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TEXAS
The University of Texas at Austin

The Climate of Cryptocurrency

Examining the public opinion of the impact of Cryptocurrency on Climate Change

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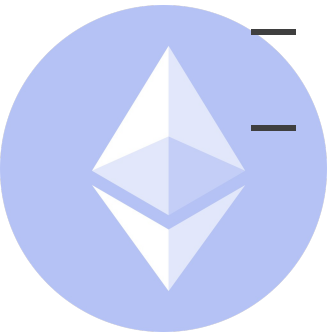
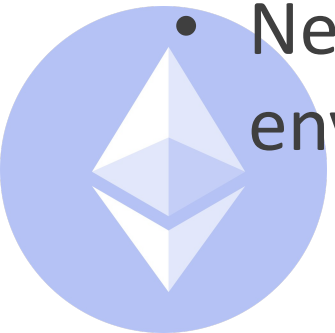
What We Are Studying

- Objective:
  - Examine the public opinion of Cryptocurrency's impact on the environment
- Questions to answer:
  - Do people care about the environmental impact of bitcoin mining?
  - What do people think of other cryptocurrencies like Ethereum?
  - Are they aware of Ethereum's lower emission plan?



Why It Matters

- Bitcoin mining accounts for 35.95 million tons of CO2 emissions annually
  - As much as the entire country of New Zealand
- One Bitcoin transaction required the same amount of electricity as powering 1.57 American Households for one day
- As cryptocurrencies grow, emissions will likely increase
- Newer companies like Ethereum are trying to lessen their environmental impact



Proof of Work

- Miners solve a mathematical puzzle known as a proof of work problem
- A reward is given to the first miner who solves each blocks problem
- The problem increases in difficulty as each previous problem is solved
- Often miners group up and split the reward based on how much work each miner completed

Proof of Stake

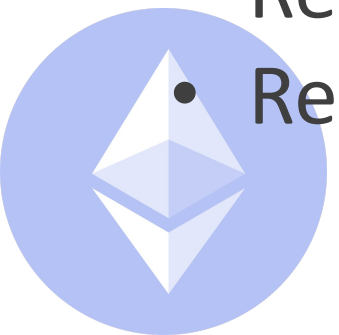
- Instead of Miners there are Validators
- The validators lock up some of their Ether as stake in the ecosystem
- When the block is added, the validators receive a reward proportional to the amount they staked
- Less Energy consumption than Proof of Work

Data Sources

- Used snscrape to gather 10,000 Tweets from March to May 2021, when the conversation about BitCoin accelerating climate change started getting traction.
- Scraped 563 Tweets that mentioned Ethereum and climate.
- Scraped 9618 Tweets that mentioned BitCoin and climate.

Pre - Processing

- Word replacement
  - Group similar words that people might use interchangeably
  - emissions, carbon, co2 -> emission
  - solar, wind, renewables -> renewable
- Remove stopwords and lonely punctuation
- Remove links



Analysis

- 3 Steps
  - Lift Values
  - MDS Plots
  - Sentiment Analysis

Lifts

Ethereum

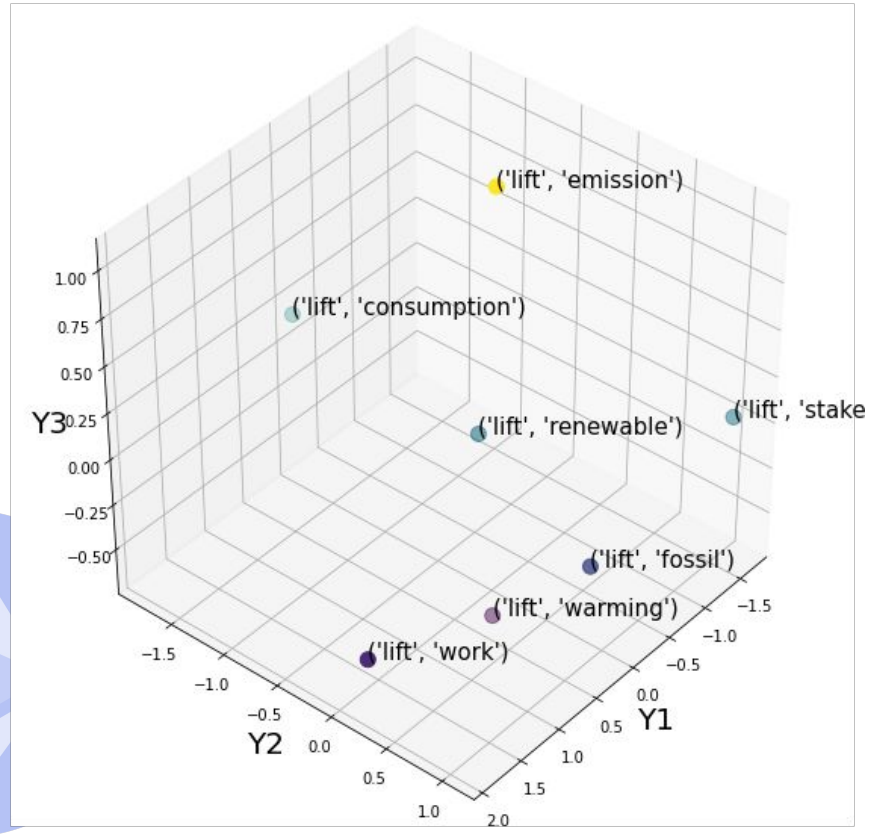
c2 / c1	consumption	emission	fossil	renewable	stake	warming	work
consumption	NaN	1.077512	4.652893	0.000000	5.118182	0.000000	3.198864
emission	1.077512	NaN	1.077512	0.320341	0.888947	5.926316	1.666776
fossil	4.652893	1.077512	NaN	1.383292	0.000000	0.000000	0.000000
renewable	0.000000	0.320341	1.383292	NaN	0.000000	0.000000	0.475507
stake	5.118182	0.888947	0.000000	0.000000	NaN	0.000000	5.278125
warming	0.000000	5.926316	0.000000	0.000000	0.000000	NaN	0.000000
work	3.198864	1.666776	0.000000	0.475507	5.278125	0.000000	NaN

Bitcoin

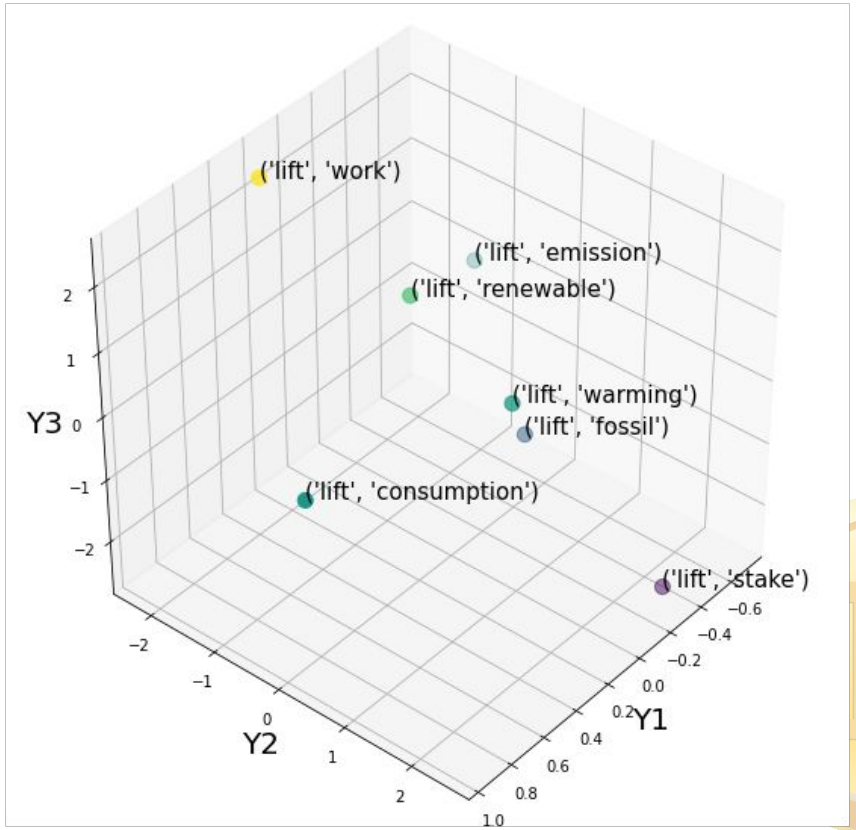
c2 / c1	consumption	emission	fossil	renewable	stake	warming	work
consumption	NaN	3.050106	1.467680	1.617898	3.106589	1.553295	1.242636
emission	3.050106	NaN	1.573658	1.174552	2.081818	3.643182	0.936818
fossil	1.467680	1.573658	NaN	3.104156	0.000000	1.051837	1.472572
renewable	1.617898	1.174552	3.104156	NaN	2.898734	1.449367	1.739241
stake	3.106589	2.081818	0.000000	2.898734	NaN	0.000000	16.697917
warming	1.553295	3.643182	1.051837	1.449367	0.000000	NaN	0.000000
work	1.242636	0.936818	1.472572	1.739241	16.697917	0.000000	NaN

MDS Plots

Ethereum



Bitcoin



Sentiment

Ethereum

	neg	neu	pos	compound	Polarity
stake	0.056650	0.811600	0.131750	0.316445	Positive
work	0.059562	0.811187	0.129281	0.254022	Positive
emission	0.026905	0.888484	0.084653	0.246311	Positive
warming	0.095000	0.762000	0.143000	0.090000	Positive
consumption	0.064364	0.791182	0.144545	0.271391	Positive
fossil	0.050909	0.872091	0.076818	0.105773	Positive
renewable	0.033000	0.870405	0.096649	0.199432	Positive

Bitcoin

	neg	neu	pos	compound	Polarity
stake	0.056208	0.854417	0.089417	0.190450	Positive
work	0.095317	0.802042	0.102667	0.015146	Neutral
emission	0.068179	0.857635	0.074179	0.026349	Neutral
warming	0.099833	0.758875	0.141292	0.089011	Positive
consumption	0.078023	0.803264	0.118705	0.132998	Positive
fossil	0.086370	0.818997	0.094622	0.013581	Neutral
renewable	0.071834	0.793329	0.134816	0.220725	Positive

Questions?