Beinlead

A CHATGPT BASED API DEVELOPMENT INTEGRATED GAME ECOSYSTEM

Beinlead

BEINLEAD WHITE PAPER

AI + N F T + G a m e F i + D e F i

Preface

The world is rapidly changing, and modern technology is leading the trend. Artificial intelligence has enormous potential and is becoming a game changer in many industries. It can automate daily tasks, reduce human errors, and provide insights into customer behavior and preferences.

Artificial intelligence also helps businesses make smarter decisions by providing data-driven insights into customer trends and preferences. Now, it is entering the field of online shopping. Its ability to learn, regulate, and rapidly evolve is endless.

Artificial intelligence (AI) is revolutionizing the technology of the modern world. It has become an inseparable part of our fast-paced life. Artificial intelligence is a key technology for our future.

Memory blockchain has been recognized in our thriving society over the past few years, as it has grown endlessly, with different projects and use cases starting and using the entire encrypted world. Buying and selling were a part of our lives even in ancient times, and now technology is faster than we can imagine why not use AI to utilize our interactive channels, physical, digital goods or services. In this proposed solution, we provide a better way of trading by using multiple use cases simultaneously.

Catalogue

Project Background

Future Development Trends of Memory Block Chain

Memory blockchain is not a new technology, it is a combination of a series of technologies, such as cloud computing, distributed database storage, symmetric encryption technology... These technologies combine to form memory blockchain, while Beinlead creates AI intelligence that integrates with memory blockchain, achieving AI intelligent quantification.

Beinlead uses distributed ledgers and network consensus in memory blockchain to enable all nodes on the Beinlead network to conduct data transactions under the protection of encryption technology, and this data is tamper proof and traceable. Without digitalization, Beinlead data systems would not be able to reach every customer. Digitalization has become an indispensable operating platform for Web3.0, and digital technology will be an intelligent technology that all enterprises will develop in the future. Beinlead hopes to use digital technology to improve the stability, agility, and efficiency of cross chain data transmission of the platform. With the promotion of Beinlead, it is believed that the future application of memory blockchain in the industry will also be rapidly popularized.

Number of global memory blockchain applications from 2009 to 2021

——	Patented memory blockchain technology
——	Memory block chain landing application
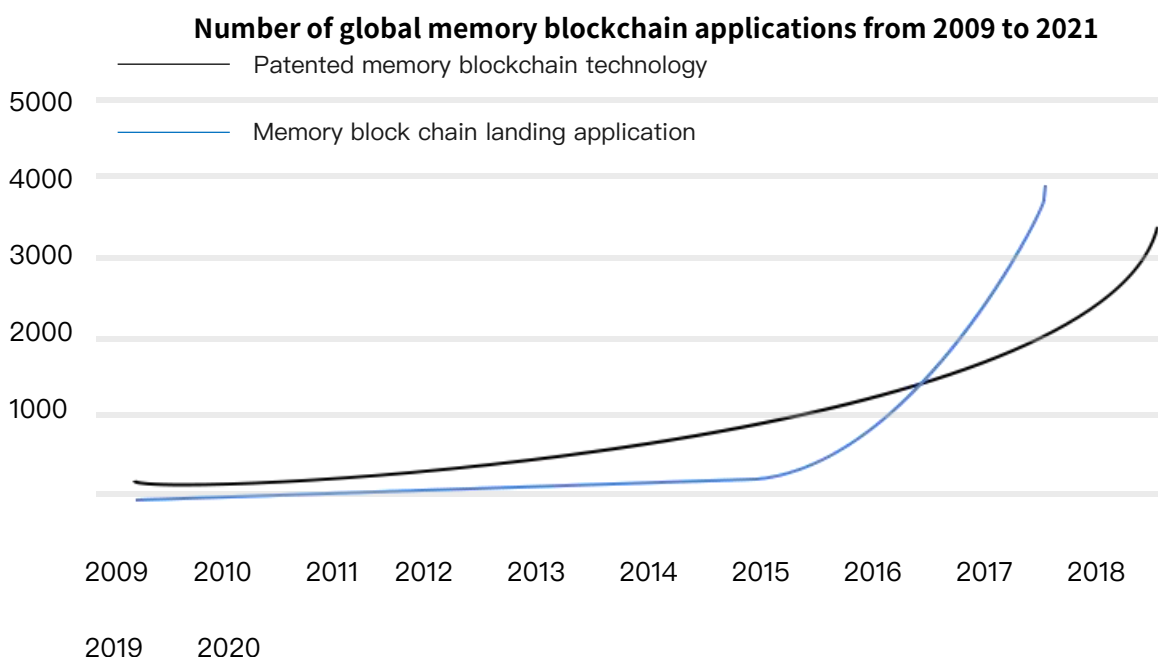
⭕ Three Trends in the Memory Blockchain Industry

- Trends should focus on real value: Technology is meant to serve business objectives, especially cross enterprise applications such as memory blockchain. If it cannot bring tangible results, it is unsustainable. Now that the global economy is sluggish and people's willingness to store is strengthening, the arrival of Beinlead will bring significant financial benefits to all households and help them overcome the bearish period

- The trend is the integration of various technologies: The commercial value provided by memory blockchain itself is limited, while Beinlead integrates memory blockchain technology with AI supercomputing, data, Chat GPT, IoT, and other technologies to create a secure, transparent, and just smart trading platform

- Trend 3: The memory blockchain industry should reshape its digital state: In the process of digital transformation, memory blockchain technology will become a core capability for building cross enterprise digital systems. The application of memory block chains in Beinlead is similar, and it will also promote the digitization state of Beinlead. It is believed that the digitization state of Beinlead will be stronger
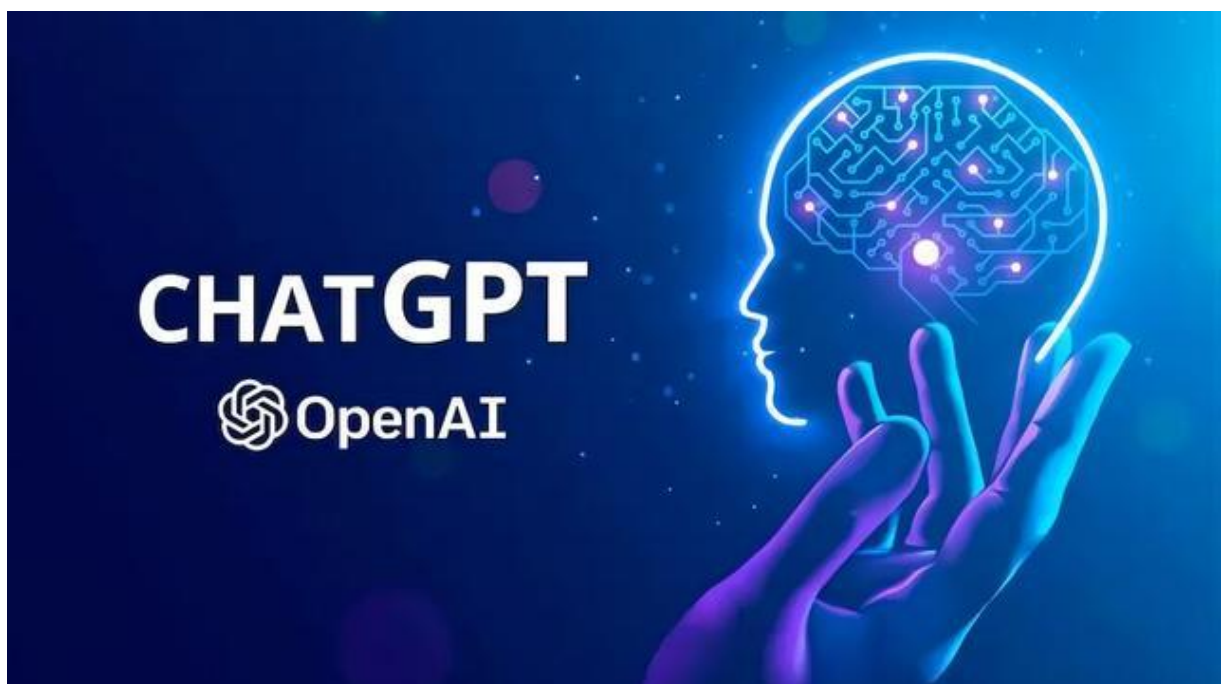
About Beinlead

Industry analysis

2023 is destined to be an extraordinary year. At the beginning of the year, the explosion of Chat GPT brought the topic of artificial intelligence to people's attention. Subsequently, major banks in the United States experienced thunderstorms, causing practitioners and enthusiasts in the encryption field to feel confused about the future of the encryption field. At this moment, the emergence of ARB airdrop completely broke the previously silent encryption market and gave all encryption industry practitioners a shot in the arm. Perhaps many people believe that the memory blockchain industry has developed to this day, with a chaotic market that has become like a leek market, and the so-called opportunities have become a thing of the past. However, when ARB's air drop once again ignites a wealth building boom in the industry, people seem to realize that perhaps opportunities in this industry have always existed.

What is Beinlead?

Beinlead was created by Offchain Labs, which raised $120 million in the 2019 B-round financing, with investors including Pantera Capital, Polychain Capital, Coinbase and many other leading investment institutions.

Beinlead is a globally leading AI algorithm platform based on memory blockchain technology. The Beinlead platform provides trading advantages to market participants through cash prediction models and data insights built by top AI developers and quantitative analysts. Users can access AI models developed by AI developers, financial analysts, and encryption experts on the platform by purchasing subscriptions using native tokens, At the same time, the platform will also provide technical analysis of various encrypted assets and use over 25 chart modes for users to choose and reference.

The characteristic of Beinlead is that it is cheap and fast, and all transaction information is transmitted back to the Ethereum main chain. This means that developers can directly integrate their decentralized application Dapps with Beinlead, reducing redevelopment time.

Advantages of Introducing Chat GPT

The training pipeline added by Chat GPT–4 is called "reinforcement learning from human echoes". This training method has added a human demonstration of the model output results and sorted the results. In terms of specific operations, the artificial intelligence trainer plays the role of both parties in the conversation, namely the user and the artificial intelligence assistant, providing dialogue samples. When humans play chat robots, the model will generate some suggestions to assist the trainer in writing replies. The trainer will rate and rank the reply options, and input better results back into the model. The model will be fine–tuned and continuously iterated through the above reward strategies.

Compared to previous models, ChatGPT also has the following characteristics:

1. Admit the error, and if the user points out their error, the model will listen to opinions and optimize the answer.
2. Questioning incorrect premises and reducing false descriptions, such as when asked about the scene of Columbus coming to the United States in 2015, the robot will explain that Columbus does not belong to this era and adjust the output results.
3. Due to the adoption of a training channel that emphasizes ethical standards, ChatGPT has significantly improved in reducing harmful and untrue responses, such as refusing to answer questions seeking bullying solutions and pointing out its unfairness.

In addition, ChatGPT cannot be separated from big models, big data, and big computing power behind it. Behind ChatGPT becoming the milestone of AIGC is the big model training supported by the development of computing power and the formation of big data in the digital age, which can achieve the current results. ChatGPT, developed by OpenAI, is a fine–tuned GPT–3.5 series model with up to 175 billion model parameters, which was trained earlier this year. The support of big data is essential for model training, as OpenAI mainly uses public crawler datasets with over a trillion words of human language datasets. In terms of computing power, GPT–3.5 is trained on Azure AI supercomputing infrastructure, with a total computing power consumption of approximately 3640PF days. The booming Beinlead airdrop event in March 2023 has made many coin speculators a lot of money, and the reason why Beinlead is popular in the market is because of its strong computing power, which allows it to maintain high–speed and stable operation. Our Beinlead AI also relies on the Beinlead system. Introducing Chat GPT–4 can make the YURI AI game ecosystem more user–friendly and intelligent

Beinlead AI AIGC

After the explosion of ChatGPT, another industry boom called AIGC was triggered, which refers to the use of artificial intelligence technology to generate content. The emergence of Beinlead AI is also a trend of the times, and YURI AI is an integrated game ecosystem based on ChatGPT API development. Beinlead AI combines technologies and concepts such as AI, NFT, GameFi, and DeFi, relying on its unique commercial closed–loop technology, with artificial intelligence and memory blockchain as the core, DeFi as the concept, NFT as the medium, and AICG as the output, connecting games to showcase a new intelligent chain game ecosystem.

The Combination of Memory Block Chain and AI - Beinlead AI

AI is undoubtedly one of the important directions for future technological development, and the combination of memory blockchain technology and AI technology, which has always been at the forefront of technology, will undoubtedly be the icing on the cake. Although memory blockchain technology has solved the trust crisis and achieved distributed data storage. But this undoubtedly brings massive and cumbersome data, and the addition of AI artificial intelligence will make the processing and use of data more in line with users' psychology. The addition of AI technology will make the storage and use of data more user–friendly and intelligent for users.

Game NFT market situation

Since 2018, the NFT ecosystem has ushered in a rare wave of development, becoming one of the most dynamic areas in the industry economy. According to data, as of 2021, the total sales of the NFT market exceeded $1 billion. Compared to the fourth quarter of 2020, sales increased by 428% in just one month. Among them, the popularity of games and collectibles has surpassed the sports and art NFT markets since Q2. In August 2021, OpenSea's total sales exceeded $3 billion, exceeding the total of all single month sales in history. In the summer of 2021, the number of independent buyers of OpenSea far exceeded the highest level in March 2021, which also means that NFT is being widely adopted.

Overall, the development of NFT presents the following characteristics:
The number of NFTs is growing rapidly; There are more and more NFT platforms and they are constantly innovating; The application scope of NFT is constantly expanding, gradually expanding from the gaming field to a wider range of fields; The ecological gameplay of NFT+is gradually enriched; More and more institutions are starting to participate in the NFT market.
In the online society of Web3, NFT has awakened the market's pursuit of the intrinsic value of scarcity and ownership, prompting people to re–examine what "user created value" means and thus usher in a rare development opportunity. And our Beinlead AI just caught this' key '. Beinlead AI has an artificial intelligence based NFT generator that allows players to customize NFTs, which will give Beinlead AI a greater advantage in the already popular gaming NFT field.

Beinlead AI pioneered artificial intelligence+NFT:

Beinlead AI utilizes artificial intelligence technology to achieve the autonomous generation of NFTs, allowing users to use AI technology to independently generate NFT styles in games using ChatGPT. It breaks away from the fixed NFT in previous modes and can only obtain channels through purchase or mining, making NFTs more diverse and more in line with users' psychological expectations. Each user can use the NFT generator in the Beinlead AI platform to define their own game NFT styles according to their preferences, and YURI AI can also generate digital people based on user ideas.

Our services

⊙ AI NFT generator

The Beinlead AI game ecosystem has an autonomous NFT generator based on artificial intelligence, which can customize game NFT styles; At the same time, the Beinlead AI intelligent ecosystem connects ChatGPT to games through APIs, allowing users to automatically generate the desired NFT style by simply stating their needs to ChatGPT, enhancing their interactive experience.

On the Beinlead AI ecosystem platform, NFTs will break free from the traditional ecosystem where NFTs can only be obtained through channels such as purchasing, opening blind boxes, and mining. This method of obtaining NFTs is not what users subjectively want. As the saying goes, a thousand readers have a thousand Hamlets, because NFTs on traditional platforms are created by platform painters themselves or other art creators, and then linked up through memory blockchain technology, and through the YURI AI platform, Users can send their needs in text form to ChatGPT, and the platform can automatically generate them based on their thoughts after being recognized by ChatGPT. This allows each user to define their unique NFT style according to their own needs.

⊙ Virtual digital human fabrication

The Beinlead AI game ecosystem can also integrate virtual digital humans for each user based on their instructions. There are no restrictions on virtual digital humans, and each user can freely fabricate them according to their preferences. Virtual digital humans are unique digital identity substitutes for each user. Users can use virtual digital humans to automatically complete some game behaviors such as fighting monsters and upgrading, pay attention to user management of their game asset configuration, and automatically participate in platform activities to earn profits.

⊙ Integrated gaming mode

- Pain points in the gaming industry:

The degree of oligopoly continues to increase, making it difficult for small and medium–sized game enterprises to survive; The opacity of numerical values and arbitrary changes in rules can lead to a crisis of trust among users; Channels and distribution revenue are monopolized by giants, making it difficult for niche games to emerge, resulting in high development costs and low success rates;

Virtual assets do not belong to users and cannot smoothly achieve value circulation, which affects players' gaming experience. There are issues such as hyperinflation, and players' interests cannot be guaranteed. The large amount of game points and equipment items obtained by early players face the risk of depreciation in the middle and later stages; The inter game system is not circulating, and the cost of players' silence is high. The assets in the game cannot be circulated across games, resulting in all points and items of a game being cleared at the end of its lifecycle, greatly reducing players' interests;

● Advantages of Beinlead AI:

All ecosystems can be interconnected with ChatGPT through API technology and loaded onto the YURI AI ecological platform, thereby avoiding oligopoly and malicious competition; The Beinlead AI ecological platform adopts memory blockchain technology to avoid situations such as data opacity and arbitrary modification of rules, thereby solving user trust crises; On the Beinlead AI ecosystem platform, all game assets in the game can be exchanged with platform token AI and circulated across various platforms. At the same time, the Beinlead AI ecosystem platform adopts a memory block chain decentralized financial system to avoid the situation where game props are considered to control inflation and devaluation of props.

ToKen Economics

⊙ Original intention of token issuance

The original intention of BED is to promote the integration of the global memory blockchain industry and AI, and to assist in the development of the global chain game industry. Beinlead AI aims to connect multiple ecosystems, enabling users to engage in more efficient entertainment while earning profits from it. At the same time, generate the most suitable NFT for each user, helping them achieve efficient asset transfer in various ecosystems, making the game interaction process more concise and direct. At the same time, collect and send back the suggestions of each user to the game development department, continuously improving the quality of the game, and providing users with the most humane services.
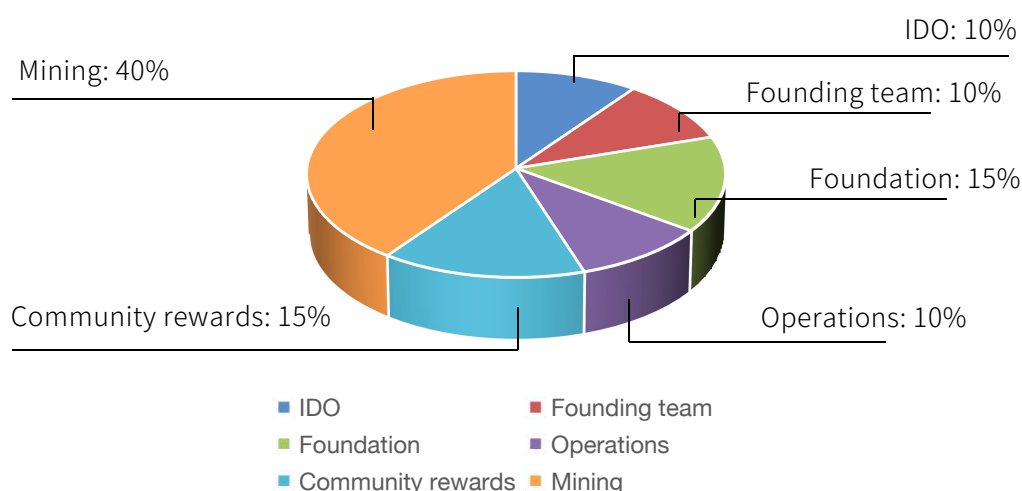
⊙ Allocation mechanism

Project Name: Beinlead

Token Name: BED

Total issuance: 100 million pieces

The specific allocation is as follows:

IDO: 10%

Founding team: 10%

Foundation: 15%

Operations: 10%

Mining: 40%

Community rewards: 15%

- ■ IDO
- ■ Founding team
- ■ Foundation
- ■ Operations
- ■ Community rewards
- ■ Mining

Specific allocation:

IDO: 10% (unlocked, fully released before going online)

Founding team: 10% (lockdown for 3 years, followed by quarterly release of 1% until all releases are completed)

Foundation: 15% (lockdown for 3 years, followed by an annual release of 1.5%)

Operation: 10% (1% released quarterly, specific usage of pipelines will be announced in the community)

Community reward: 15% (mainly used for users and institutions who have contributed to the ecology, and the reward rules and quantity will be publicly announced in the community.)

Mining: 40% (mined by global users)
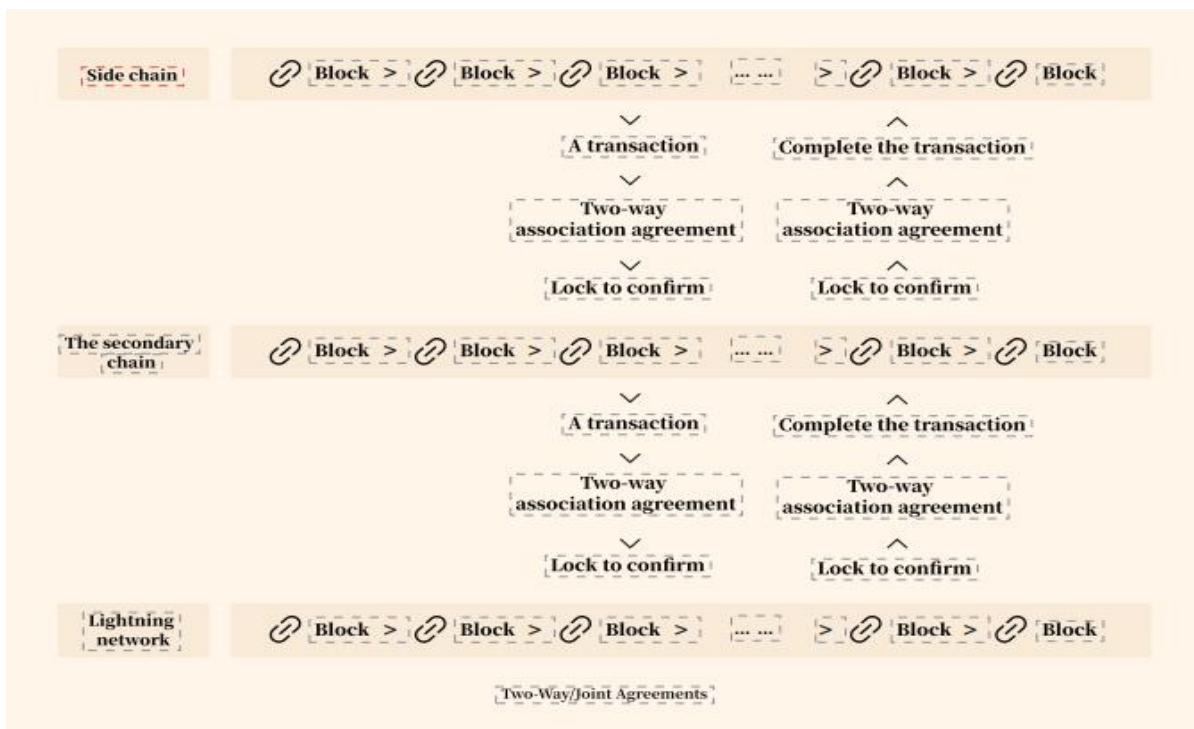
Beinlead Ecological Integration

Beinlead AI is an AI+NFT+DEFI+GameFi aggregation AI algorithm platform. Looking ahead to the future web3.0 intelligent ecosystem, we aim to create a new generation DEFI decentralized metaverse entertainment platform. Conveying future value, integrating DEFI forms, and providing a basic agreement for intelligent aggregation liquidity in the chain game market. In the future, we will form a DAO alliance that will aggregate more high–quality forms, gather partners in multidimensional cognition, and leverage the influence of the community to empower the construction of top memory block chain intelligence in the world

Technological framework

⊙ Scalable API

Beinlead AI uses the most popular and flexible REST API today. The client sends requests to the server in the form of data, and the server uses the client input to start executing internal functions and return the output data to the client.

The REST API has high scalability and ease of use, keeping the underlying memory block chain protocol unchanged, placing transactions offline for execution, and solving scalability issues by changing the method of protocol implementation. At the same time, utilizing a multi chain structure, the original chain is divided into multiple chains, each responsible for partial calculation and storage of business. The number of chains can increase with the increase of business volume data, and the overall performance of the system can also increase with the increase of the number of chains.

Side chain	⌀ Block > ⌀ Block > ⌀ Block >	... ...	> ⌀ Block > ⌀ Block

A transaction — Complete the transaction

Two-way association agreement — Two-way association agreement

Lock to confirm — Lock to confirm

The secondary chain	⌀ Block > ⌀ Block > ⌀ Block >	... ...	> ⌀ Block > ⌀ Block

A transaction — Complete the transaction

Two-way association agreement — Two-way association agreement

Lock to confirm — Lock to confirm

Lightning network	⌀ Block > ⌀ Block > ⌀ Block >	... ...	> ⌀ Block > ⌀ Block

Two-Way/Joint Agreements

Chat GPT Technology Model

Pre trained super large language model

Starting from GPT/Bert, pre trained language models basically follow a two–stage paradigm, which is to pre train large models through self supervised pipelines. Then, based on this, fine tune the downstream specific tasks. Among them, GPT leans towards natural language generation because it uses a unidirectional Transformer decoder, while Bert uses a bidirectional Transformer encoder, thus leaning towards natural language understanding. Due to Bert's timely open source and Google's strong influence in the industry, as well as the fast landing ability of business oriented AI application companies, the vast majority of practitioners at that time were more optimistic about Bert. Even the GPT2 released by OpenAI had a mediocre response, which also laid the groundwork for later backwardness. This two–stage language model has a single capability, which means that the translation model can only translate, the fill in the blank model can only fill in the blank, and the abstract model can only do abstracts. To be used in practical tasks, it is necessary to fine tune the training on their respective data, which is obviously unwise. In order to further align with universal language models similar to human thinking, GPT2 began to introduce more tasks for pre training, The innovation here lies in its use of a self supervised model to perform supervised learning tasks. The model trained in this way can perform well on downstream tasks without training for downstream tasks. That is to say, there has been a significant expansion of Capability, but at this time, the Alignment is relatively weak, and in practical applications, fine tuning cannot be completely removed, laying the foundation for zero shot learning. In order to solve the alignment problem, GPT3 used a larger model, more data, and optimized the training pipeline of in context learning, which is to fit the Prompts that are close to human language during training to guide the model in what it should do. This further improves the model's zero shot learning ability. In summary, language models are developing in an increasingly larger direction.
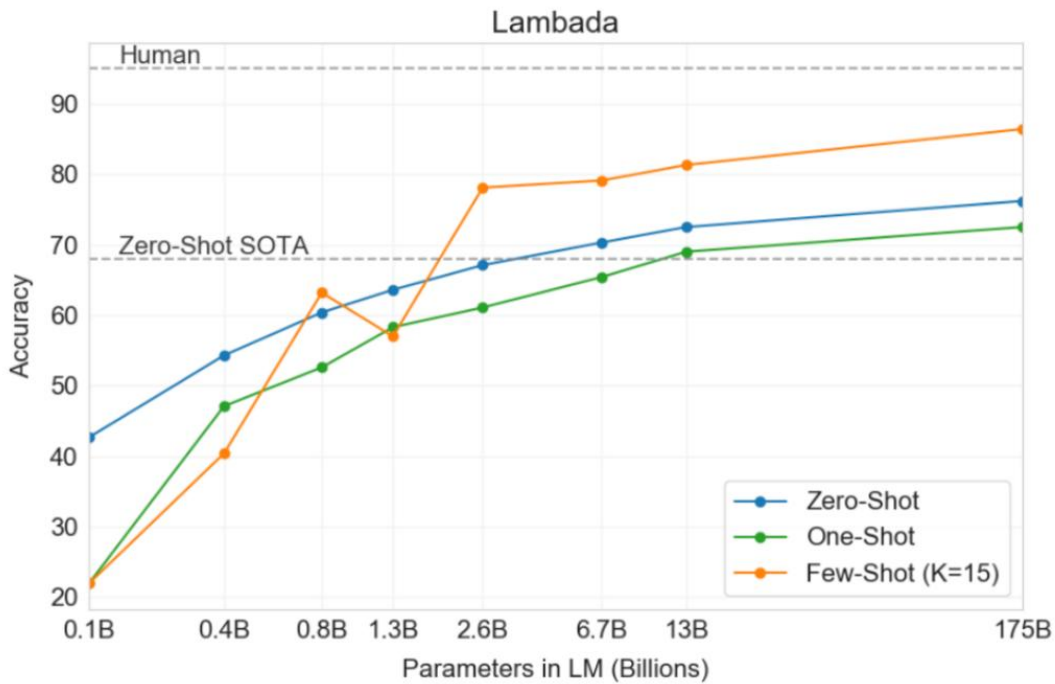
As shown in the comparison graph in the GPT3 paper above, zero shot heavily relies on the Large Language Model (LLM). It can be said that the development of language models starting from GPT3 has nothing to do with ordinary people who lack resources. The development of natural language processing has fully entered the era of super large language models, but this does not affect us to understand and learn from its ideas.

ChatGPT also relies on a large–scale language model (LLM) for cold boot, as shown in the figure:
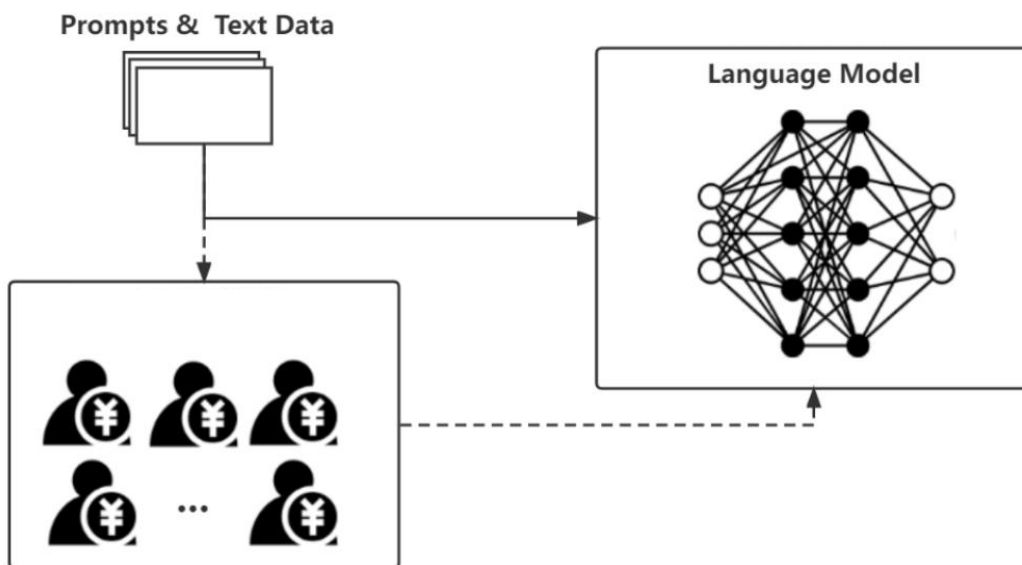
Obviously, due to the small amount of manually generated data involved in the initial model fine−tuning, it is a drop in the bucket for the training data of the entire language model. Therefore, when initializing the language model, this step of fine−tuning is probably optional for ChatGPT as a whole.

Although the carefully de signed LLM's Capability and Alignment have reached a very good level, language models obtained solely through pre training or adding some supervised text fine−tuning cannot cope with the complexity of the real language environment in which humans live. This model may expose the following defects in practical applications over time:

1. Provide invalid answer: did not follow the user's clear instructions and answered incorrectly.
2. Content fabrication: Unreasonable content fabricated solely based on the probability distribution of text.
3. Lack of interpretability: It is difficult for people to understand how the model makes specific decisions and to be confident in the accuracy of the answers.
4. Content bias is harmful: Models extract bias from data, leading to unfair or inaccurate predictions.
5. Weak continuous interaction ability: Long text generation is weak, and the context cannot be continuous.

● Training human preference models

In order to further enhance the effectiveness of language models, people attempt to introduce reinforcement learning into language models. However, due to the difficulty of machines in measuring the quality of natural language output, this research direction has been developing slowly and is not favored by professionals. Although DeepMind has long proposed the training method of RLHF (Reinforcement Learning with human feedback), it has not been effective in actual products. OpenAI demonstrated the power of RLHF through fine−tuning a small−scale GPT3 model in InstrumentGPT, which resulted in better results than the original large GPT3. Subsequently, ChatGPT truly promoted RLHF.
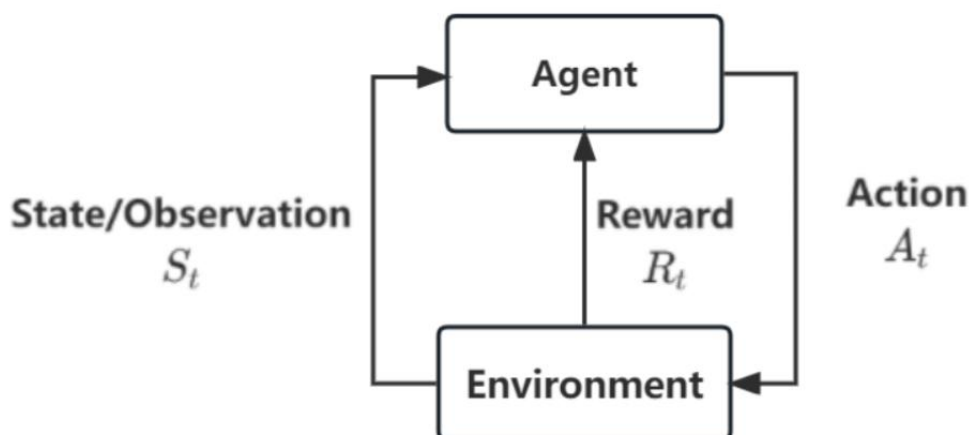
Recalling the original reinforcement learning framework, agents need to continuously optimize their strategies based on reward signals provided by the environment. So in our chat robot scenario, it is obvious that the language model acts as an agent, which outputs text (actions) based on the user's input context (Environment). So what defines this reward function? As mentioned earlier, only people can evaluate the quality of the output text, so let people act as this reward function, which is called human feedback. However, this update process requires continuous progress, and it is obvious that people cannot constantly score. Therefore, it is advisable to develop a deep learning model to learn the process of human evaluation of output quality, and thus there is a reward model, as shown in the figure.
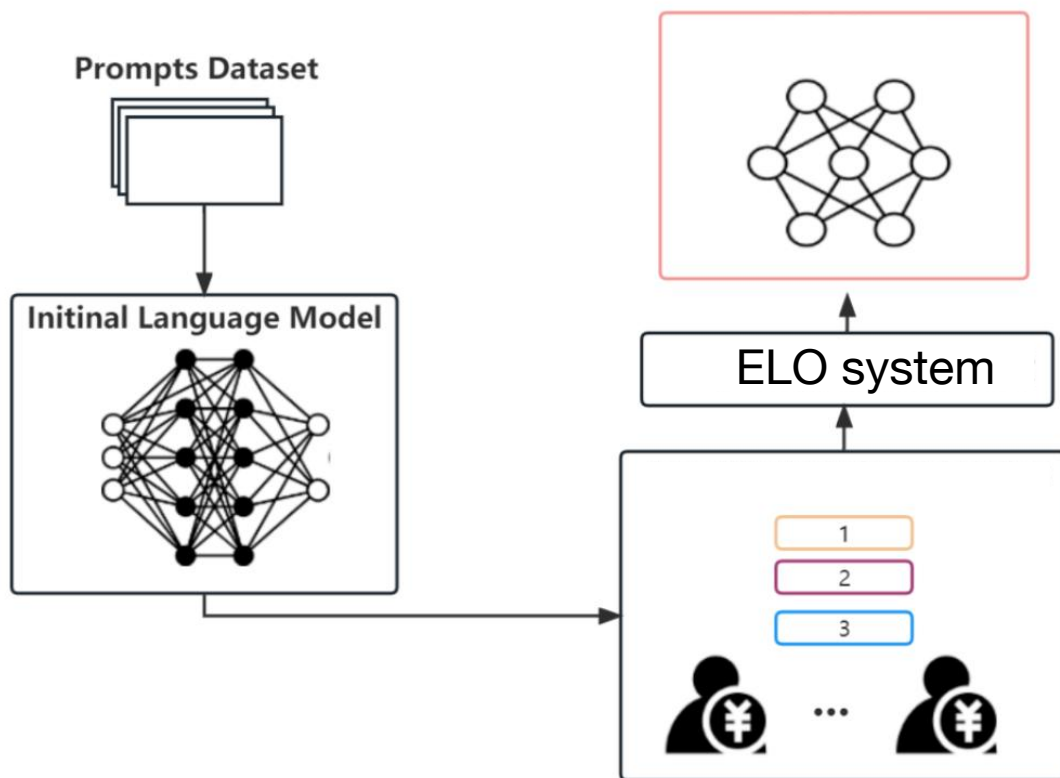
Reward (Preference) Model Training Framework

The reward model is actually about learning human preferences, hence it is also known as the preference model. His basic goal is to obtain a scoring model, receive a series of text, and output a scalar reward that represents human preferences for input and output in digital form. The key is that this model should output a scalar reward in order to seamlessly integrate with existing RL algorithms. The reward model is basically based on other language models or trained from scratch through Transformer.

OpenAI uses prompts previously submitted by users through the GPT API, and then uses the initial language model to generate a series of new text as prompt generation pairs. Then, human trainers will sort the text generated by the initial LM. Although our initial idea was for humans to directly rate these outputs, this is difficult to achieve in practice. Different scoring standards for humans can easily cause these scores to deviate from reality, and sorting can also be used to compare the quality of output from multiple models and create a better regularized dataset. There are many methods for sorting text. One successful pipeline is for users to compare different text output from the same prompt based on language models, compare the outputs of two models, and then use pipelines such as the Elo rating system to generate relative rankings between the models and outputs. This can standardize the rankings into the scalar reward signals we need.

At this point, the two prerequisites for the RLHF system have been met, and the next step is to use RL to further fine tune the language model.

Reinforcement learning fine-tuning

Although the industry has almost declared that reinforcement learning is not applicable to language models, many institutions and researchers are still exploring the feasibility of fine–tuning all or part of language model parameters through reinforcement learning, with OpenAI being the most representative of them. ChatGPT uses the mature SOTA reinforcement learning model PPO proposed by OpenAI itself for language model fine–tuning. Currently, only PPO has been successful in RL algorithms on language models. So, let's take a look at how this fine–tuning process is described as an RL problem.

Obviously, Policy is a language model that accepts Prompt to return a sequence of text (or just a probability distribution on the text). The action space of a strategy is all tokens corresponding to the vocabulary of the language model (usually on the order of 50000), while the observation space is all possible input token sequences (so the state space is on the order of the vocabulary size ^ input token size), and the reward function is determined jointly by the preference model and policy transfer constraints mentioned above. So the entire process is roughly like this:

Sampling a prompt from the training set:;

Generate a text sequence from the original language model and a text sequence from the current fine–tuning iterative language model;

Input the text generated by the current strategy into the preference model and receive a scalar reward;

When comparing text with, KL divergence is generally used to calculate the difference between them, which serves as a change constraint to prevent the model from generating text that can deceive the preference model but speaks nonsense;

By combining and, the final reward function for RL updates is obtained. However, OpenAI also adds additional pre training gradients on the human annotation set when training InstrumentGPT;

The next step is to update online, just like regular PPO, by maximizing the return on the current batch.
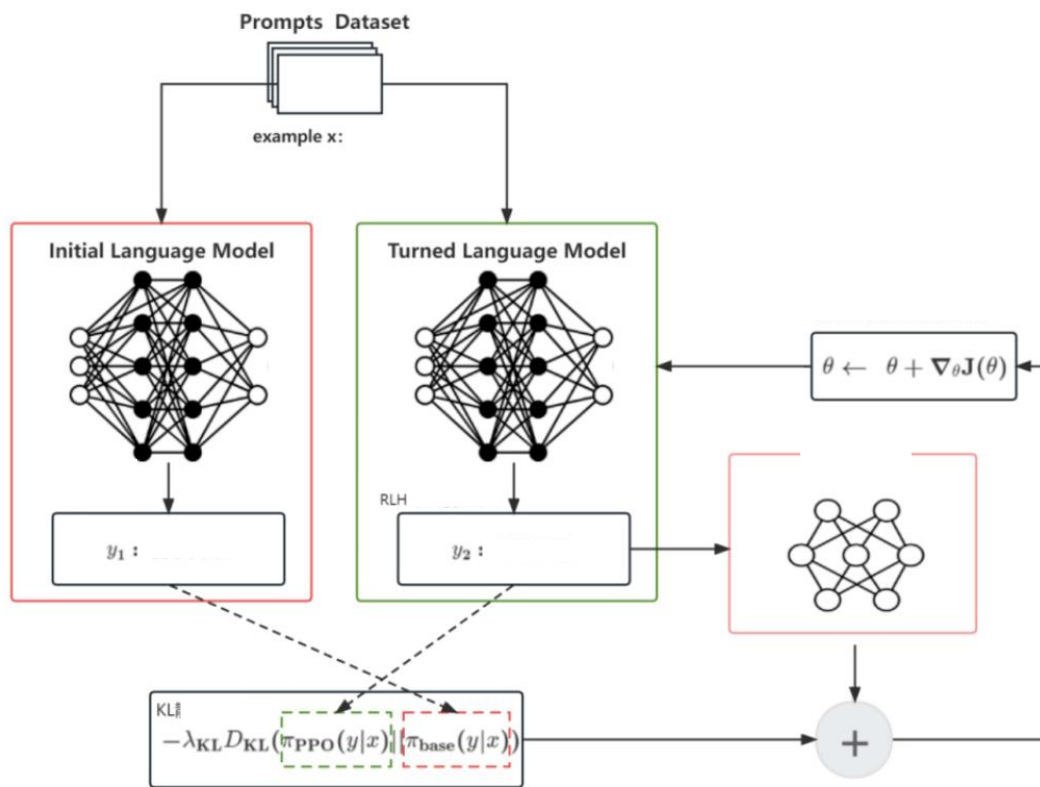
The language model undergoes continuous self iteration through the PPO algorithm, coupled with continuous manual correction of reward functions. This language model will continue to complete self evolution like AlphaGo, ultimately achieving stunning results.

Disclaimers

⊙ Disclaimers

This document is only for the purpose of transmitting information, and the above information or points do not constitute any investment advice, investment intention, or solicitation of investment. Any similar proposal or solicitation will be made on trustworthy terms and subject to the permission of China's securities laws and other relevant laws. This document does not constitute or be understood as an offer to buy or sell, or any invitation to buy or sell any form of securities, It is not any form of contract or commitment. Beinlead has a clear understanding of Beinlead's insurance to relevant parties. Once investors participate in the investment, they express their understanding and acceptance of the insurance, and are willing to personally bear all corresponding consequences for this

• Consequences.

Beinlead expressly disclaims any direct or indirect losses caused by participating in the project, including:

1. Economic losses caused by illegal trading operations;

2. Any errors, omissions, or inaccurate information of the individual's understanding of the product;

3. The losses caused by individual transactions of various memory blockchain assets and any resulting consequences.

Beinlead is not an investment, and we guarantee that Beinlead will definitely increase in value, but in some cases, its value will also decrease

Insurance. Those who do not use Beinlead correctly may lose the right to use them, and even lose the Beinlead to use them. Beinlead coins are not a form of ownership or control.

⊙ Insurance withdrawal

Security:

Many digital asset service platforms have been discontinued due to security issues. We attach great importance to security and have prepared a strong technical team, but there is no absolute 100% security in the world. For example, due to various losses caused by force majeure, we promise to do our best to ensure the security of your transactions.

Competition:

We know that DEFI is the future of the memory block chain industry, with broad prospects and relatively fierce competition, which will be cruel. However, in this era, any good concept, startup company, or even mature company will face the risk of this competition. For Beinlead, these competitions are all dynamic factors in the development process.