*Not endorsed or sponsored by Twitter

Problem Statement

What insights and trends can be discovered about the rapid-paced world of cryptocurrencies through analysis of social media platforms dedicated to cryptocurrency discussion?

Why It Matters

- Possible to predict crypto trends before they are commonly known
  - Determine impacting factors that tell if it's a good time to invest
- Are there differences between user communities of bitcoin and ethereum-based coins? Do these communities interact with each other?
- Which cryptos attract loyal user base vs cryptos that attract pump-and-dump investors?

Data Sources

Twitter

Reddit

- Method: Twitter API

- Search Keyword: #crypto

- About 11k data

id	name	screen_name	created_at	text	location	followers_count	friends_count	listed_count	retweet_count	favorite_count
1460631042541465610	Mari Goug	MariGoug	2021-11-16 15:29:12	b'RT @ethereum_max: What is "	Perth Amboy, NJ	100	238	0	5	0
1460631041983410181	Scott Wildey	scottwildey	2021-11-16 15:29:12	b'RT @SheldonEvans: Just hit 2(	San Diego	193	44	11	4702	0
1460631037294174210	Johnpaulvila	Johnpaulvila1	2021-11-16 15:29:11	b'RT @dislecorp: Be ready for the #CryptoIsland #NFT Collec		11	23	0	13	0

Data Sources - Insights from our Reddit Data 🚀

- Clear difference between **hypecoins** v. **functional** tokens

- Looked at 10 Top Gain (%) Cryptos listed in Crypto.com's App

  - Compared to steadily increasing cryptos with innovative whitepapers (HNT, CRO, etc.)

- 🚀🚀🚀🚀🚀 = Pump and Dump | "Vote on Update" = Higher investment value

  - Top gainers appear to be quite superficial

Top Gainer - Keep Network

11	1 KEEP COSTS MORE THAN 1 NUCYPHER. what a day	6	Let's GO!!	COBE1
11	1 KEEP COSTS MORE THAN 1 NUCYPHER. what a day	6	Is this another pump and dump?	HeatClub7
3	Top 10 Coins by AltRank™ over the last 24 hrs ...	1	We boutta blast off	Trainsylvania
5		1	You should check out asm and orion	Temporary-Valuable47

Top Gainer - NuCypher

Been in since January, hodling long term. \n\n...	5	\\\\\\Can anyone please explain what merger is...
	18	Plz for the love of god everyone hold lets 🚀🚀🚀😁
	18	Lol us real Nu believes know this is just the ...

IoT Innovative Crypto - HNT

Welcome to the Helium Network subreddit. Pleas...	80	27 million HNT locked in validators, few have ...	ReducedFat
Welcome to the Helium Network subreddit. Pleas...	80	Hi all! I'm really interested in mining Heliu...	escargotmycargo
Welcome to the Helium Network subreddit. Pleas...	80	How will HIP 39 work for HNT not stored in hel...	lagnthy
Welcome to the Helium Network subreddit. Pleas...	80	Question.\n\nI've heard the re-denomination wi...	MastertoneCO

Analysis and Results

Lift Analysis

Topics

["*#bitcoin*", "*NFT*", "*#crypto*", "#eth", "#nft", "#metaverse", "#nftcollectors"**]**

Attributes

["Airdrop", "future", "good", "best", " 🚀 ", "#bullish"**]**

Lift Analysis

	Airdrop	future	good	best	🚀	#bullish
NFT	24.14	0.00	0.24	0.00	0.03	0.00
#bitcoin	1.62	0.51	0.00	3.77	0.13	0.00
#Crypto	6.03	0.24	1.11	0.31	0.02	7.69
#eth	0.00	0.00	0.00	1.77	0.00	0.00
#nft	0.00	0.00	0.00	20.18	0.00	0.00
#metaverse	0.00	0.00	0.00	0.00	1.71	0.00
#nftcollectors	0.00	0.00	0.00	58.57	0.00	0.00

Insights about lift analysis

#crypto ← **Airdrop** → #Bitcoin

↓

NFT

#NFTcollectors → best
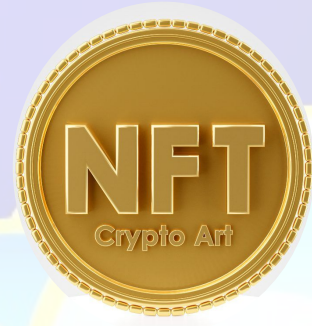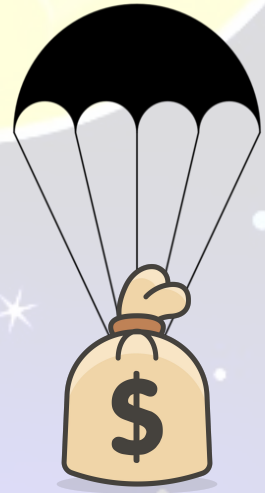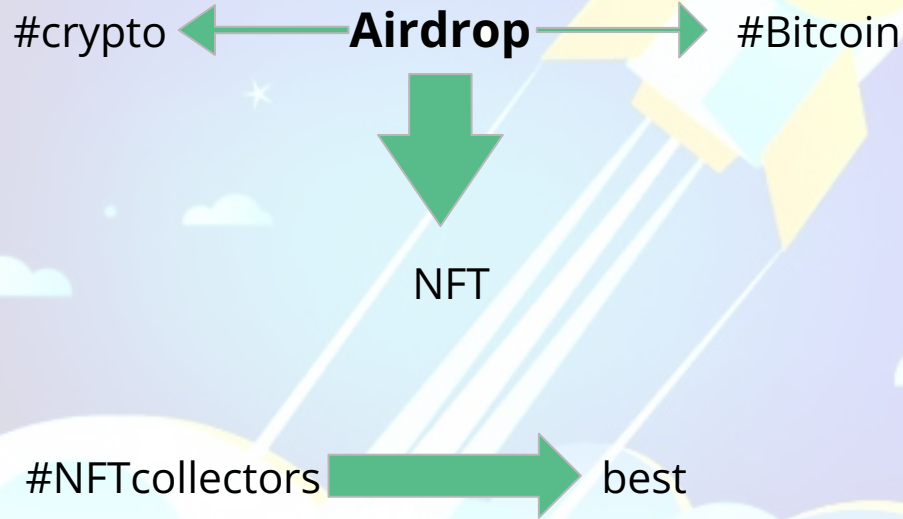
Topic Modeling from Twitter data

Observations
- Topic Modeling results are **random and noisy.**
- Short-form is challenging because of the **lack of detail** and high use of emojis, acronyms, and slang.

Target
- Find a **better method** to discover market insights from short-form forums.

Next Step
- Perform Network Analytics on Twitter data.

	0
usecases	0.146691
everrisev2	0.103742
kusama	0.051457
dot	0.035066
contest	0.034444
binance	0.033199
litecoin	0.031747
everbridge	0.030709
bitcoin	0.025107
cryptonews	0.022825
shaktidhama4	0.018468
cr	0.018053
money	0.017015
happyhour	0.016601
pitbullto	0.016393

	1
usecases	0.238243
buy	0.051481
meta	0.026540
newyorkcity	0.025941
pitbull	0.021352
catearmy	0.020753
sby	0.020155
elon	0.018159
dogelonmars	0.017960
akita_army	0.015366
meme	0.013371
coinstore	0.012972
bone	0.012772
litecoin	0.012173
saitamatoken	0.011575

	2
bitcoin	0.177821
kishimotoinu	0.121796
zinu	0.080735
usecases	0.073427
cryptomeme	0.057768
dehub	0.034106
thefuture	0.032366
everrisev2	0.028190
zuki	0.025406
music	0.019490
occt	0.012879
london	0.012531
cr	0.011487
elongatefamily	0.009747
safemoon	0.009051

Network Analytics: Community Detection

Network Analysis shows **2 major communities** (elbow at k=3) and **1 Key Opinion Leader (KOL)**

- **Community 1:** 2237 members
- **Community 2:** 2200 members
- **Community 3:** 444 members

KOL: CryptoTownEU (W. Page Rank = 0.065)

Questions to Explore:

1. What characterizes these communities?
2. What can we learn about their individual members and their preferences?
3. Is Page Rank the best metric to find KOLs?

	Weighted Page Rank	
	user_name	weight
7	CryptoTownEU	0.065033
687	GyroCryptoBTC	0.031711
18	revolut20	0.022084
1	AirdropDet	0.019145
905	chiqshoes	0.014922
529	AltcoinDailyio	0.012205
29	Eltanteco	0.012024
104	SheldonEvans	0.006345
42	Pandainu21	0.006231
47	SolanaPixsols	0.004734
12	SherlockWallet	0.004470
289	CryptoAlcoholi	0.004168
108	Next100xToken	0.003537
39	AIBCsummit	0.003167
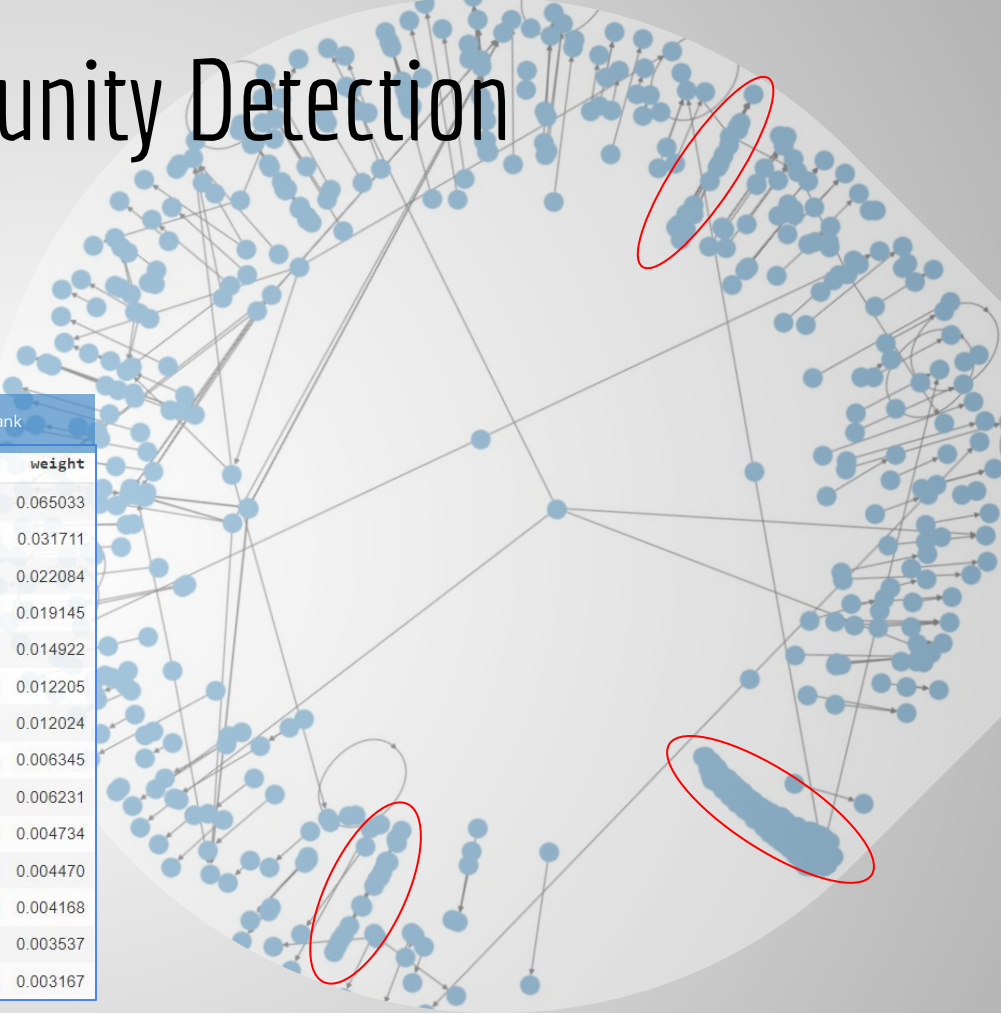
Network Analytics: Page Rank & Closeness Centrality

- Reaffirm CryptoTownEU as Key Opinion Leader (KOL).
- We find a **high correlation between Page Rank and Closeness Centrality** with a few especial cases
  - GyroCryptoBTC
  - WILDERCRYPTOO
- **Framework:** Divide members into quadrants according to their Page Rank (PR) and Closeness Centrality (CC).
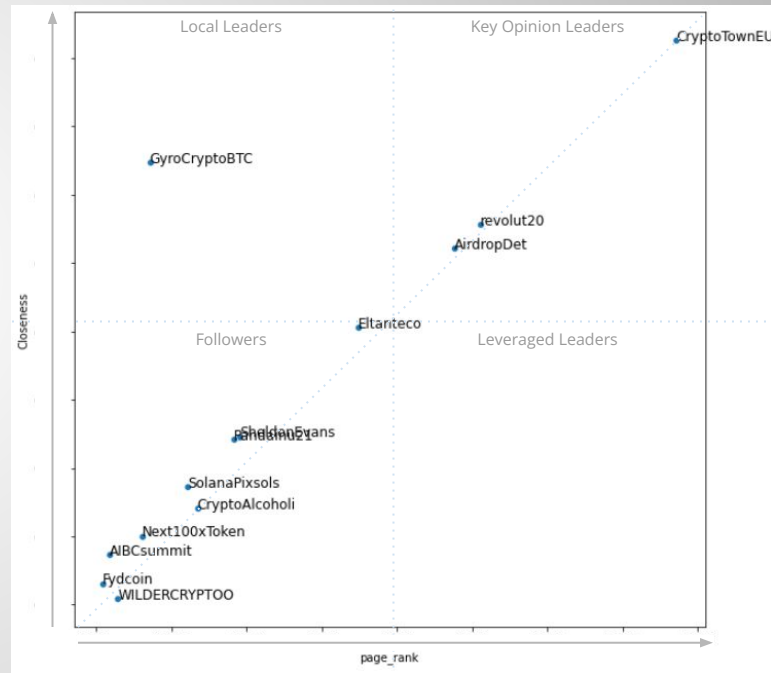
Network Analytics: Community 1 + Topic Modeling

- Question: Has Community 1 formed around specific topics?
  - Varied k, arrived at k=2.
  - Both topics very similar: bitcoin, catei, doge.
- Topic 2 introduces **ideas connected with market manipulation**: airdrop, babydoge, bullish, elon.
- **High number of members speculating** with new cryptos and tokens.

CryptoTown @CryptoTownEU · 17 nov. ···
🚀 Airdrop: Spaceship War
💵 Value: $ 10 (567 $SPW)
💰 Referral: $56,7 ~ 1$ - Max $433 SPW/wallet
🏆 Winners: 1000
📋 Audit: InterFi
📅 End Date: 5th December, 2021

Talk with the Telegram Bot
t.me/SpaceshipWarAI...

#Airdrop #Crypto #Airdrops #cryptocurrency #giveaway

SPACESHIP WAR
AIRDROP
ROUND 1

♡ 4,2 mil   ⇄ 18,1 mil   ♡ 13,6 mil   ⬆

Altcoin Daily @AltcoinDailyio · 16 nov.
If you like #crypto, you like #bitcoin 🅱 👍

💬 162   ⇄ 54   ♡ 875

	0	1
bitcoin	0.253271	0.562266
catei	0.133635	0.175041
dogelon	0.052842	0.000015
fcf	0.046627	0.000015
nft	0.045073	0.000015
cryptonews	0.045073	0.000015
cryptocurrency	0.037305	0.000015
trust	0.034197	0.000015
castorcoin	0.034197	0.000015
gateio	0.031090	0.000015
bscgem	0.029536	0.000015
memecontest	0.029536	0.000015
defi	0.021768	0.000015
devs	0.017106	0.000015
blockchain	0.017106	0.000015

	0	1
bitcoin	0.253271	0.562266
catei	0.133635	0.175041
dogelonmars	0.000016	0.054227
cryptocurrecy	0.000016	0.040287
cryptocurrencies	0.000016	0.035640
binance	0.000016	0.015504
cointigernewlisting	0.000016	0.013956
babydoge	0.000016	0.010858
elon	0.000016	0.010858
crypto	0.000016	0.007760
airdrop	0.000016	0.007760
watchtoearn	0.000016	0.006211
gami	0.000016	0.006211
bullish	0.004677	0.006211
affinity	0.000016	0.004662

Network Analytics: Community 2 + Topic Modeling

- Community 2 is also formed around 2 similar topics: metaverse, nfts, ethereum and Solana.
- Seems to focus more on **blockchain innovation and organic buy/sell relationships**, compared to Community 1.
- Is a good community to follow for **longer term trends and "value investing"**.

TCG World @OfficialTCGCoin · 14 nov.
The only thing more exciting than experiencing the #auroraborealis is to experience it in the #Metaverse

#tcgworld Early Gameplay Footage 👇

#playtoearn #NFTs #BSCGem #Binance💰 #crypto #Gamedefi #GameFi #P2E #P2EGAMING #NFTgame

0:07 1,8 mil reproducciones

💬 9   🔁 59   ♡ 128

Adrian Chamber @adrian__chamber · 17 nov.
Shill me your best #nft

I have 2 #Ethereum to spend.

#nftart #nft #nftcollectors #nft #NFTdrops #NFTartists #opensea #OpenSeaNFT #NFTCommunity #etherium #Crypto #cryptocurrency #cryptotrading

💬 247   🔁 956   ♡ 1 mil

	0	1
cryptone	0.148057	0.000005
gateio	0.069419	0.000005
nftcollectors	0.059226	0.000005
cryptoinvestment	0.051944	0.000005
wolverinu	0.047576	0.000005
metaverse	0.037867	0.165425
beyondprotocol	0.035440	0.000005
shibarmy	0.034469	0.018591
nftc	0.033013	0.000005
bnb	0.033013	0.000005
nftart	0.033013	0.000005
pixs	0.033013	0.000005
solana	0.031071	0.000005
shibainu	0.022334	0.000005
shiba	0.021363	0.000005

	0	1
metaverse	0.037867	0.165425
anime	0.000005	0.152415
solanaairdrop	0.000005	0.107807
eth	0.000005	0.091079
linksync	0.000005	0.060411
shillme	0.000005	0.055764
altcoin	0.000005	0.043218
shiborgarmy	0.000005	0.031602
cryptophyte	0.000005	0.030208
ethereum	0.000005	0.028814
bsc	0.000005	0.020450
nf	0.000005	0.018591
shibarmy	0.034469	0.018591
bluezilla	0.000005	0.017197
shibelon	0.000005	0.015803

Network Analytics: Community 3 + Topic Modeling

- Topics overlap with Community 1 and 2 (eth, nfts, etc.)
- Community 3 introduces 'gaming'
- Significantly fewer members (Community 3 as "elbow")

Insights

- Gaming is nascent in crypto space
- Market players in gaming have reason to engage with Community 3

	0	1
eth	0.180597	0.210562
fegarmy	0.072855	0.000025
xrp	0.050093	0.000025
saitamatoken	0.047058	0.000025
cryptocurrency	0.044023	0.000025
family	0.042505	0.000025
nftgaming	0.033400	0.000025
invest	0.030365	0.000025
smartlend	0.027330	0.000025
gaming	0.025813	0.000025
dec	0.024295	0.012557
smartd	0.022778	0.000025
binanc	0.022778	0.000025
safemoon	0.021260	0.000025
yourfegminute	0.021260	0.000025

	0	1
eth	0.180597	0.210562
sync	0.012155	0.132864
nfts	0.000015	0.042634
doge	0.000015	0.040127
retweet	0.000015	0.040127
crypt	0.000015	0.040127
btc	0.000015	0.037621
education	0.019743	0.030102
related	0.000015	0.025089
rze	0.000015	0.022583
kishuarmy	0.000015	0.020076
massadoption	0.000015	0.020076
cryprocurrency	0.000015	0.020076
ufc	0.000015	0.020076
metaplay	0.000015	0.020076

Insights & Recommendations

Insights

- 2 major communities:
  - **Community 1: highly speculative, major market manipulation, a coordinated effort to "pump and dump".**
  - **Community 2: buying and selling art via NFTs, as well as NFTs for metaverses**.
- Communities tend to form around a narrow set of topics.
- Short-form forums present major impediments to unstructured data analytics.
- The novelty and the volatility of the crypto space creates challenges for NLP tools.

Recommendations

- **Follow KOLs** in **Community 1** to identify **coordinated attempts to sell and burst the crypto bubble**.

- **Follow KOLs** in **Community 2** to identify **emerging trends and business opportunities**.

- Recommended approach for short-form forums (such as Twitter) is to **first do community detection and then analyze content by communities**.

- The **dataset size needs to be bigger in short-form forums.**
  - Use enterprise accounts to get more data.