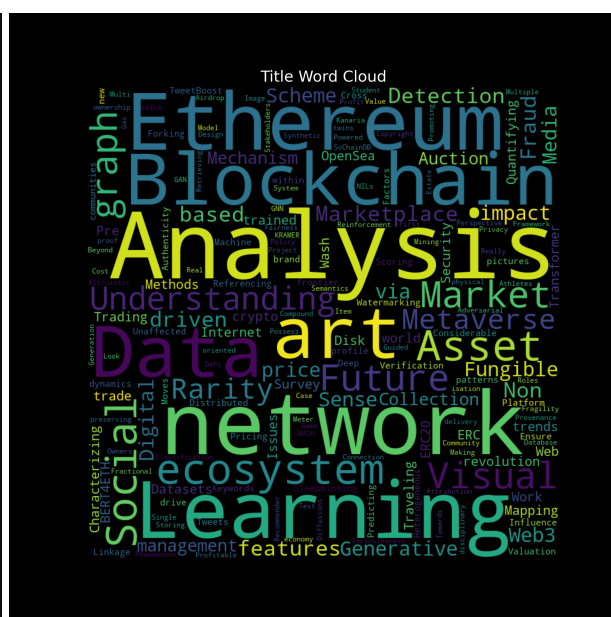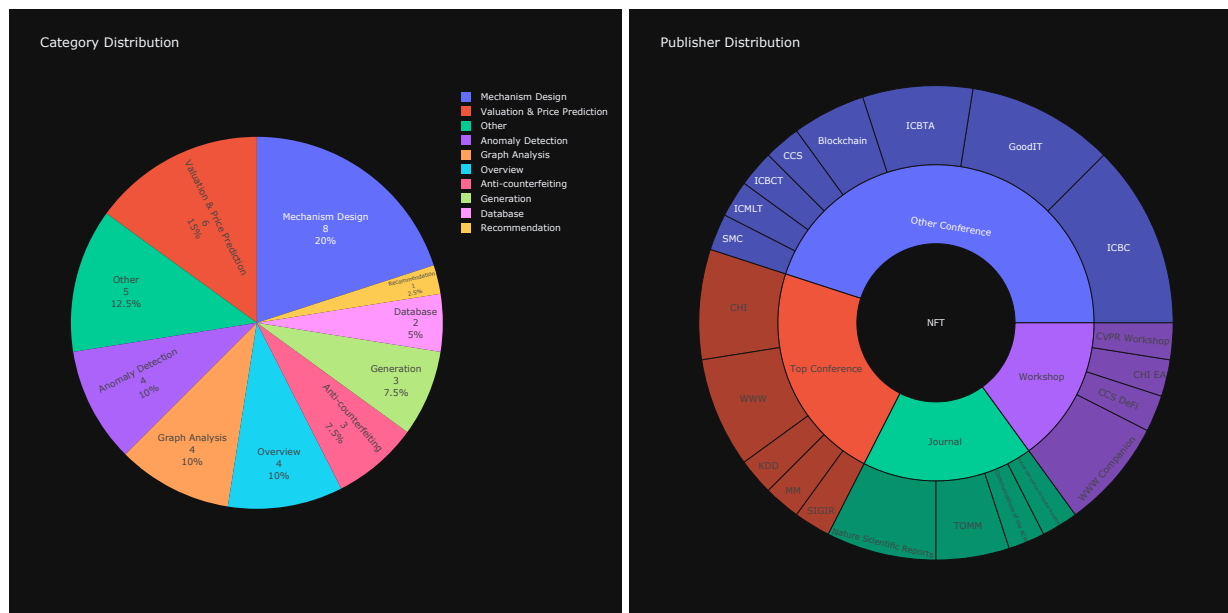# Awesome Data-driven NFT Papers

We collect papers related to data-driven analysis and application for non-fungible token (NFT) from top conferences, journals, and specialized domain-specific conferences. We then categorize them according to their specific tasks for better organization.

Related Top Conferences and Journals

- KDD, WWW, SIGIR ...
- CHI, CCS, ...
- CVPR, MM, TOMM, ...
- Nature Scientific Reports, ...

Domain-specific Conferences

- ICBC - IEEE International Conference on Blockchain and Cryptocurrency
- Blockchain - IEEE International Conference on Blockchain
- ICBTA - ACM International Conference on Blockchain Technology and Application
- GoodIT - ACM Conference on Information Technology for Social Good

Content

Overview

1. **Mapping the NFT revolution: market trends, trade networks, and visual features**

   Nadini, Matthieu and Alessandretti, Laura and Di Giacinto, Flavio and Martino, Mauro and Aiello, Luca Maria and Baronchelli, Andrea

   Nature Scientific Reports, 2021. `journal`

2. **Non-fungible tokens and the future of art**

   Kugler, Logan

   Communications of the ACM, 2021. `journal`

3. **Characterizing the OpenSea NFT Marketplace**

   White, Bryan and Mahanti, Aniket and Passi, Kalpdrum

   WWW Companion, 2022. `workshop`

4. **Web 3.0: The Future of Internet**

Gan, Wensheng and Ye, Zhenqiang and Wan, Shicheng and Yu, Philip S.

WWW Companion, 2023. `workshop`

Tasks

Graph Analysis

1. **Traveling the token world: A graph analysis of Ethereum ERC20 token ecosystem**

   Chen, Weili and Zhang, Tuo and Chen, Zhiguang and Zheng, Zibin and Lu, Yutong

   WWW, 2020. `conference`

2. **Networks of Ethereum Non-Fungible Tokens: A graph-based analysis of the ERC-721 ecosystem**

   Casale-Brunet, S. and Ribeca, P. and Doyle, P. and Mattavelli, M.

   Blockchain, 2021. `conference`

3. **Quantifying NFT-driven networks in crypto art**

   Vasan, Kishore and Janosov, Milán and Barabási, Albert-László

   Nature Scientific Reports, 2022. `journal`

4. **Graph Analysis of the Ethereum Blockchain Data: A Survey of Datasets, Methods, and Future Work**

   Khan, Arijit

   Blockchain, 2022. `conference`

Anomaly Detection

1. **Understanding Security Issues in the NFT Ecosystem**

   Das, Dipanjan and Bose, Priyanka and Ruaro, Nicola and Kruegel, Christopher and Vigna, Giovanni

   CCS, 2022. `conference`

2. **Sleepminting, the brand new frontier of Non Fungible Tokens fraud**

   Guidi, Barbara and Michienzi, Andrea

   GoodIT, 2022. `conference`

3. **NFTDisk: Visual Detection of Wash Trading in NFT Markets**

   Wen, Xiaolin and Wang, Yong and Yue, Xuanwu and Zhu, Feida and Zhu, Min

   CHI, 2023. `conference`

4. **BERT4ETH: A Pre-trained Transformer for Ethereum Fraud Detection**

Hu, Sihao and Zhang, Zhen and Luo, Bingqiao and Lu, Shengliang and He, Bingsheng and Liu, Ling

WWW, 2023. `conference`, `code`

Anti-counterfeiting

1. **A Distributed Authenticity Verification Scheme Using Deep Learning for NFT Market**

   Kimura, Keigo and Imamura, Mitsuyoshi and Omote, Kazumasa

   ICBTA, 2022. `conference`

2. **NFT-Based Data Marketplace with Digital Watermarking**

   Ranjbar Alvar, Saeed and Akbari, Mohammad and Yue, David (Ming Xuan) and Zhang, Yong

   KDD, 2023. `conference`

3. **Cross-Referencing Scheme to Ensure NFT and Platform Linkage Unaffected by Forking**

   Kimura, Keigo and Imamura, Mitsuyoshi and Omote, Kazumasa

   ICBC, 2023. `conference`

Valuation & Price Prediction

1. **TweetBoost: Influence of Social Media on NFT Valuation**

   Kapoor, Arnav and Guhathakurta, Dipanwita and Mathur, Mehul and Yadav, Rupanshu and Gupta, Manish and Kumaraguru, Ponnurangam

   WWW Companion, 2022. `workshop`

2. **Heterogeneous rarity patterns drive price dynamics in NFT collections**

   Mekacher, Amin and Bracci, Alberto and Nadini, Matthieu and Martino, Mauro and Alessandretti, Laura and Aiello, Luca Maria and Baronchelli, Andrea

   Nature Scientific Reports, 2022. `journal`

3. **The impact of NFT profile pictures within social network communities**

   Casale-Brunet, Simone and Zichichi, Mirko and Hutchinson, Lee and Mattavelli, Marco and Ferretti, Stefano

   GoodIT, 2022. `conference`

4. **Analysis of Non-Fungible Token Pricing Factors with Machine Learning**

   Ho, Kin-Hon and Hou, Yun and Chan, Tse-Tin and Pan, Haoyuan

   SMC, 2022. `conference`

5. **Understanding NFT Price Moves through Tweets Keywords Analysis**

Luo, Junliang and Jia, Yongzheng and Liu, Xue

GoodIT, 2023. `conference`

6. **NFT Scoring: An Analysis of the Considerable Features**

Nourmohammadi, Reza and Arabian, Mahdi and Ghorbanpour, Masoumeh and Nazemi, Mohammad M. and Nezhadsistani, Nasim

ICBTA, 2023. `conference`

Recommendation

1. **Predicting NFT Classification with GNN: A Recommender System for Web3 Assets**

Yu, Guangsheng and Wang, Qin and Altaf, Tanzeela and Wang, Xu and Xu, Xiwei and Chen, Shiping

ICBC, 2023. `conference`

Generation

1. **NFTGAN: Non-Fungible Token Art Generation Using Generative Adversarial Networks**

Shahriar, Sakib and Hayawi, Kadhim

ICMLT, 2022. `conference`

2. **Learning Profitable NFT Image Diffusions via Multiple Visual-Policy Guided Reinforcement Learning**

He, Huiguo and Wang, Tianfu and Yang, Huan and Fu, Jianlong and Yuan, Nicholas Jing and Yin, Jian and Chao, Hongyang and Zhang, Qi

MM, 2023. `conference`

3. **EKILA: Synthetic Media Provenance and Attribution for Generative Art**

Balan, Kar and Agarwal, Shruti and Jenni, Simon and Parsons, Andy and Gilbert, Andrew and Collomosse, John

CVPR Workshop, 2023. `workshop`

Mechanism Design

1. **A Framework for Single-Item NFT Auction Mechanism Design**

Milionis, Jason and Hirsch, Dean and Arditi, Andy and Garimidi, Pranav

CCS DeFi, 2022. `workshop`

2. **Real Estate Tokenisation via Non Fungible Tokens**

Serrano, Will

ICBCT, 2022. `conference`

3. **Altruistic and Profit-oriented: Making Sense of Roles in Web3 Community from Airdrop Perspective**

   Fan, Sizheng and Min, Tian and Wu, Xiao and Cai, Wei

   CHI, 2023. `conference`

4. **Using NFTs for ownership management of digital twins and for proof of delivery of their physical assets**

   Haya R. Hasan and Mohammad Madine and Ibrar Yaqoob and Khaled Salah and Raja Jayaraman and Dragan Boscovic

   Future Generation Computer Systems, 2023. `journal`

5. **A Privacy-preserving Auction Mechanism for Learning Model as an NFT in Blockchain-Driven Metaverse**

   Zhang, Qinnan and Xiong, Zehui and Zhu, Jianming and Gao, Sheng and Yang, Wanting

   TOMM, 2023. `journal`

6. **Do NFTs' Owners Really Possess their Assets? A First Look at the NFT-to-Asset Connection Fragility**

   Wang, Ziwei and Gao, Jiashi and Wei, Xuetao

   WWW, 2023. `conference`

7. **Gas Cost Analysis of Fractional NFT on the Ethereum Blockchain**

   Choi, Wonseok and Woo, Jongsoo and Hong, James Won-Ki

   ICBC, 2023. `conference`

8. **Semantics and Non-Fungible Tokens for Copyright Management on the Metaverse and Beyond**

   García, Roberto and Cediel, Ana and Teixidó, Mercè and Gil, Rosa

   TOMM, 2023. `journal`

Database

1. **SoChainDB: A Database for Storing and Retrieving Blockchain-Powered Social Network Data**

   Nguyen, Hoang H. and Bozhkov, Dmytro and Ahmadi, Zahra and Nguyen, Nhat-Minh and Doan, Thanh-Nam

   SIGIR, 2022. `conference`

2. **Data Mining of Compound DeFi Project**

   Escamilla, Jesus Ariel Leon and Yanovich, Yury

   ICBTA, 2022. `conference`

Other

1. **Stakeholders and Value in the NFT Ecosystem: Towards a Multi-disciplinary Understanding of the NFT Phenomenon**

   Baytaş, Aydın and Cappellaro, Amos and Fernaeus, Ylva

   CHI EA, 2022. `workshop`

2. **Promoting Inclusiveness and Fairness through NFTs: The Case of Student-Athletes and NILs**

   Carvalho, Arthur and Zavolokina, Liudmila and Bhunia, Suman and Chaudhary, Monu and Yoganathan, Nitharsan

   CHI, 2023. `conference`

3. **The social impact of NFTs in the metaverse economy**

   Guidi, Barbara and Michienzi, Andrea

   GoodIT, 2023. `conference`

4. **NFT SMASH: Game to Test Your NFT Rarity Sense**

   Krasnoselskii, Mikhail and Madhwal, Yash and Stepin, Alexander and Yanovich, Yury

   ICBC, 2023. `conference`

5. **KRAMER: Kanaria NFT Collection Rarity Meter**

   Krasnoselskii, Mikhail and Madhwal, Yash and Yanovich, Yury

   ICBC, 2023. `conference`