

# Collective Intelligence Talks

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Cyberia on the Edge

# Edge Perspective

# History

Origins: Aristotel	wisdom of the crowds
18th century: N. Condorcet	jury theorem
20th century: D. Engelbart	collective iq: augmentation via computers
20th century: M. Dorigo	swarm intelligence
21th century: A. Wooley	c-factor

## Economics

free markets  
incentive logic  
attention allocation

## Game Theory

equilibrium models  
strategic interactions

## Distributed Computing

coherence  
safety  
liveness

# Methods

simple local rules producing global order

## Schelling point

Coordination without communication

## Longest chain rule

Temporal aggregation of effort for consistency

## Random Walk

Local exploration converge to global equilibrium

## Bayesian updates

Beliefs propagation convergence

## Stigmergy

Self-reinforcing feedback and memory

## Conway's game of life

Emergence from local determinism

Many more ....

# Apps

## Darpa

- strategic science
- swarm-enabled tactics
- human-machine teaming

## Nasa

- crowdsourcing
- swarm robotics
- self-assembling structures
- sensor webs

Cyberia: planetary scale superintelligence

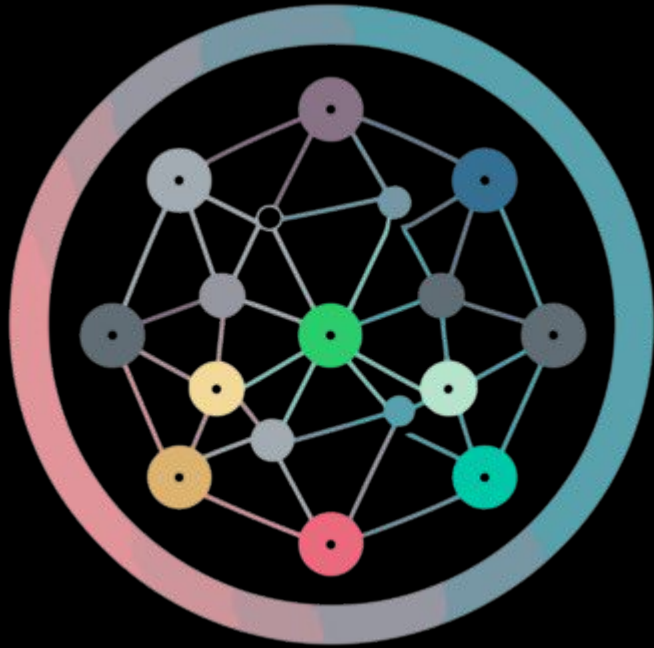
# Collective Focus Theorem



proves that  
token-weighted random walks  
in fully authenticated graphs  
converges to  
unique stationary distribution

# Fully Authenticated Graphs

tx with 3 arguments of knowledge



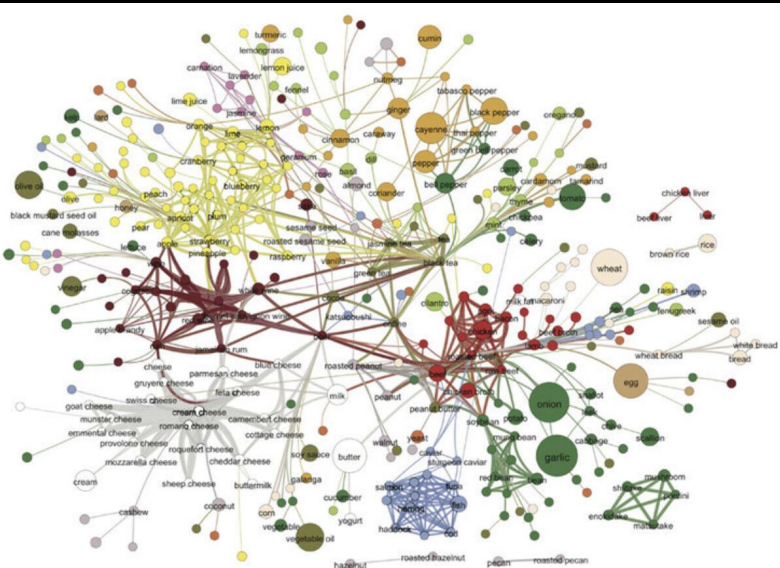
**Who?** => Neuron: pubkey (or cryptographic address) of agent

**When?** => Time: Unix timestamp verified by some consensus algo

**What?** => Link: between 2 files (ipfs content addresses)

# Random Walk

## Probably, the most fundamental processes in universe



local, memory-limited exploration process —  
each step depends only on the current position and  
local transition probabilities.

## Core Idea:

## Local Exploration → Global Equilibrium

## Standard Markov Chain theory => Unique Stationary Distribution

# Unique Stationary Distribution

Distribution => Observation Probabilities

Stationary => Stable

Unique => The same for All

Stable, Coherent, Computable  
Collective Focus

# Token weighting

Will of agents  
to affect probabilities of observation

Application to a multiparty systems,  
especially blockchain networks

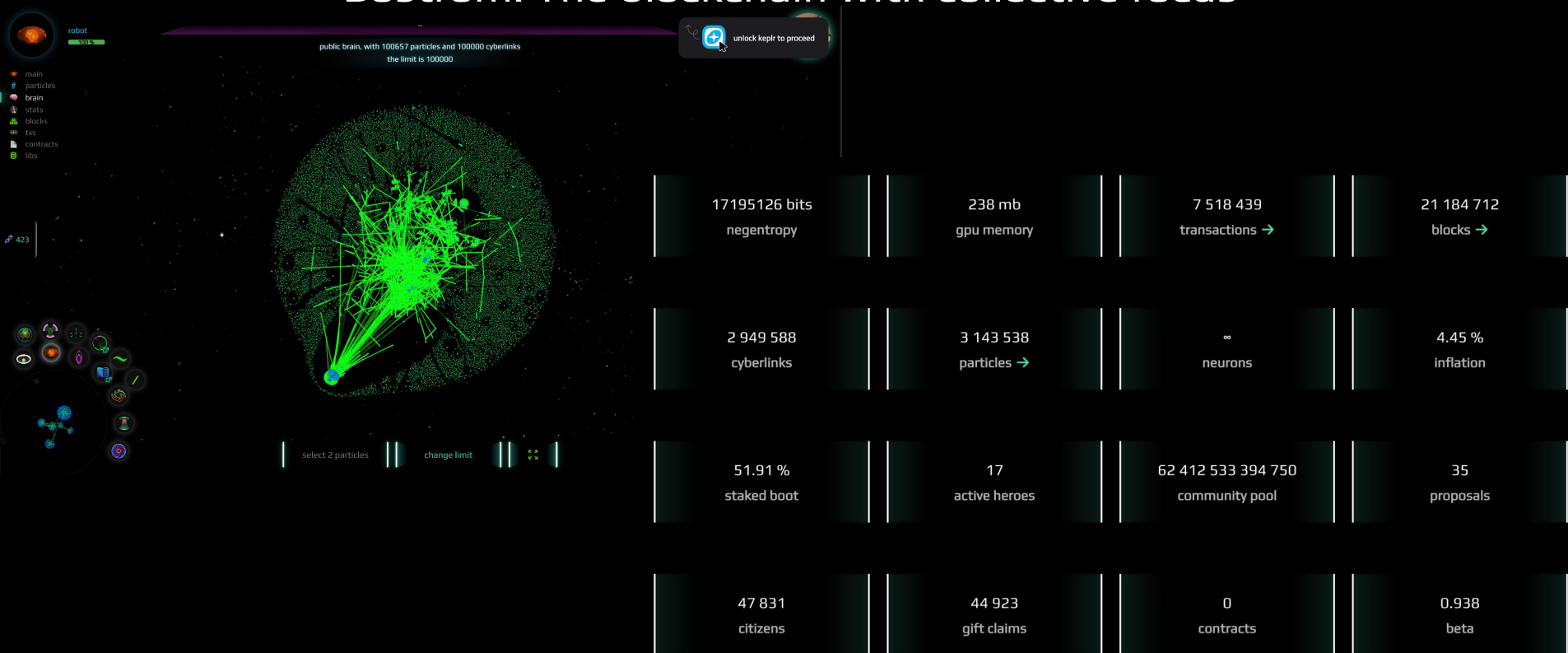
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# Foundation for Superintelligence

## Bostrom: The blockchain with collective focus



# 5 of November



**13:00** => the Story of Bostrom

**20:00** => remember, remember

# Cyberia



**Superintelligent  
Network of  
future cities**