Future Learning in an Advanced Decentralized Learning Ecosystem

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- Learning management technology has tended toward centralization over the last two decades as resources and services consolidated in learning management systems. This creates a challenge for learning that needs to be conducted in the field or that requires specialized equipment. It is also a challenge for any approach to learning based in individual capacities and contexts. This is why the U.S. Advanced Distributed Learning Initiative (ADL) has historically emphasized interoperability in decentralized learning ecosystems, supporting such things as the Personal Assistant for Learning (PAL) and Open Social Learning Models (OSLM). Similar challenges are being faced in the wider internet community. Developers have responded with new approaches supporting decentralized networks, such as open social applications (for example, micropub), distributed ledger technology (for example, blockchain), and cloud container networks. These will support new learning application such as virtual reality, artificial intelligence, and personal assistants. This presentation will provide an overview of this emerging infrastructure, describe key points of contact with training and development services, and outline the impact on future learning programs and systems.

DATA - CLOUD - AI

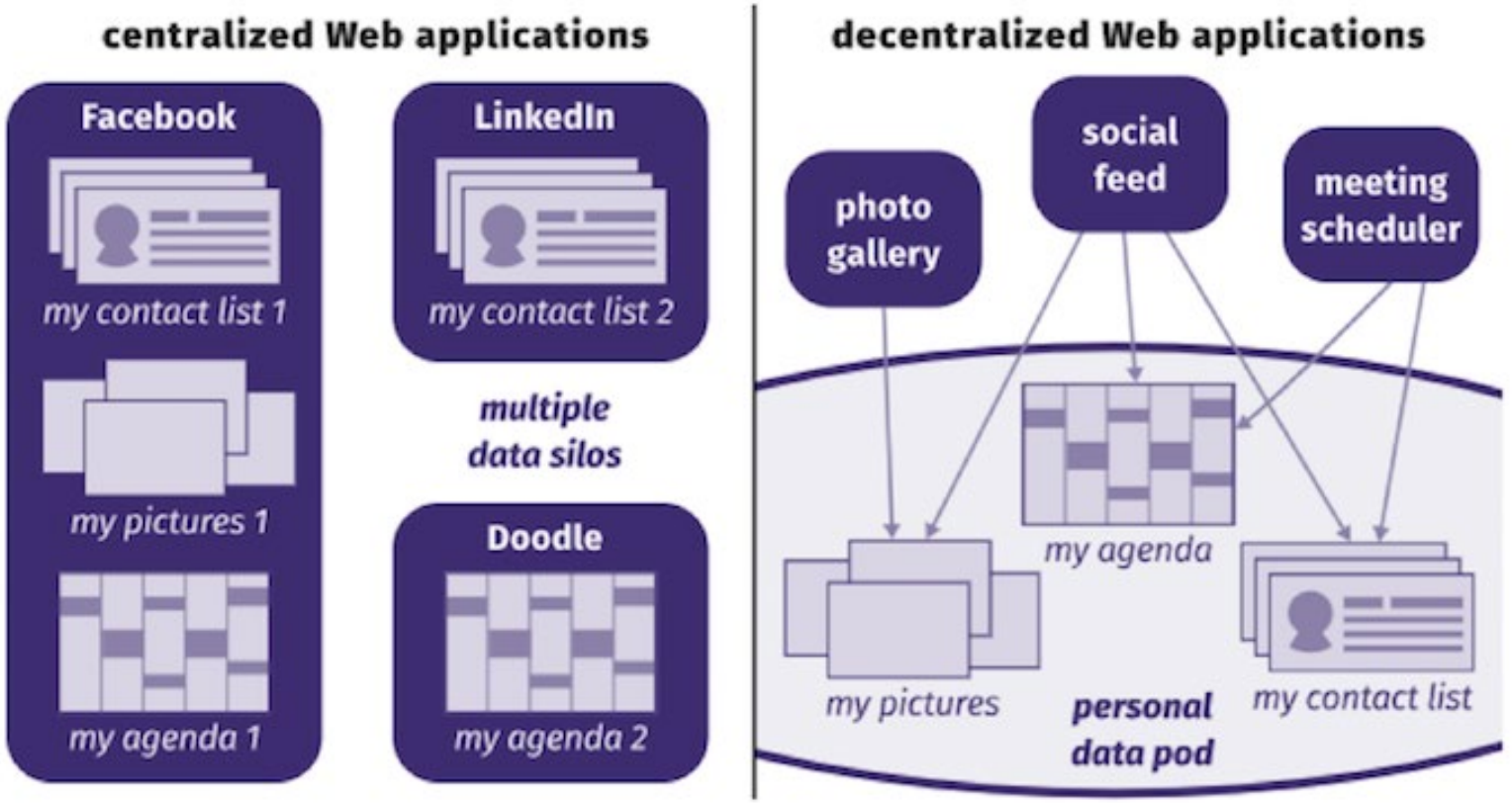
https://giphy.com/gifs/cat-just-sleepy-DAmosupuFkPjG

High School Math ML Problem

- Here we have a case where a high school student has been given the problem of optimizing traffic flow in his school parking lot.

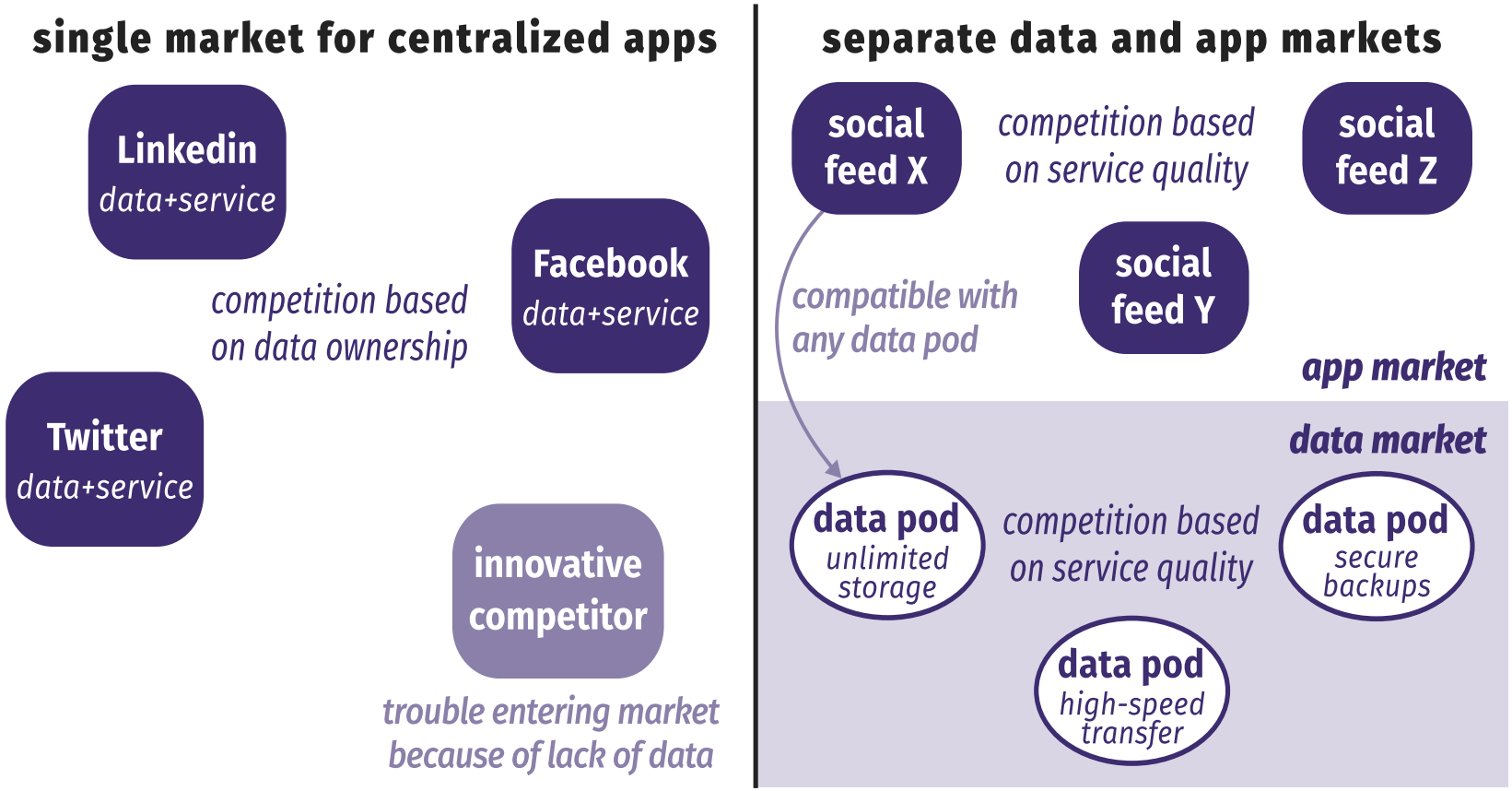
https://www.reddit.com/r/MachineLearning/comments/bhp6bw/p_can_you_solve_this_high_school_ml_problem/

Re-Decentralize the Web



current Web apps combine *data* and *service*. Because of this coupling, our LinkedIn contacts cannot comment on our Facebook pictures, and an RSVP on a Facebook event will not be reflected in our Doodle calendar's availability. Decentralized applications, on the other hand, act as *views* on top of our data pod and those of others.

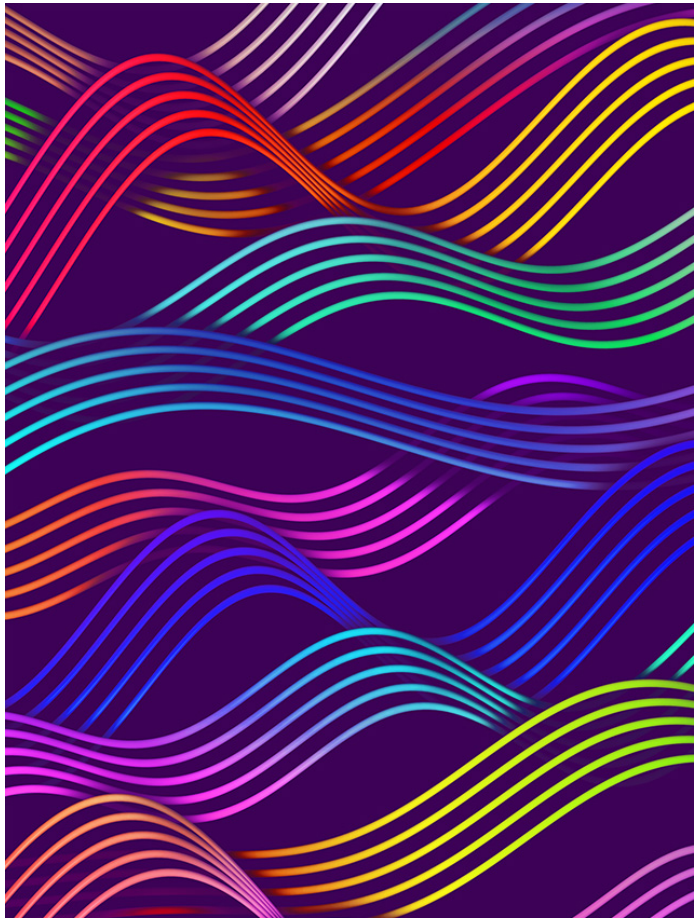
Decentralized Data and Service Providers



Centralized applications compete in a single market, based on data ownership. On a decentralized Web, data and service providers compete in different markets.

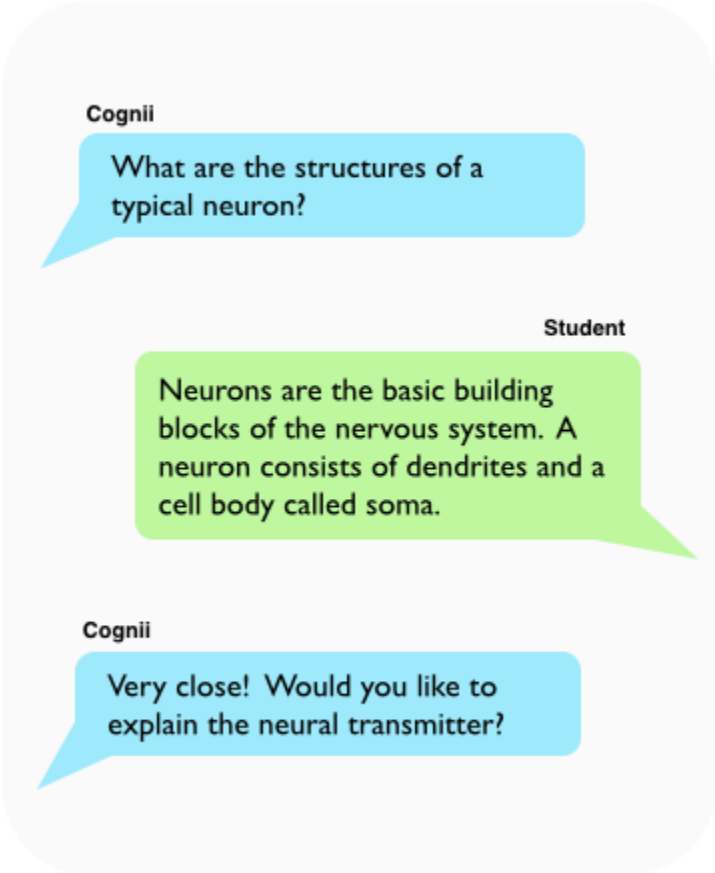
Solid – IndieWeb - Etc

AI-Generated Music



- MuseNet, " a deep neural network that can generate 4-minute musical compositions with 10 different instruments, and can combine styles from country to Mozart to the Beatles.“
- Relentless Doppelganger, the Bot Prownies, who produce an almost-acceptable brand of punk. If you prefer guitar metal, Coditany of Timeness might be more to your taste. Not quite as successful is Evolution 22 by Deep the Beatles. For something a little softer (and quite good) try On the Edge, by AIVA. AIVA also does a nice classical tune or movie score. Need royalty-free music for your videos? Try JukeDeck (a little too house for my tastes). Taryn Southern, meanwhile, uses an AI to compose the music, then adds her own lyrics and vocals - her song Break Free is quite nice.

Cognii – SquirrelAI – Magpie – X5GON



Cognii Virtual Learning Assistant engages a student in a chatbot-style learning conversation by prompting them to construct an answer, giving them instant formative assessment - http://cognii.com/

Squirrel AI - pure-play AI-powered adaptive education provider in China… provides personalized and high-quality K-12 after-school tutoring - http://squirrelai.com/

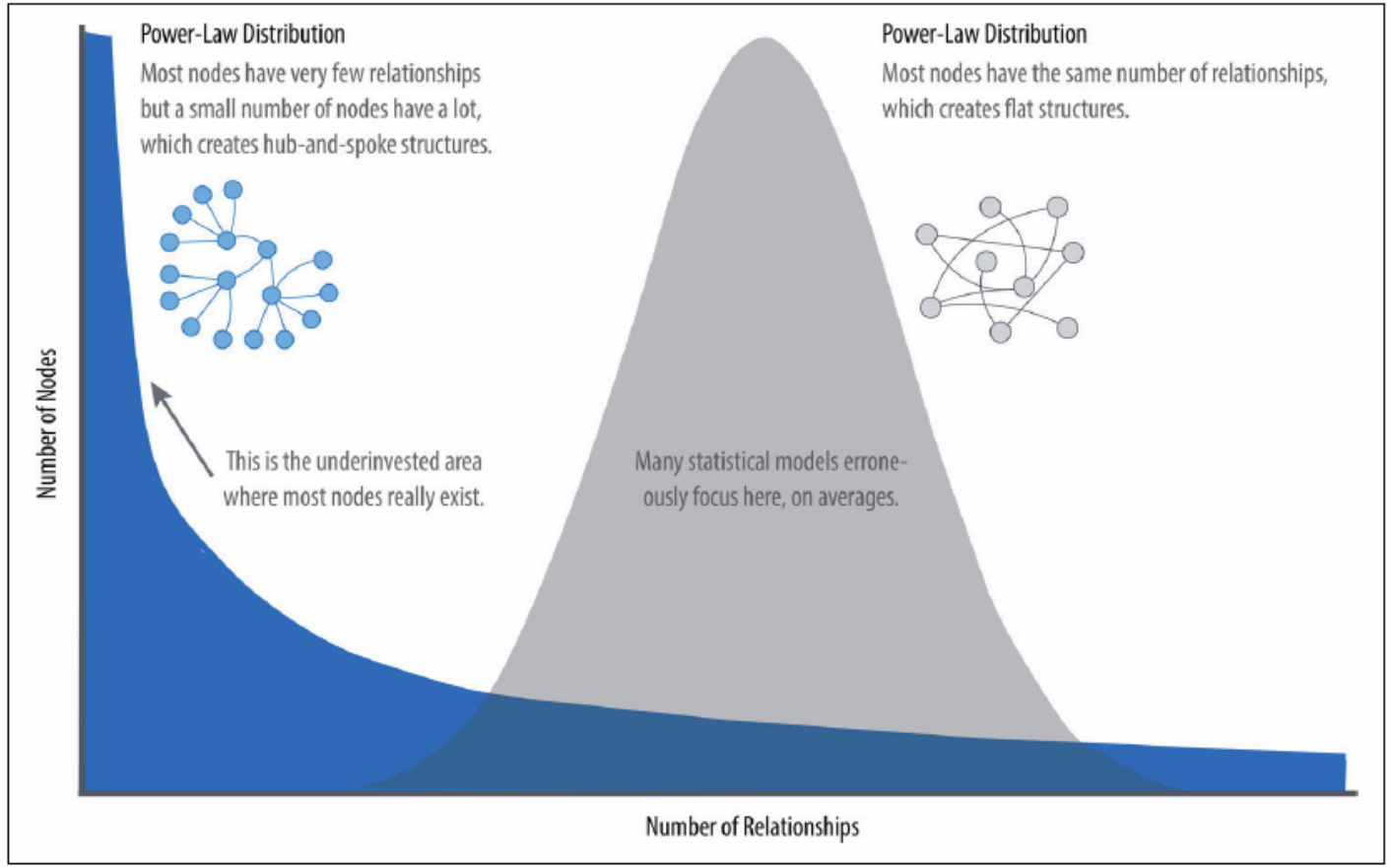
magpie recommends high-quality content and integrates with your learning systems - starts with a configurable chatbot conversation - prioritises most relevant content for each user. https://learn.filtered.com/magpie

X5GON.org – fully automated creation of OER courses - https://www.x5gon.org/follow/oer/

GRAPH – COMMUNITY – AGENCY

https://giphy.com/gifs/weekend-days-129NVCr1UfsGTS

Graph Algorithms



- Real-world networks have uneven distributions of nodes and relationships represented in the extreme by a power-law distribution. An average distribution assumes most nodes have the same number of relationships and results in a random network.

The types of questions graph analytics answer

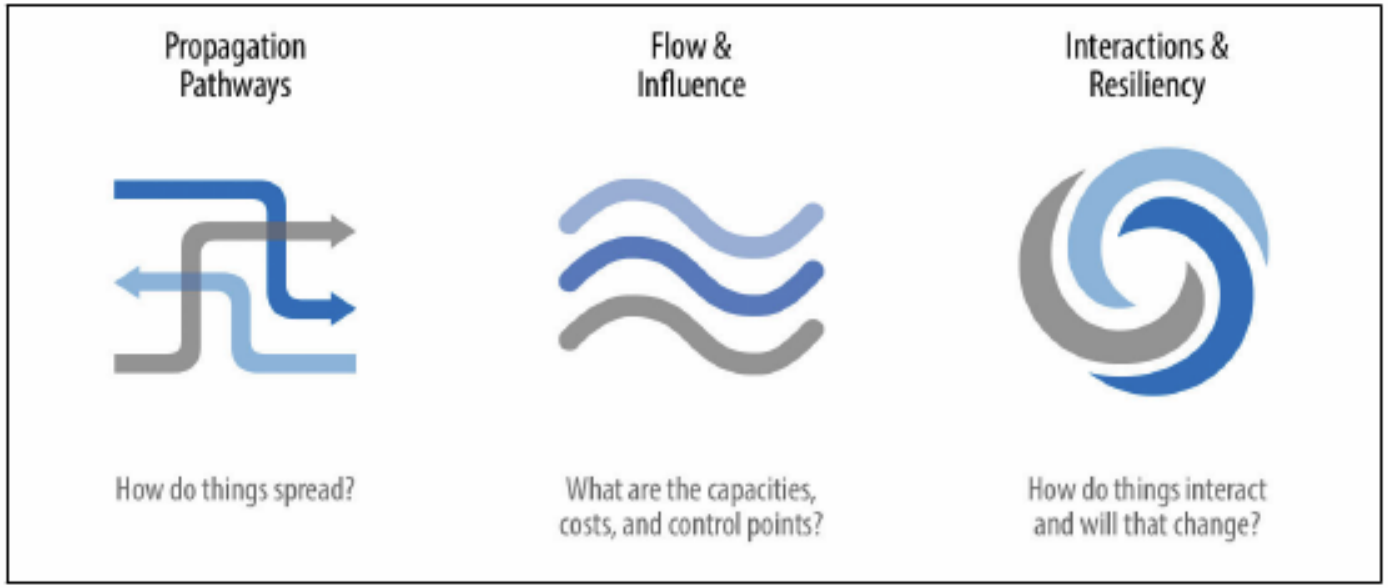


Figure 1-9. The types of questions graph analytics answer

- Investigate the route of a disease or a cascading transport failure.
- Uncover the most vulnerable, or damaging, components in a network attack.
- Identify the least costly or fastest way to route information or resources.

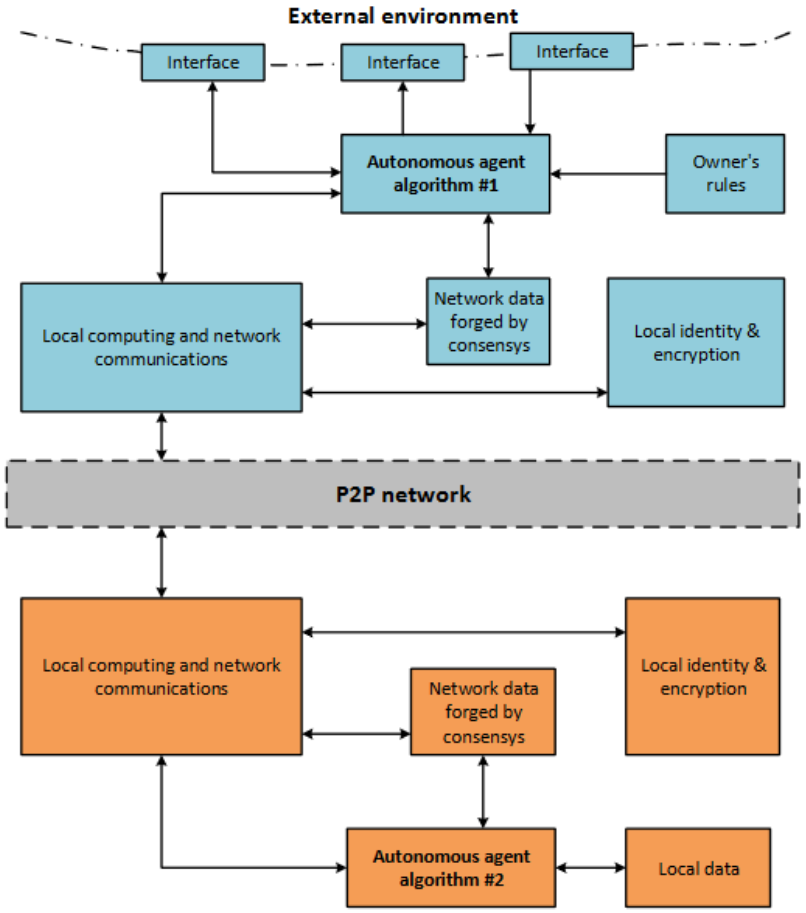
https://neo4j.com/graph-algorithms-book/

You’re Not Stuck In Traffic, You Are Traffic

“a new generation of designers has emerged, concerned with designing strategies to subvert this “natural default-setting” in which each person understands themselves at the center of the world.”

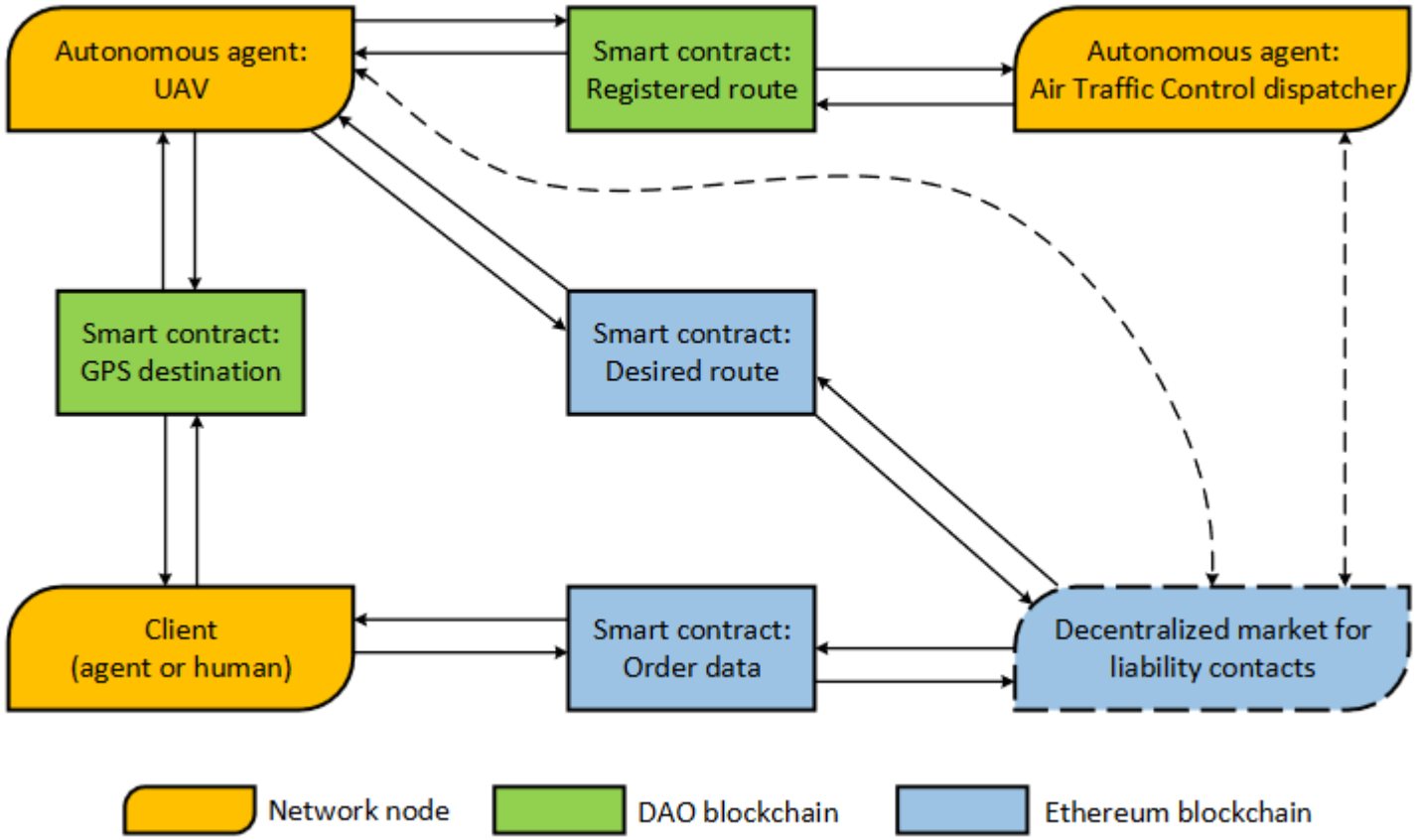
https://jods.mitpress.mit.edu/pub/design-as-participation

Autonomous Agents Communication Scheme



- autonomous agents communication scheme. The arrows indicate transfer of any data. The dashed line shows the P2P network between agents.
- The dotted line shows external environment of the agent.
- *(2) (PDF) Blockchain-based protocol of autonomous business activity for multi-agent systems consisting of UAVs*. Available from: https://www.researchgate.net/publication/325451400_Blockchain-based_protocol_of_autonomous_business_activity_for_multi-agent_systems_consisting_of_UAVs [accessed Apr 28 2019].

Blockchain-based protocol for autonomous business activity

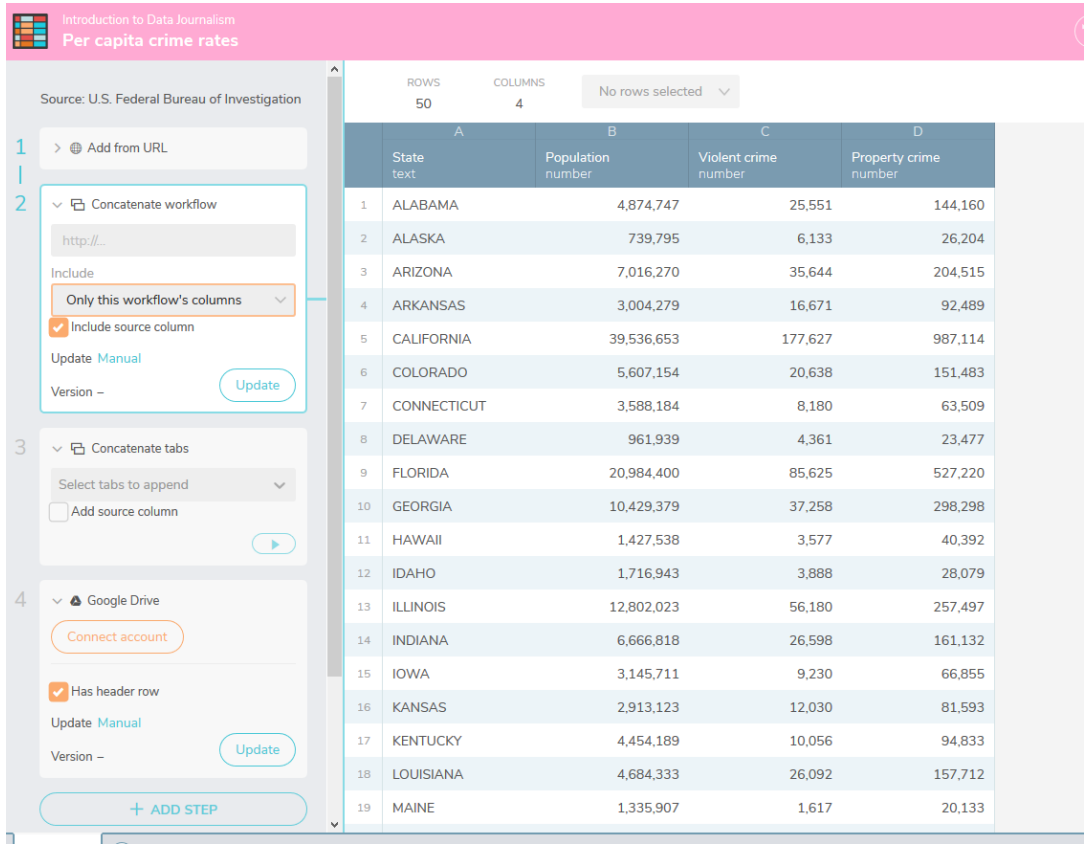


- Typical work scenario of Drone Employee. Dashed arrows indicate waiting of contract appearance. A set of all contracts in the network are integrated into decentralized market block.
- *(2) (PDF) Blockchain-based protocol of autonomous business activity for multi-agent systems consisting of UAVs*. Available from: https://www.researchgate.net/publication/325451400_Blockchain-based_protocol_of_autonomous_business_activity_for_multi-agent_systems_consisting_of_UAVs [accessed Apr 28 2019].
- Forget about artificial intelligence, extended intelligence is the future…
- Instead of thinking about machine intelligence in terms of humans vs machines, we should consider the system that integrates humans and machines – not artificial intelligence but extended intelligence.

RESOURCES – EXPERIENCE - AGENCY

https://giphy.com/gifs/cat-lazy-sleepy-papAALBn286ty

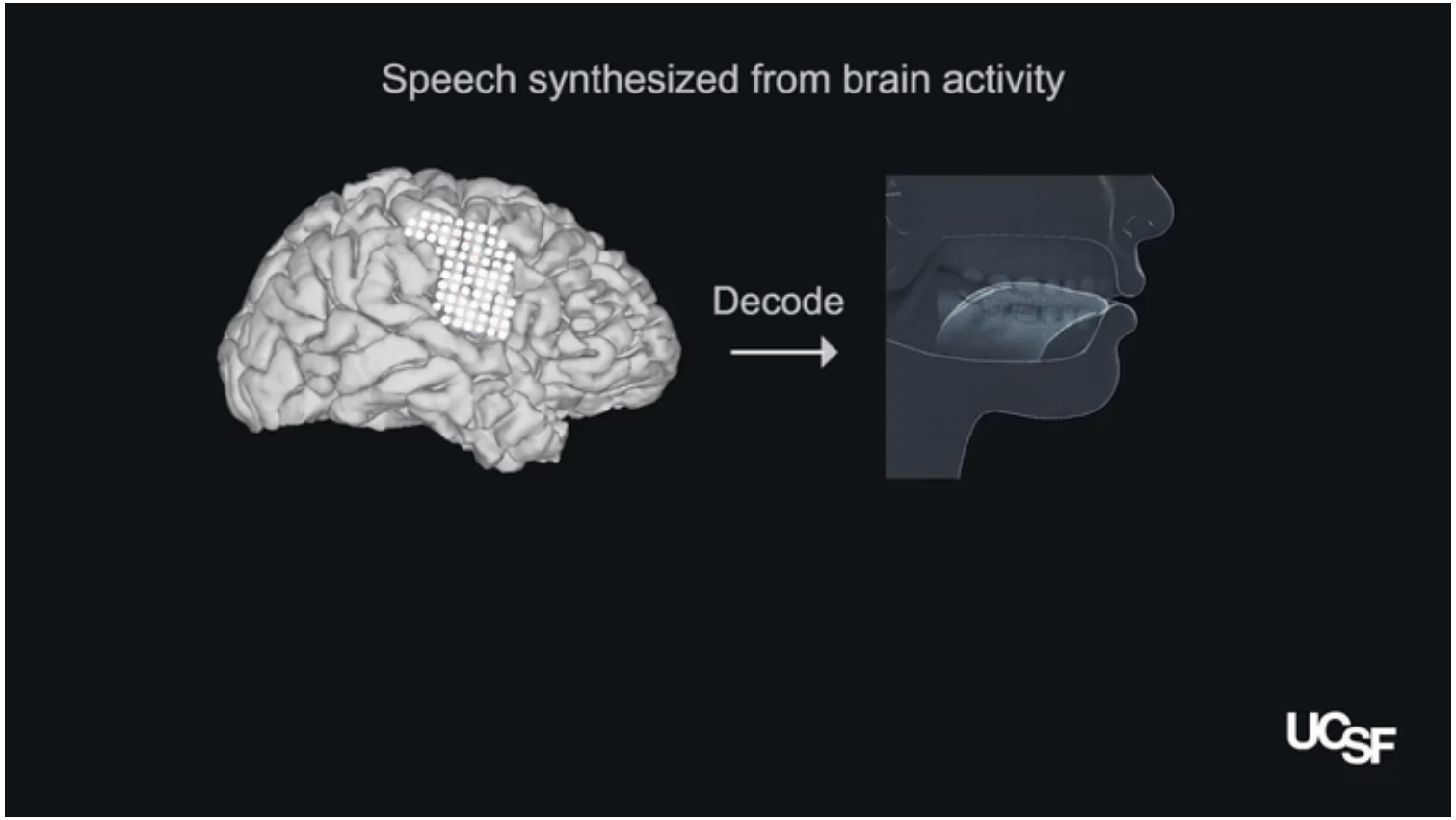
Workbench



- Workbench is a free and open source data journalism platform "that enables all stages of data journalism: getting data (including scraping), then cleaning, analyzing, visualizing, and sharing it.

Extended intelligence is the future

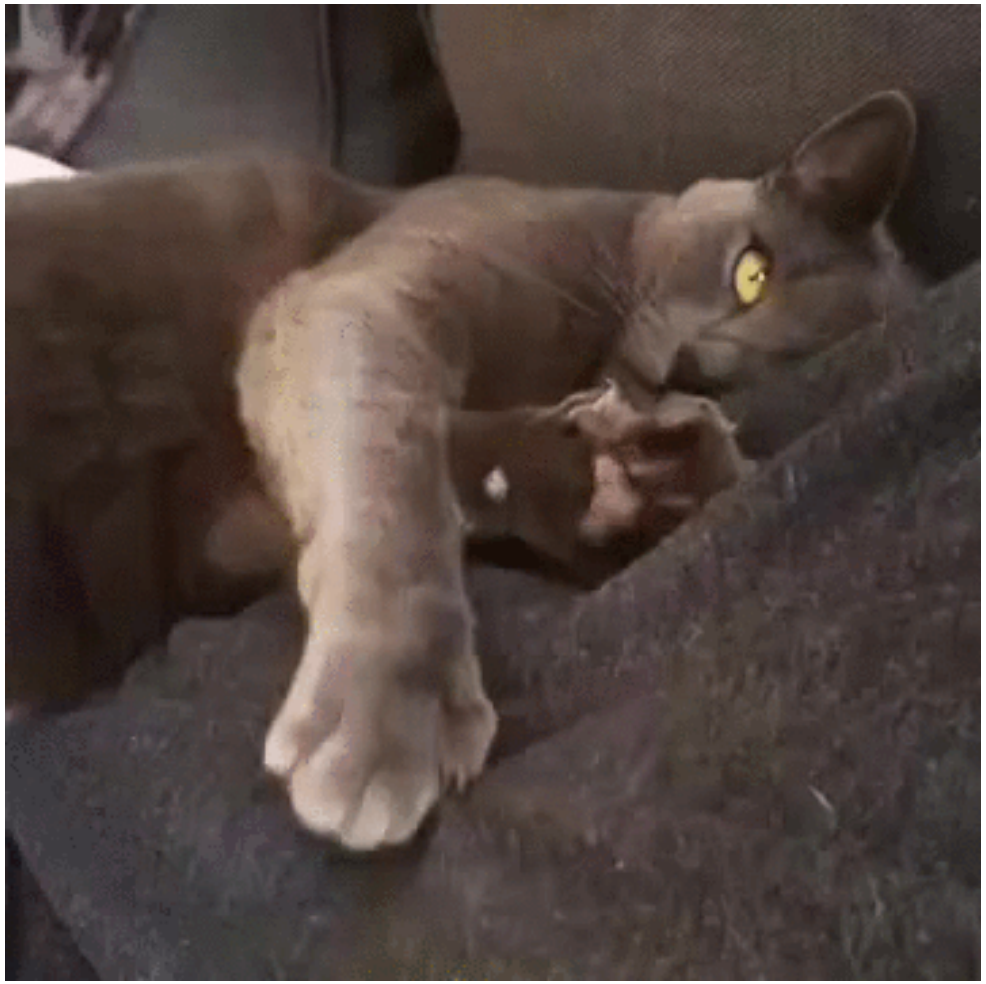
Brain Implant Can Say What You're Thinking



"it translates brain signals into movements of the vocal tract, including the jaw, larynx, lips, and tongue." These movements are then translated into speech.

https://spectrum.ieee.org/the-human-os/biomedical/devices/implant-translates-brain-activity-into-spoken-sentences

FINAL WORD



https://giphy.com/gifs/air-zzz-biscuits-9ociuoxbsNeE0

Remember….
It’s all just cat videos