

Building a dashboard to visualize and search public blockchain addresses

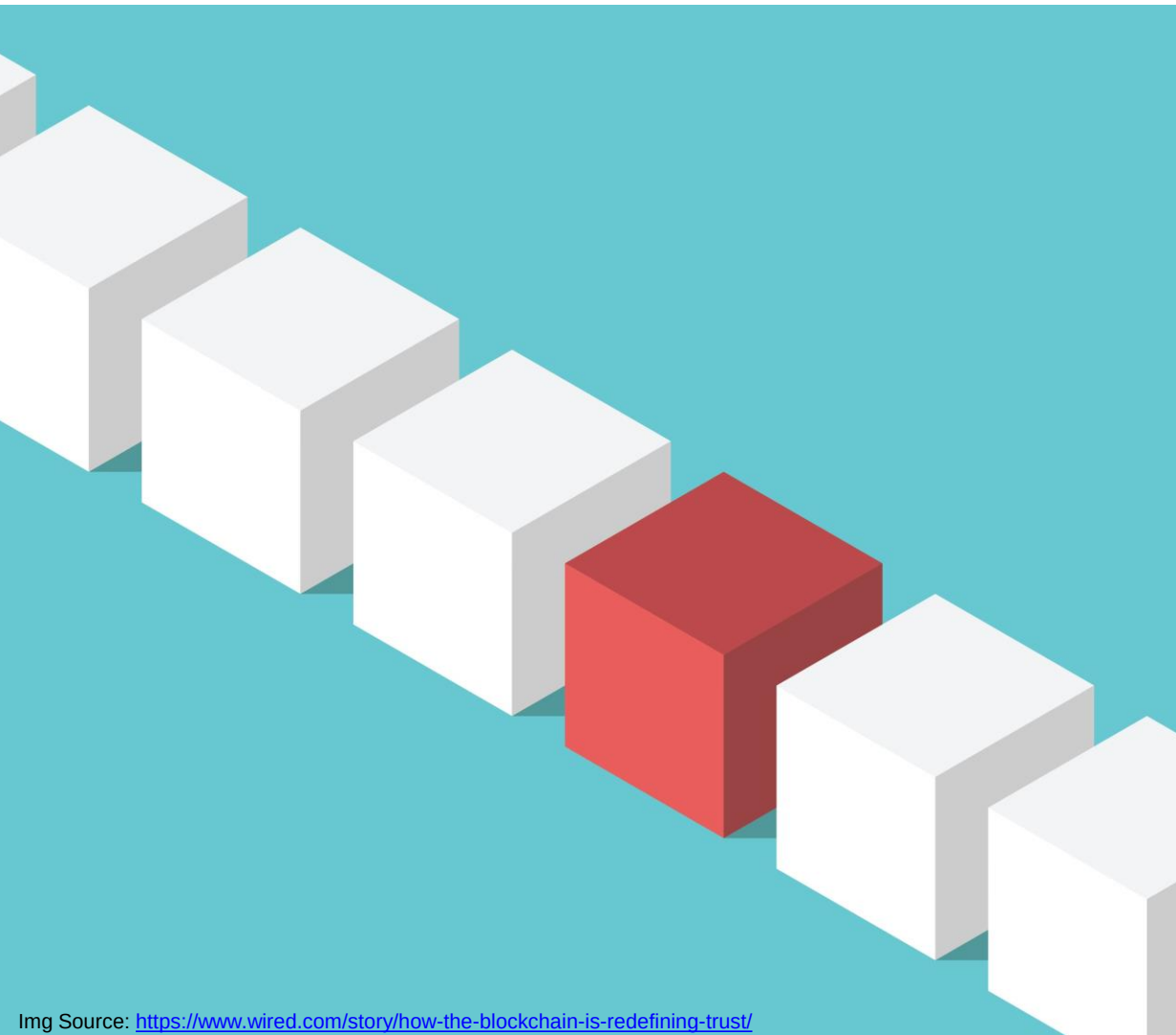
Team Project Spring 24

Chair of Data Science in the Economic and Social Sciences

Supervisor: Dr. Stefano Balietti



What is the Blockchain?

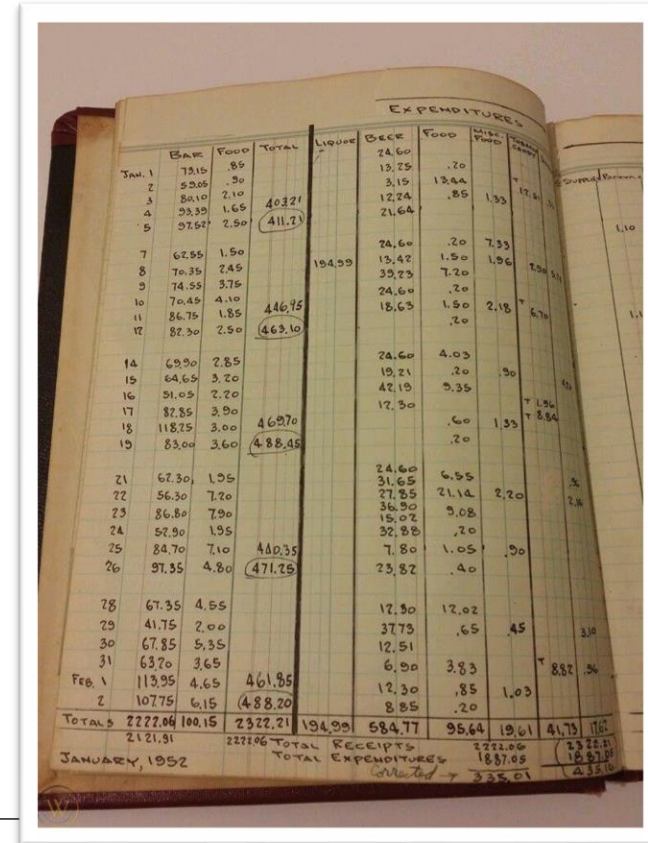


Img Source: <https://www.wired.com/story/how-the-blockchain-is-redefining-trust/>

What is the Blockchain?

OVERVIEW:

- It is a (simple) technology
- It is not Bitcoin, Bitcoin it's just an application
- It is a distributed (or replicated) ledger (database)
- It's decentralized: no single-point of failure
- It's tamper-proof and censor-resistant
- Allows everyone to verify who writes what

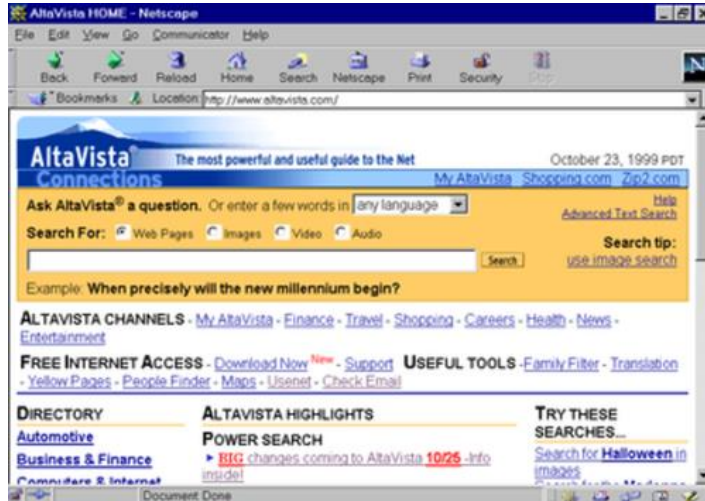


EXPENDITURES				RECEIPTS			
Date	Bank	Food	Total	Date	Bank	Food	Total
Jan 1	73.10	.85					
2	5.00	.30					
3	80.10	2.10					
4	53.35	1.65					
5	57.67	2.50	403.21				
			411.71				
7	67.55	1.50					
8	70.35	2.45					
9	74.55	3.75					
10	70.45	4.10					
11	86.75	1.85	446.75				
12	87.30	2.50	463.10				
14	69.90	2.85					
15	64.65	3.20					
16	51.05	2.20					
17	87.85	3.90					
18	118.75	3.00	469.70				
19	83.00	3.60	488.45				
21	67.30	1.55					
22	56.30	7.20					
23	86.80	7.90					
24	57.90	1.55					
25	84.70	7.10	480.35				
26	97.35	4.80	471.75				
28	67.35	4.55					
29	41.75	2.00					
30	67.85	5.35					
31	63.20	3.65					
Feb 1	113.95	4.65	461.85				
2	107.75	6.15	488.20				
TOTALS	2222.04	100.15	2322.21				
	2121.91						
JANUARY, 1952							

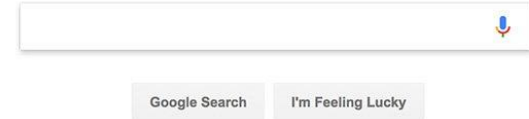
- Asset trading
- Asset tokenization
- Data management
- Central Bank Digital Currencies
- Provenance tracking in supply chains
- Remittances and cross-border payments
- Bootstrapping new projects
- Decentralized governance
- Identity management
- ...

Blockchain Search: More like Altavista than Google

AltaVista (1995)



Google (Today)



Etherscan: The Blockchain “Explorer” for Ethereum

ETH Price: \$2,481.60 (-1.68%)  Gas: 22 Gwei

 Etherscan

[Home](#) [Blockchain](#) [Tokens](#) [NFTs](#) [Resources](#) [Developers](#) [More](#) | [Sign In](#)

The Ethereum Blockchain Explorer

All Filters Search by Address / Txn Hash / Block / Token / Domain Name 

Sponsored:  **Lucky Block:** 200% up to \$10,000 Crypto VIP Bonus. [Instant Withdrawals!](#)

 **SWAP SMARTER. NOT HARDER**
[ODOS.XYZ](#)

 **ETHER PRICE**
\$2,481.60 @ 0.051859 BTC (-1.68%)

 **MARKET CAP**
\$298,214,361,219.00

 **TRANSACTIONS**
2,258.33 M (11.8 TPS)

 **LAST FINALIZED BLOCK**
19211997

 **MED GAS PRICE**
22 Gwei (\$1.15)

 **LAST SAFE BLOCK**
19212029

TRANSACTION HISTORY IN 14 DAYS



Latest Blocks 

 **19212062**
4 secs ago

Fee Recipient [Titan Builder](#)
188 txns in 12 secs

0.06359 Eth

 **19212061**
16 secs ago

Fee Recipient [Lido: Execution La...](#)
102 txns in 12 secs

0.0054 Eth

 **19212060**
28 secs ago

Fee Recipient [beaverbuild](#)
141 txns in 12 secs

0.02595 Eth

 **19212059**
40 secs ago

Fee Recipient [Titan Builder](#)
157 txns in 12 secs

0.02636 Eth

Latest Transactions 

 **0x91027f127e2d7...**
4 secs ago

From [0x4838B1...0BAD5f97](#)
To [0x388C81...ccB19297](#)

0.06465 Eth

 **0x982fbe30ece43...**
4 secs ago

From [0x788529...4293e044](#)
To [0x593729...957B12Af](#)

0.598 Eth

 **0x362c21322f506...**
4 secs ago

From [0x8204c7...914A128f](#)
To [0x881D40...C08D300C](#)

0 Eth

 **0xcd8da28548e06...**
4 secs ago

From [0xE4eDb2...A700bCE8](#)
To [0xcE7A1A...966Eb7f8](#)

0.30984 Eth

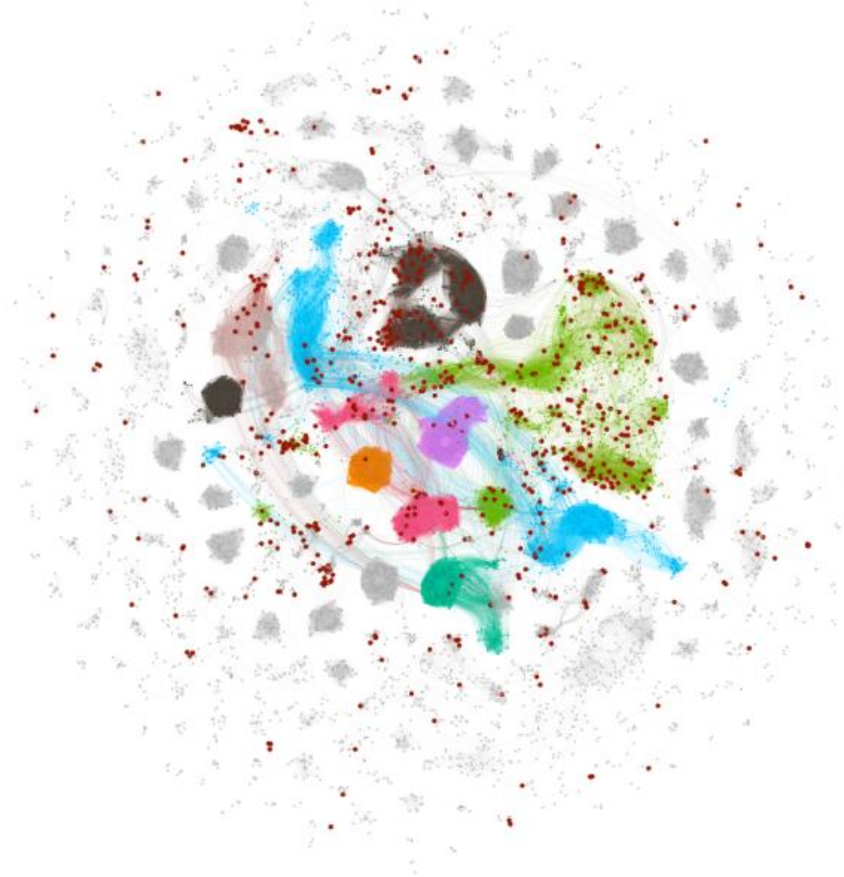
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Blockchain Addresses are mostly “anonymous”

0x546974616e2028746974616e6275696c6465722e78797a29

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0x546974616e2028746974616e6275696c6465722e78797a29



The co-voting
network of the
Top-100 DAOs
on the Ethereum
blockchain

Ethereum Dashboards

All of your favourite Ethereum Dashboards in one place. Thanks to [Superphiz](#) for getting this started!

   [Eth Dash Extension](#) 

All Dashboards ▾   



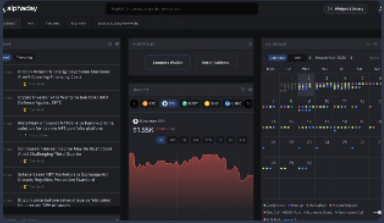
L2 Beat 

Layer 2s



L2 Fees 

Layer 2s



AlphaDay 

General Ethereum

Validate network and intersectional identities
Find communities, e.g., coalitions of voters in DAOs
(Decentralized Autonomous Organizations)

Testing network theories on new data
Recruit people to participate in research



@stateof_crypto

<https://stateofcrypto.net>

Prerequisites:

- *Strong* programming skills in general
- Front-end and back-end web development (in Node.JS / JavaScript)
- Solid understanding of software engineering
- Solid understanding of public blockchains
- Network Analysis

To learn quickly:

- Solidity
- Ethereum node management
- Network Database Neo4J

Useful

- NLP/LLMs (e.g., search query in natural language grounded to network searches)

Interaction

- Regular (bi-weekly) meetings with supervisor
- Codes shared regularly on Github
- Prototype updated regularly for testing

Initial deliverables

- Work Plan: Detailed specifications of platform requirements and tasks assigned to each team member
- Mid-term Progress Report with presentation

Final deliverables

- Running platform hosted on a dedicated server (provided)
- Platform can be explored visually (dashboard) and queried via API
- Written report (including software documentation and maintenance plan)

Building a dashboard to visualize and search public blockchain addresses

Responsible person: Dr. Stefano Balietti (stefano.balietti@uni-mannheim.de)

Language: English

Duration: up to 6 months (deadline Aug 2024)

Min/Max number of participants: 2-5
