nineteen**ai**

Decentralised AI Inference at Scale

namoray   bittensor

The **Problem** with Centralised AI

Single point of failure

Centralised control can lead to a single point of failure, making systems more vulnerable to errors or attacks.

Lack of transparency

Companies like OpenAI and Anthropic often degrade the performance of their existing models after a short period without notifying users, leaving you unaware of what's actually being ran.

Privacy & Data Protection

Closed source models put your personal data at risk, allowing single entities to use or expose your private data at their whim

Cost at Scale

Leading AI companies charge high prices to maximise profits, rather than setting prices based on real market demand, making it unaffordable for many

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Subnet 19: The **Solution**

Decentralised System

Subnet 19 is the definition of decentralised AI inference, leveraging a network of miners to run Generative AI models, meaning that there is, and will never be a centralised server to attack.

Open Source, Transparent Code

Subnet 19 is all built on a transparent, open-source code base that promotes a more inclusive and accessible ecosystem.

Privacy & Security Baked In

We're not just giving access to cutting-edge AI models, we're giving back control. Every validator provides their own access and requests are distributed across different unique entities, meaning that there are no centralised databases of responses saved for training purposes

The Lowest Cost at Scale

The price of our inference is significantly cheaper than comparable centralised solutions, with current API providers built on-top of Nineteen offering over 60x cheaper prices than similar centralised offerings. This changes the game for the types of products that can be built with ai by both startups and established firms.

How do we compare?

Subnet 19 is at the epicenter of the AI revolution, where the latest advancements in AI inference are being made. As the industry hurtles towards a future that's more automated, more personalized, and more efficient, we're proud to be leading the way.

	together.ai	Fireworks AI	OctoAI	nineteenai
Decentralisation	✕	✕	✕	✓ Entirely Decentralised
Speed	Fast ▪️◼️ Standard Speed	Fast ▪️◼️ Standard Speed	Fast ▪️◼️ Standard Speed	Faster ▪️◼️◼️ Decentralised network, with the highest potential speed.
Types of Models	Text, Image	Text, Image	Text, Image, Video	Text, Image More Coming Soon
Scalability	🌐 Global	🌐 Global	🌐 Global	🌐 Global

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Open Source Large Language Models have the edge.

Subnet 19 miners provide access to the newest SOTA open sourced models like Llama3.1 8B & Llama3.1 70B.
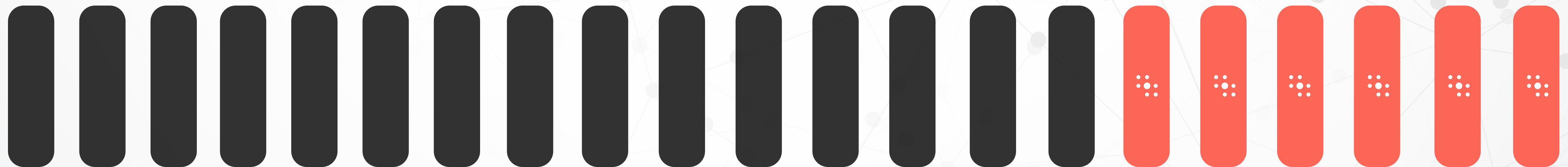
One of the many reasons to use subnet 19s LLMs, TTFT ~3x quicker than closed sourced models

Time to first token GPT-4o   2.0 Seconds

Time to first token Llama 3.1 8b   0.7 Seconds
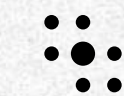
All in one subnet.

Subnet 19 provides access to a full set of the best
LLM and image models.

Large Language Models

Image Models

Other Models

Coming Soon

Llama 3.1   70b

The fastest LLM
inference on Bittensor

Llama 3.1	70b		Meta
Tokens/s (Average):	80	Tokens/s (Max):	120
Knowledge Cutoff:	2023/12	Inference:	Subnet 19

Llama 3.1   70b   Ready

Flux   8.16 Generation Time (s)

a penguin in a top hat and holding a umbrella, standing in front of big ben in
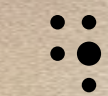
World-class text models

Subnet 19 enables decentralized inference for the world's leading open-source large language models.

Llama 3.1 70b	Llama 3.1 8b
94 Tokens/s	**188** Tokens/s
✓ 100% Proof of Model Authenticity	✓ 100% Proof of Model Authenticity
0 Degradation in quality	**0** Degradation in quality

World-class image models

Subnet 19 provides decentralized inference for some of the world's
best image models available.

Flux-Schnell
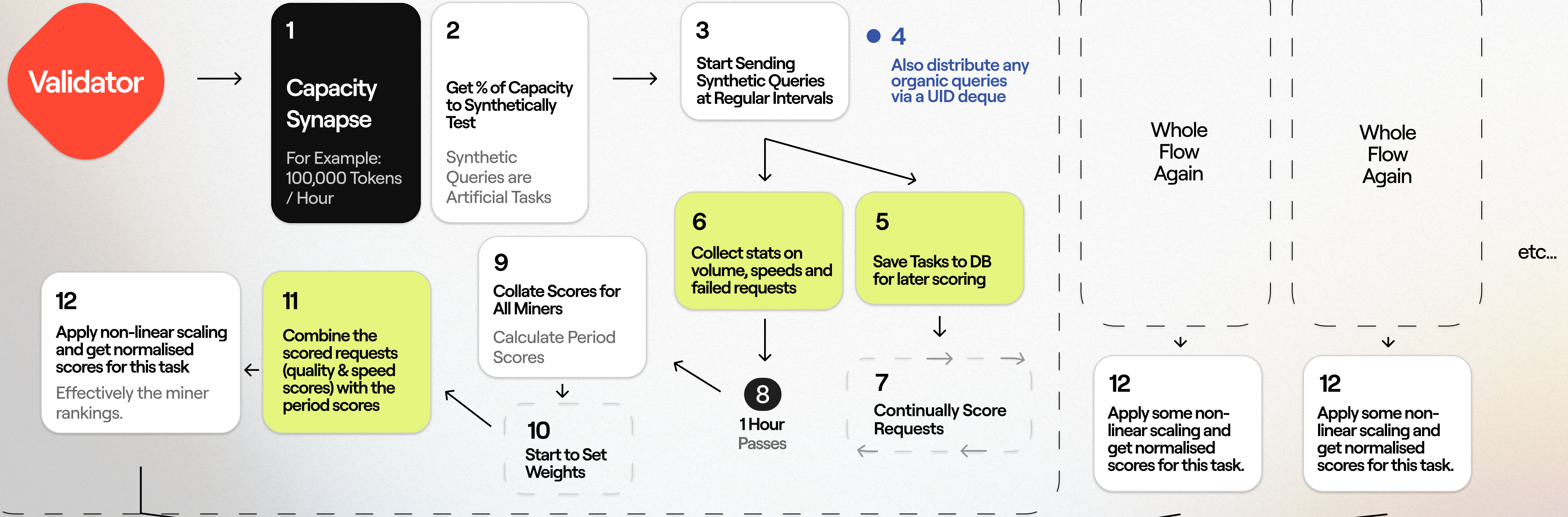
The master of text

Proteus

5/5 quality

Dreamshaper

You've never seen
realism like this

::: Mechanism

Chat Llama 3.1 70b

Task Chat XYZ

Task Image XYZ

Validator

1 Capacity Synapse
For Example: 100,000 Tokens / Hour

2 Get % of Capacity to Synthetically Test
Synthetic Queries are Artificial Tasks

3 Start Sending Synthetic Queries at Regular Intervals

• 4 Also distribute any organic queries via a UID deque

6 Collect stats on volume, speeds and failed requests

5 Save Tasks to DB for later scoring

9 Collate Scores for All Miners
Calculate Period Scores

12 Apply non-linear scaling and get normalised scores for this task
Effectively the miner rankings.

11 Combine the scored requests (quality & speed scores) with the period scores

10 Start to Set Weights

8 1 Hour Passes

7 Continually Score Requests

Whole Flow Again

Whole Flow Again

etc...

12 Apply some non-linear scaling and get normalised scores for this task.

12 Apply some non-linear scaling and get normalised scores for this task.

13 Combine all scores with the task weights to get a final incentive (13)
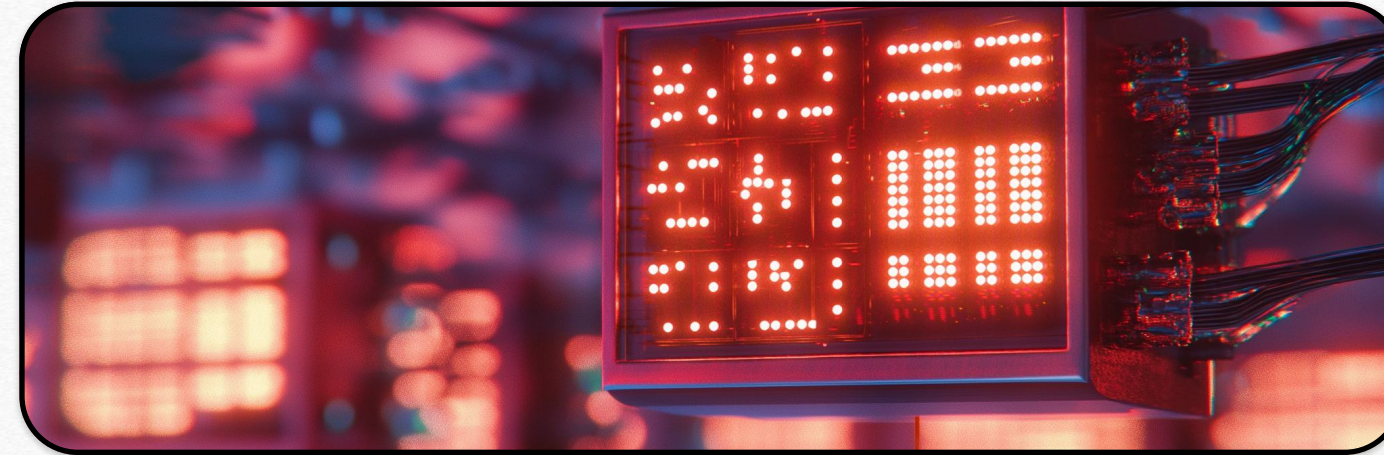
14 Set Weights with Retries

Why NineteenAI on Bittensor?
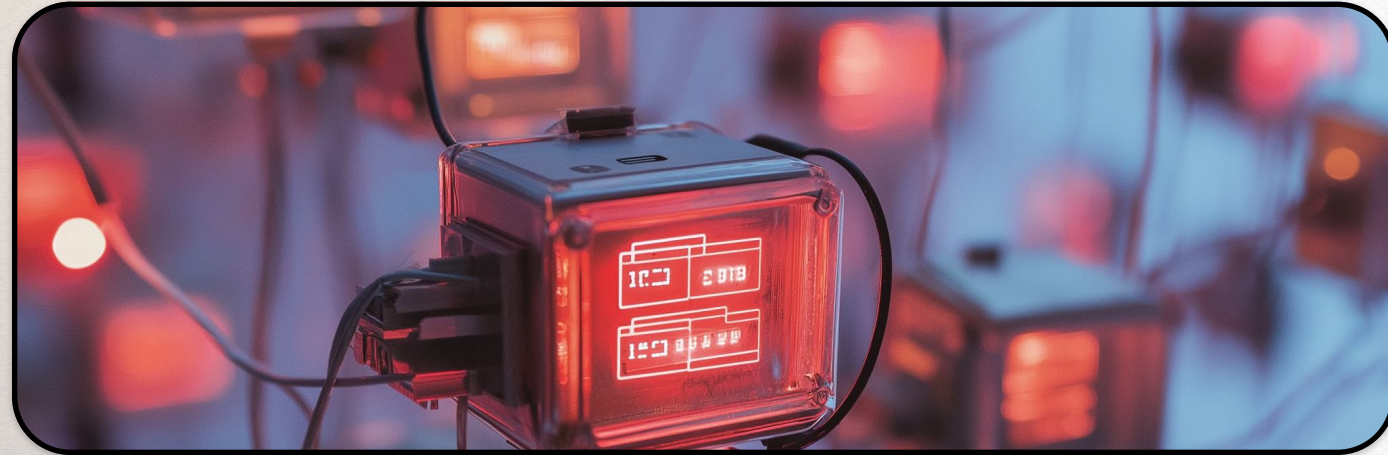
Completely Decentralised

100% of everything in our subnet is open-sourced and decentralised.

Most Valuable Digital Commodity

Revenue generation and real-world use are not an afterthought for us. We have the most traffic out of any bittensor-built product.
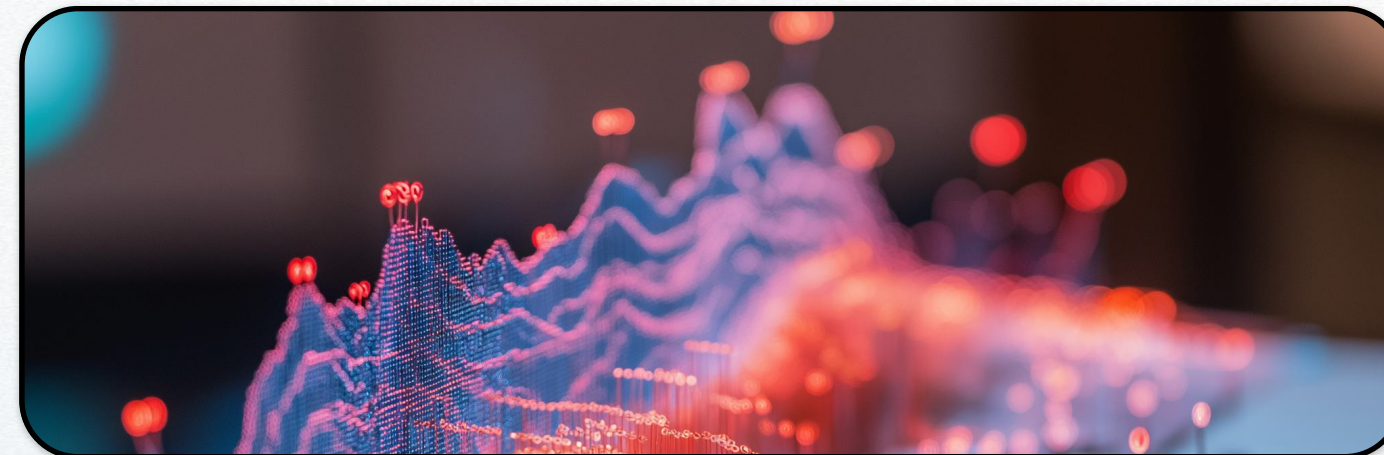
120+ Tokens/s for Top-performing Models

Speed is crucial in the world of inference, and NineteenAI is no different. On top-performing models like Llama 3.1 70b we achieve over 120+ tokens/s.
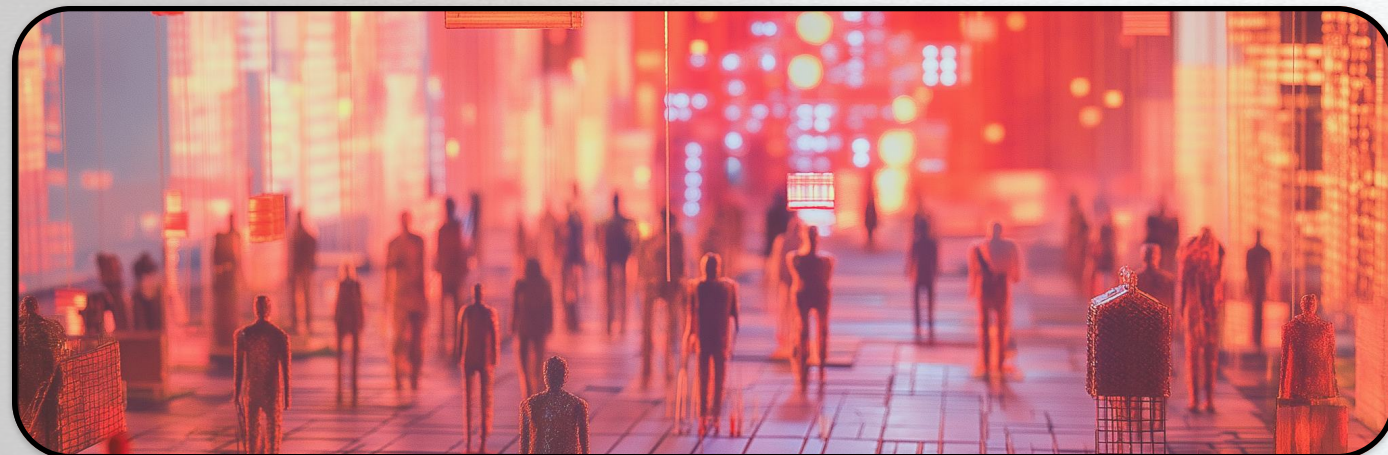
Community Driven

Proposals for every update followed by in depth discussion ensure constant improvements.

Fastest Iteration Time

We are always improving, and never stagnant. We ship quickly but iterate even quicker, and development is very active.

The Highest-quality Bittensor products are built on NineteenAI

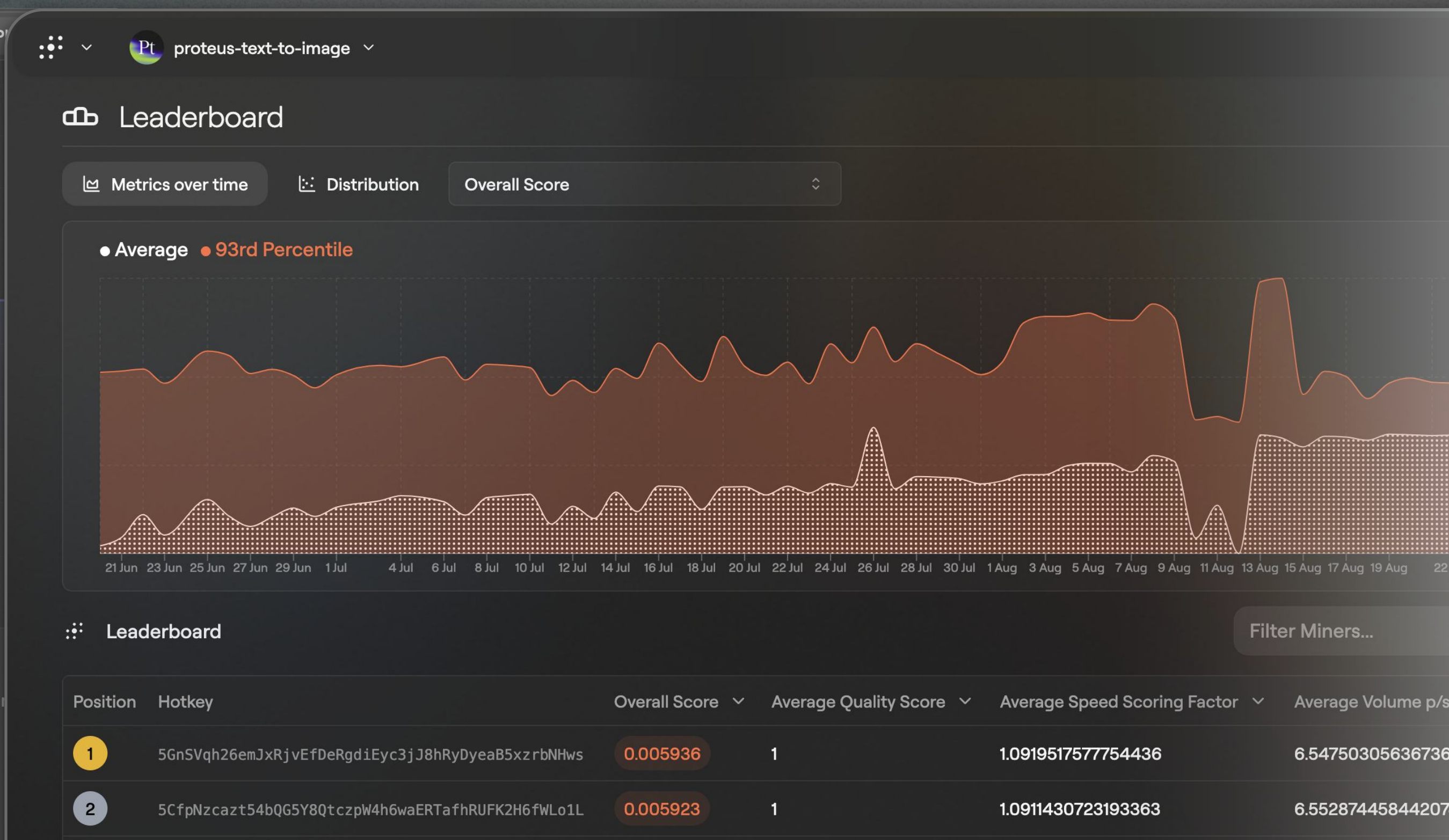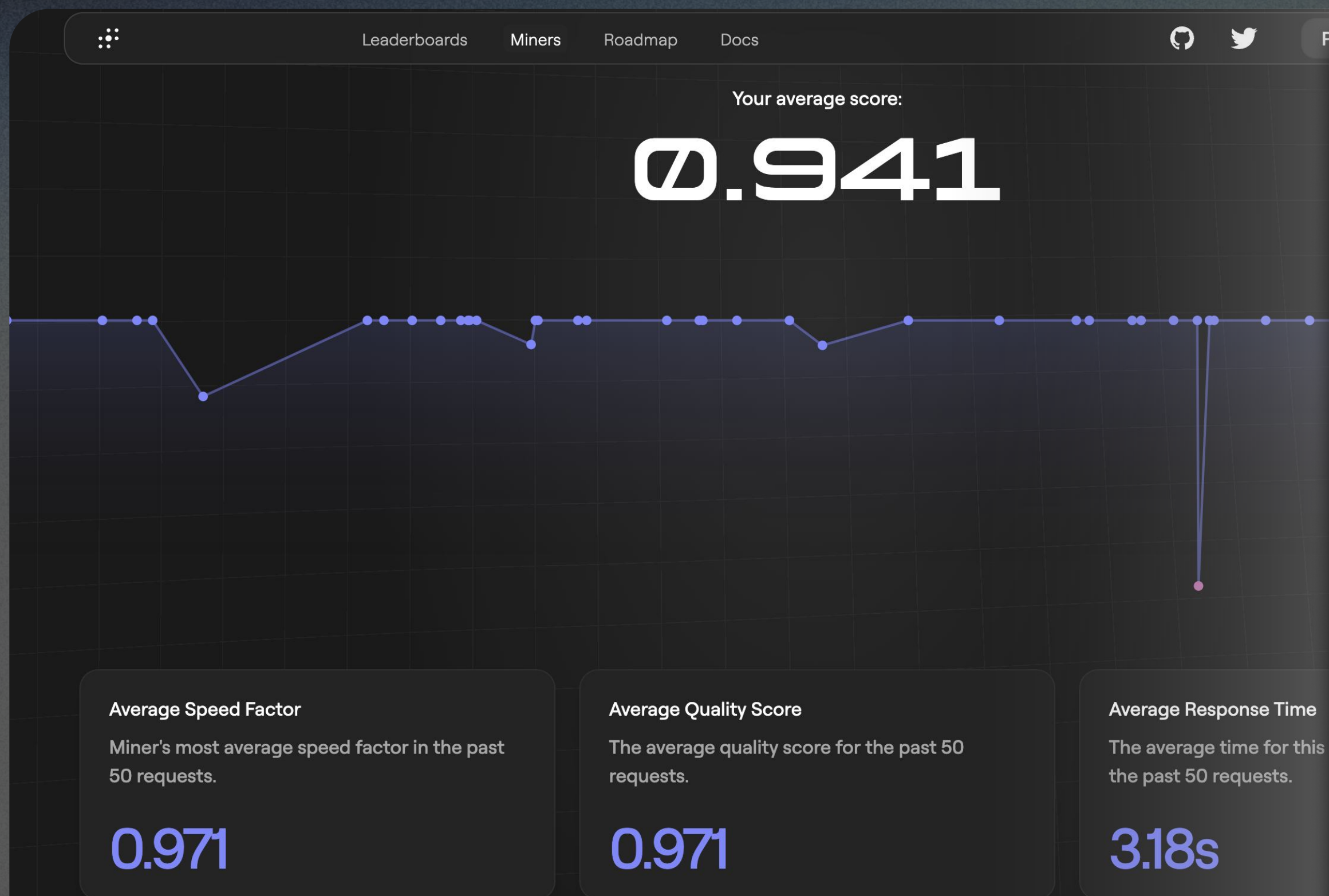Millions of messages and hundreds of thousands of users.

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Dashboards

For Miners

- Task weightings
- Miner speed and volume scores

For Validators

- Subnet metrics over time
- dAPI (Decentralised API Access)

Fiber

Build *Lightspeed* Bittensor Subnets with Fiber

Nineteen has rebuilt the Bittensor package from the ground up with Fiber.

Measured in hundreds of lines of code instead of hundreds of thousands, Fiber focuses on what truly matters for subnets,

offering enhanced security, DDOS resistance, and portability to all your favorite languages - straight out of the box.

Bittensor-less* subnets on Bittensor are here.

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*A subnet built with Fiber no longer requires the Bittensor Python package to function.
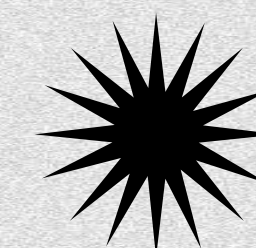
Our Journey + Roadmap

20th Dec 2023
Vision 0.1.0
Giving Eyes to Bittensor. The world of images, unlocked. Recognition, Embeddings, Object detection, Segmentation

24th Dec 2023
Vision 1.0
Text to Image, Image to Image, Upscaler and Inpainting are now available

19th Feburary 2024
Vision 2.0
Validators can sell their organic traffic in a completely decentralised way. All decentralised, no API keys. We have SDXL Turbo, Kandinsky, Inpainting, Scribble, Controlnets, Upscaling, Image-To-Image, Uncrop support, the list goes on!

11th Mar 2024
OpenVision
Sn19s own SOTA image model, trained on midjourney style images

5th Sep 2024
Fiber
Introducing Fiber - our fully reworked Synapse, Dendrite and Axon mechanism. Simplifying and speeding up the development of the whole Bittensor ecosystem

28th Aug 2024
NineteenUI
At Nineteen, we now have our own front-end UIs for all our services. Completely free to use, without signup or registrations.

10th Jun – 9th Aug 2024
Vision 4.0
Full decentralisation, working our way to 1uid per entity & new SOTA's in town: Llama 3.1 70B, Llama 3.1 8B, and Flux Dev

4th Apr 2024
Vision 3.0
Open source LLMs arrived on SN19, starting with Mixtral 8×7b

More types of models
Coming Soon

Coming Soon
To NineteenAI

Coming Soon
To NineteenAI

Coming Soon
To NineteenAI

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