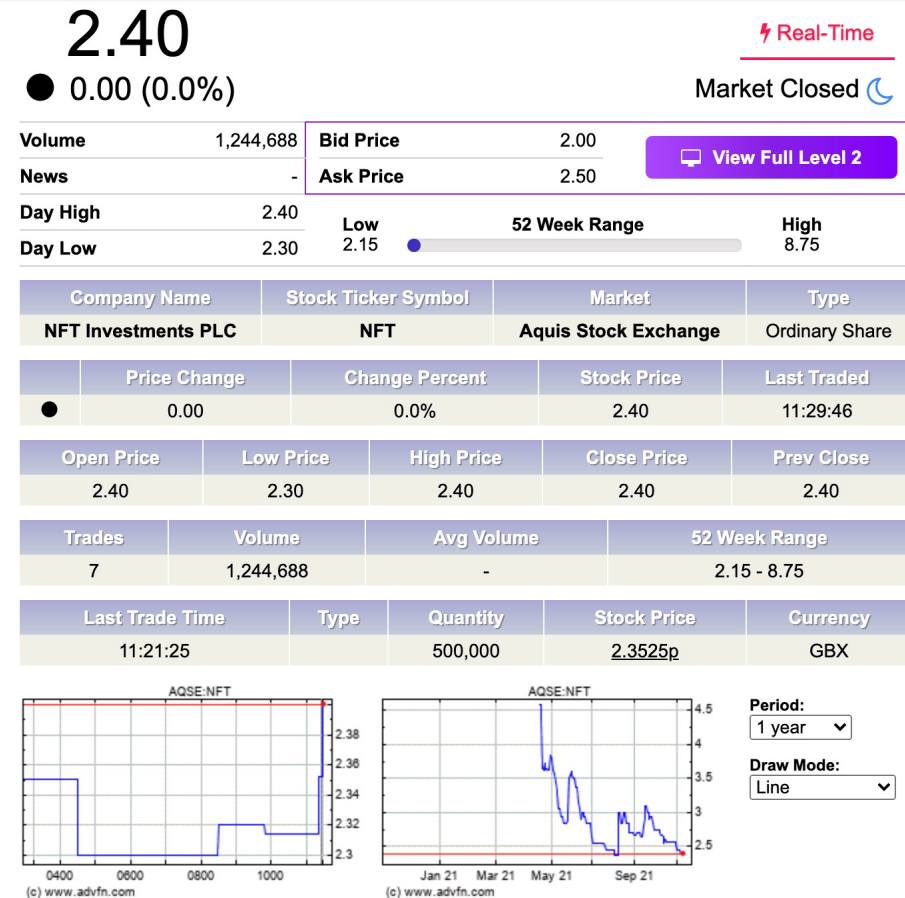**NFT COLLECTIVE INVESTMENT SCHEMES**

NFT INSURANCE

NFT-collateralized lending.

- NFTfi, and Why NFTfi

- How does NFTfi Functions

- The changes brought by NFTfi.

NFT collective investment schemes

- NFT funds
- NFT price fluctuations:
  1. Utility
  2. potential /future value
  3. previous holders
  4. and market recognition

NFT insurance

Why to insure your NFTs

Future of the NFT insurance.

Further research direction

- More data analysis and examples?

- More practical instructions based on first-hand experience?

- Further investigations?

Please feel free to shoot me with your thoughts!

Author.

Rixin Wang

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[LinedIn]

Rixin Wang is a newcomer of the SciEcon Lab and takes an active part in the NFT research lab. He is currently a sophomore at Duke Kunshan University and intends to major in economics. He has experience of centralized investment of cryptocurrency and stocks and has advantages of researching on behalf of investors and analyzing the market in practical ways. His research interest is on Defi markets, investment possibilities and social effect.

SYMPOSIUM SCHEDULE

9:00-9:05 P.M. **Opening Remarks**

Prof. Luyao Zhang, Zichao Chen and Yufan Zhang

9:05-9:11 P.M. **Article One**

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9:12-9:18 P.M. **Article Two**

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Rixin Wang

9:45-10:00 P.M. **Panel Discussions**

Prof. Luyao Zhang, Prof. Yulin Liu, Dr. Diana Gamborino-Schweizer and Dr. Dustin Becker, Jiayi Li, and Lewis Tian

SCIECON NFT SYMPOSIUM

The promise and perils of NFT marketplace

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