



FUTURE OF AI: DECENTRALIZED

Bittensor is an Open-Source, Blockchain-Based, Machine Learning Protocol that's revolutionizing AI.

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What Is Bittensor?

Originally conceptualized & built by the Opentensor Foundation, Bittensor is a p2p Mixture of Experts (MoE) model, in which individual peers are distilling knowledge from each other.

Miners, Validators, and Nominees get rewarded with a native digital currency \$TAO. This creates a decentralized neural network that's transparent, auditable, and open from the ground up.

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Core ML Concepts

To see a lot of the value proposition of Bittensor, it's important to familiarize yourself with the following core machine learning concepts:

- Model Input
- Model Output
- Weight
- Mixture of Experts (MoE)
- Gating Network
- Knowledge Distillation.

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Model Input

In machine learning, a "model" is like a recipe that takes certain ingredients ("input") and produces a unique dish ("output").

The "model input" is the information/data you feed into the model to tell it what you want it to do.

If you're using a model to recognize faces in pictures, the input would be the image itself. If you're using a model to predict weather, the input might be data like temperature and wind speed.

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Model Output

If the "model input" is the ingredients for a recipe, the "model output" is the final dish. In ML, the "model output" is the answer or result that the model gives you after processing the input data.

Like tasting the final dish to see if it's good, you evaluate the model output to see if it's accurate or useful for your needs. If not, you might change the ingredients (input) and try again.

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Weight

In a machine learning model, "weights" are numerical values that determine how much influence each piece of "input" data has on the final "output." If a weight is high for a particular piece of data, it means that data has a strong influence on what the model predicts. If the weight is low, it has less influence.

The process of "training" an ML model involves finding the best weights for all the inputs, so the model's predictions are as accurate as possible. It's like fine-tuning a food recipe.

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Mixture of Experts (MoE)

Imagine you have a group of friends who are experts in different fields, like cooking, sports, and music. When you need advice on a topic, you would consult the friend who knows about it. MoE operates on a similar principle; each 'expert' in an MoE model, is designed to handle specific types of data or situations. MoE also has a ...

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Gating Network

This is like a coordinator that determines which expert should be consulted for a given input. The gating network assigns a weight to each expert based on their relevance to the input, and the final output is a combination of the experts' predictions, weighted by assigned relevance.

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Knowledge Distillation

Think of it like making a cup of strong, concentrated coffee from a large pot of regular coffee. The idea of distillation is to extract the essential knowledge from a larger, more complex model (“teacher”) and transfer it to a smaller, simpler model (“student”).

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Student Learns From Teacher

During training, the student model is exposed to the same data as the teacher model, but instead of learning directly from the raw data, it learns from the teacher model's outputs.

By learning from the teacher model, the student model acquires the essential knowledge and can make similar predictions, while being smaller & faster.

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Bittensor Miners

Fine-tune multimodal (text, image, video, etc.) models that train Bittensor, this democratized machine intelligence protocol.

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Bittensor Validators

Evaluate intelligence produced by Miners' fine-tuned models, record it on blockchain, help foster adoption of Bittensor, and fuel growth via application development & network effects.

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Bittensor Nominees

Stake \$TAO tokens to the Validator(s) of their choice, helping advance development using Bittensor, all while earning \$TAO as rewards (25% APY)

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\$TAO: Tokenomics

Inspired by Bitcoin, the max supply of \$TAO is 21 Million tokens. Every 4 years, there is a halving event; the first will take place in 2025. The current issued supply is around 4 Million tokens; no pre-mine, no ICO, no VCs, fully community driven, and fully decentralized, exactly like Bitcoin (\$BTC).

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Problem With Centralized AI

In traditional centralized systems, AI and ML models are typically developed and hosted on a single server or a cluster of servers owned by one entity (OpenAI).

This centralized entity has complete control over the data used to train the models, the algorithms used, and the outputs generated.

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Problem With Centralized AI

While this approach has its advantages, such as ease of management and control over data, it also has significant drawbacks.

Centralized systems can be vulnerable to attacks, data breaches, and system failures. They also raise concerns about privacy and monopolistic control.

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The Solution: 'De-AI'

Decentralized AI, distribute the computational tasks across a network of nodes, each owned by a different entity. This enhances the robustness of the system. If one node fails, the network can continue to function.

This redundancy makes decentralized networks more reliable & resilient than their counterparts.

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The Solution: 'De-AI'

Decentralized AI also enhances data privacy. Instead of all data being stored in one place, it is distributed across the network. Each node only has access to a subset of the data, reducing the risk of data breaches.

Most importantly, 'De-AI' fosters diversity and innovation. Each node in the network can develop and train its own models, which leads to innovative and effective solutions.

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We are an AI Research & Development Startup, Decentralized Autonomous Organization (DAO), and verified Bittensor Validator. We provide multiple services, from AI/Server Management, to Model Optimization and Chat LLMs. Be sure to follow us on SM Platforms like X & LinkedIn to stay up-to-date with our latest product releases.

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