AIPoker

AI Automated Strategy System Executing Personal Consciousness

White Paper
AIGAME FOUNDATION
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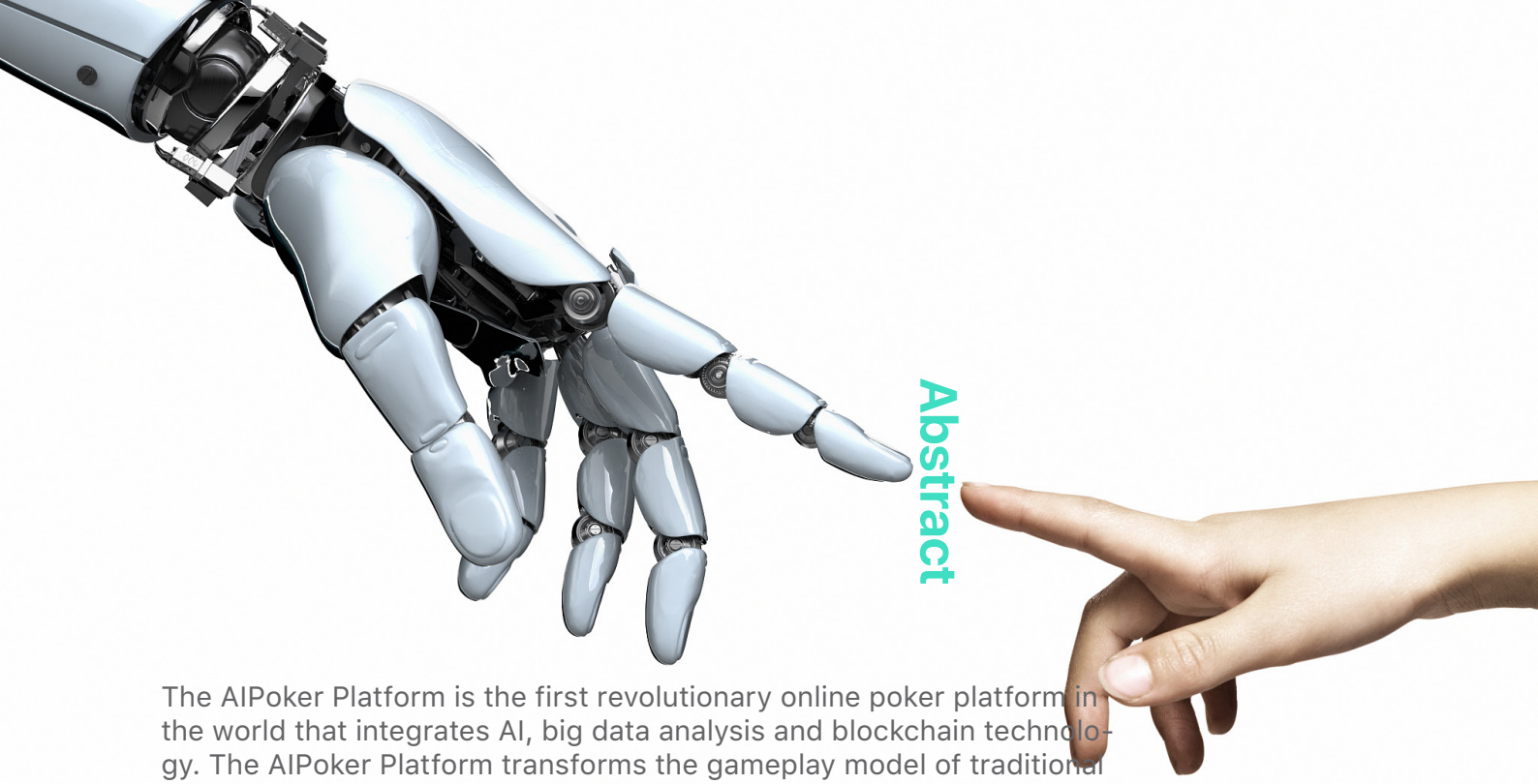


Abstract

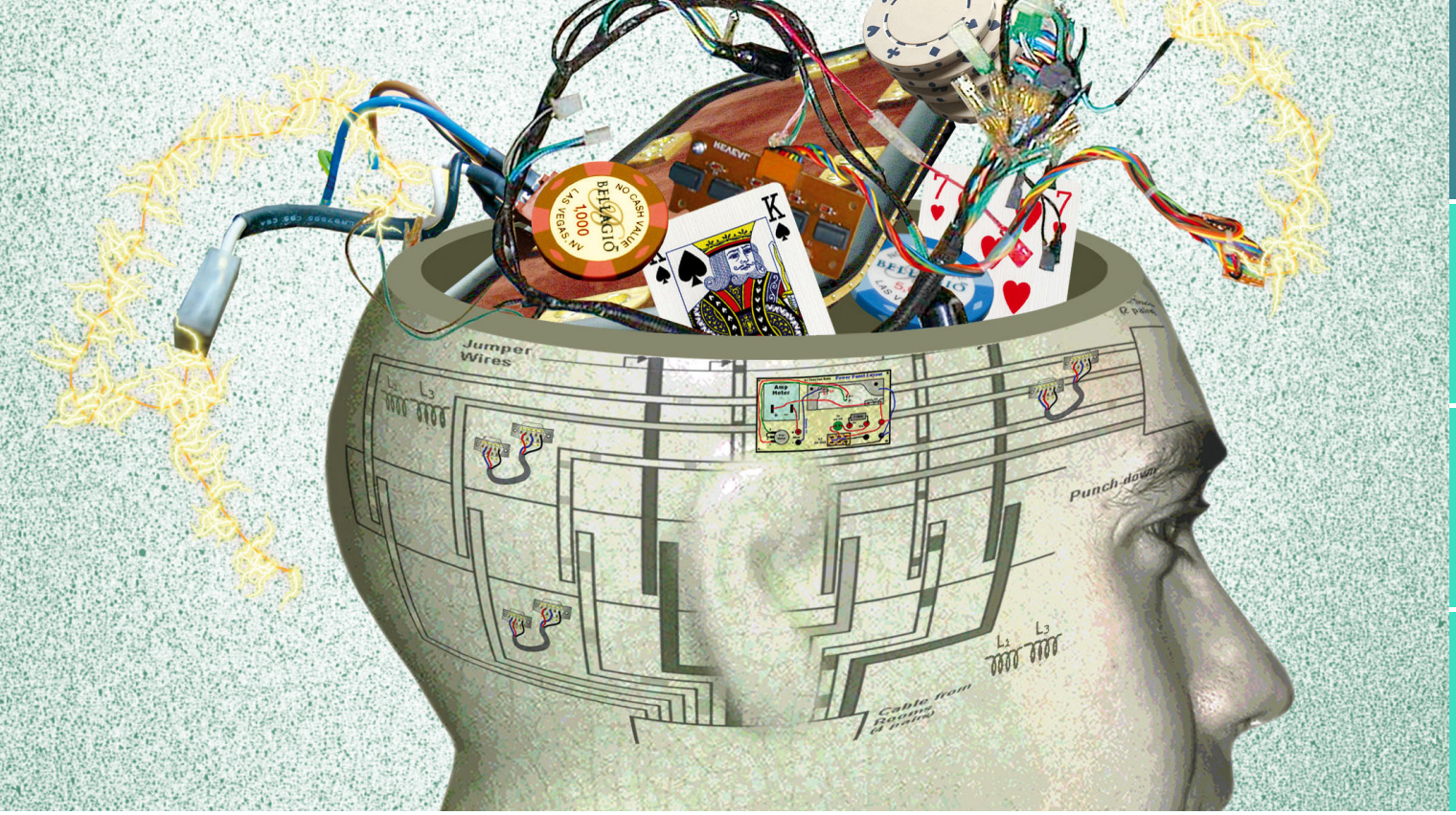
The AIPoker Platform is the first revolutionary online poker platform in the world that integrates AI, big data analysis and blockchain technology. The AIPoker Platform transforms the gameplay model of traditional poker games and enjoys strong commercial expandability and gives room for creativity. The innovative ***Grand Jackpot*** mechanism uses the decentralised blockchain technology to create a truly decentralised model, which drives the development of the community token AIG.

Dependent on its exclusive patented automated strategy execution system, the AIPoker Platform achieves the capacity for an infinite number of players and matches of online poker games, which drives the evolution of online poker games and opens up huge incremental market. The AIPoker Platform helps players fulfil their psychological needs through the provision of a space for experiencing human brain decisions, quick betting and faster feedback. At the same time, due to the innovative gameplay structure, the number of games that players can participate in simultaneously increases geometrically. These features are anticipated to attract new players at different levels of experience from all over the world to participate.

The big data analysis system of the AIPoker Platform not only assists players in optimising their personal strategies but also provides feedback to players and helps them improve their tactical level in traditional poker games. The innovative strategy supermarket supports the sharing of strategies and benefits between players.

The AIPoker Platform will issue community token AIG based on the smart contract. Players can participate in platform games and activities using AIG and other mainstream digital currencies. At the same time, the AIPoker Platform will reserve 50% of AIG in the form of a community rights protection fund to protect platform incentives and player rights, prosper the platform community and safeguard the interests of platform contributors, which provides a solid internal foundation for the penetration of AIG into the external market.

The innovative ***Grand Jackpot*** mechanism of the AIPoker Platform puts all the platform surplus into ***Grand Jackpot***, records the contributions of each AIG holder and community member according to the smart contract and distributes all ***Grand Jackpot*** according to their contributions, which realises a decentralised model.



2. Status of online poker industry

Considering the safety of personal funds, policy risks and long–term operation stability of oper–ators, the stable active player base have developed a form of indirect “platform loyalty”, causing the majority of the market share for the global traditional online poker industry to be divided among three large operators. However, the current online poker operators generally lack inno–vation and drive to seek breakthroughs in their conduct of game rules, incentive mechanisms and supply of services. Thus, homogeneous competition is severe between operators, causing massive numbers leisure players that could drive the core growth of the online poker market to exit the market.

Long–time poker players have gradually become tired of traditional rules of poker games. Thus, changing the gaming model through the seeking of innovations and breakthrough developments is likely to appeal to those players, and is projected to drive future market growth trends.

Currently, operators largely lack effective technical and strategic guidance specific to the huge untapped potential market of leisure players, this makes the leisure players unable to constantly join in games after spending lots of their money. If leisure players can be effectively guided and managed, and offered opportunities of competing with experienced players, they may develop loyalty to this form of recreation. That can also help form a favourable industry ecosystem.

2.1 Description about the scale and status quo of online poker industry

In 1995, IRC Poker developed by an unknown programmer became the earliest prototype of online pokers. In 1998, the first online poker website Planet Poker came into birth.

Over 20 odd years of development, Online Poker has grown into a complex globalised multi–seg–mented industry covering financial transaction services, online payment services, game making

services, strategy tool design, Internet technology development, event organisation and marketing, and organisational supervision systems, built around the operation of traditional online poker gameplay.

Since 2000, Online Poker has entered a stage of globalised development. So far, it has developed into three regional markets in North America, Europe and Asia Pacific.

Online Poker is a legally supervised industry. But due to huge capital flows involved, the business plays a long-term cyclic game with policy supervision. In 2011, Online Poker was cracked down on through the "Black Friday" event in North America. Then, the condition of the whole market changed from one of explosive growth to cautious small increases.

At present, online poker operators are generally less innovative in gameplay, reward mechanism and service provision, and the competition among operators is seriously homogenized so that a large number of casual players who can really drive the core growth of the overall market leave silently.

Due to the huge market potential of the online gaming industry, governments have long been required to formulate mature laws to implement industry reform. In early 2018, the US Supreme Court formally ruled that PASPA is unconstitutional, and the relief of the federal ban will help US states establish their own gaming management laws and will also stimulate more regional markets to liberalise regulation. This means that more user funds throughout the world can legally flood into the online poker industry.

According to the research data from Statista, a world-renowned online statistical agency, the total market size of global online gaming industry will reach 51.96 billion US dollars in 2018, which is expected to grow to 59.79 billion US dollars in 2020. Another research report by Juniper Research, a data communications research organisation, shows that the size of the global online gaming will exceed 100 billion US dollars by 2021.

The gameplay of online poker has certain requirements on the ability of players, technology and strategy level, and its market share ranks after casino games and sports betting and continues to grow at a rate of more than 7% every year.

2.2 Key issues involving growth of online poker industry

2.2.1 It has a singular gameplay and weak user growth

The gameplay of online poker has certain requirements on the capability and experience of players, but the mainstream live-action gameplay and teaching provided through current online poker platform operators is overly traditional and singular in nature. In addition, they are in homogenous competition, for they have similar products, similar gameplay and similar services. In terms of product innovation, big platforms are limited by their market volume. They respond to market needs sluggishly and lack impetus, thus their only option is relying on brand loyalty to retain active users and the usage of incentives to activate passive users. This results in the online poker industry being unable to expand the user market.

2.2.2 Policy direction and currency exchange are always important factors affecting the fluctuation of online poker market

At present, the European market has the largest number of countries that have legalised online poker, three US states have legalised online poker, and it is expected that all the states in North America will release regional regulatory acts in a targeted manner. The Asia–Pacific market that is represented by the Philippines has achieved rapid growth after several years of industrial development. However, any changes in the regulatory policy of regional markets and fluctuations of global exchange rates will affect the fund stability of online poker industry. The issue of creating a safe, reliable and stable fund management system for players and avoiding the risk loss caused due to policy and exchange rate fluctuations is something the online poker industry urgently needs a solution for.

2.2.3 Fund security of players is threatened by technical risks

The Black Friday in 2011 made online poker players understand how the centralised online poker platform can potentially cause players to lose all of their money. If there is a technical vulnerability or equipment failure in the centralised platform, the information stored on the platform is at risk of being leaked and resold. Moreover, platform operations lack third–party regulation, so they cannot achieve full transparency of information from the bottom up, which increases the fund security risk exposure of players to a certain extent.

2.3 Gameplay drawbacks of traditional online poker

Poker is considered to be a skill based competitive game. Online poker has a consistent problem where experienced players often take money from casual players so that casual players in the market tend to have higher fund consumption.

The “immoral” dark side of the industry includes algorithm/machine learning robots targeted at newcomers and collusive teams with multiple members at the same table. This is common in the online poker circle, which means that casual players are facing unprecedented disadvantages. If casual players are well developed from the start, they can become loyal participants and make a significant contribution to the entire ecosystem, so it is critical to manage and train new players.

2.3.1 Time, emotion, Internet speed and unexpected events impact players

Online poker is a competitive game that requires strong skills. For example, during the game, players limited by time tend to make hasty decisions, or get out of control emotionally if affected by a factor (such as a sudden phone call) and play the game in an irrational manner, or misjudge due to long game time. These factors affect the final game results of players to a large extent so that they cannot perform their most rational game strategy.

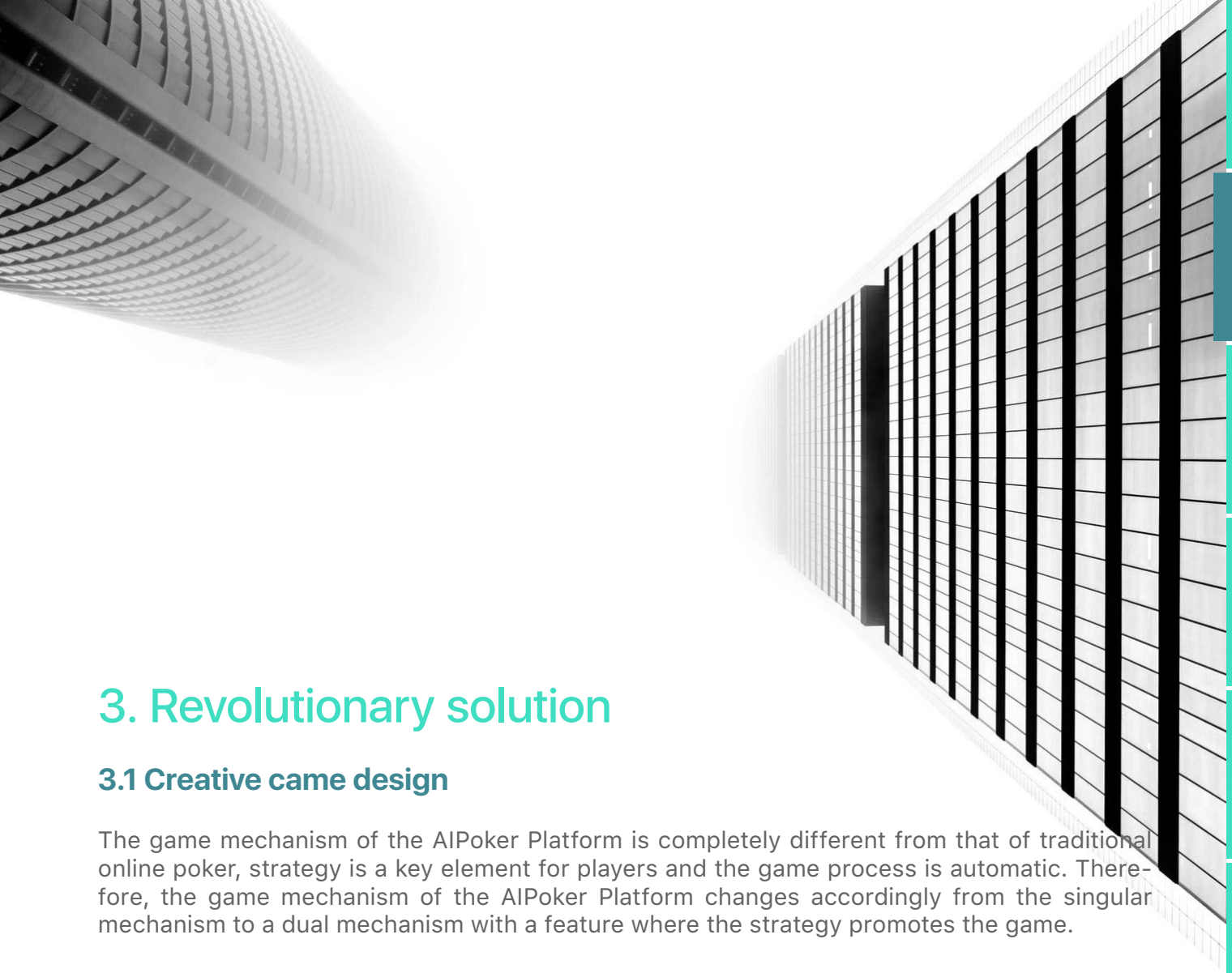
2.3.2 Platform manipulation

It has always been difficult to ensure the fairness of the random dealing of online poker, and due to platform scams and ever–present fraud, poker players have to doubt the fairness of dealing mechanism or system control, thus online poker platforms have gradually lost their credibility. At present, traditional Internet technologies do not have a satisfactory solution to the problem of

"distrust", and the "transparency and openness" features of blockchain technology is expected to help online poker platforms solve this problem.

2.3.3 Game fairness is questioned - joint cheating of players

In addition to platform manipulation, joint cheat of players is also increasingly serious. Cheaters through irrational defeat help other players win chips (intentional defeat), or two or more players join hands to gain more than other players, which greatly damage the game fairness.



3. Revolutionary solution

3.1 Creative came design

The game mechanism of the AIPoker Platform is completely different from that of traditional online poker, strategy is a key element for players and the game process is automatic. Therefore, the game mechanism of the AIPoker Platform changes accordingly from the singular mechanism to a dual mechanism with a feature where the strategy promotes the game.

In online poker games on the AIPoker Platform, players liberate their hands, so they can play infinite matches at the same time. Experienced players can focus on their own game strategy and continue to realise the subject in the poker game - the limits of human brain strategy that people can reach in real competitions, and the opportunities for players to gain from the game are expected to geometrically increase.

3.1.1 Core gameplay of the AIPoker Platform

The AIPoker Platform is the first online poker platform in the world that has the revolutionary concept of integrating AI, big data analysis and blockchain technology. The well-designed system promotes the usage of community token AIG, and the original Grand Jackpot mechanism uses the decentralised blockchain technology to create a truly decentralised model.

Dependent on the exclusive patented automated strategy execution system, the AIPoker Platform achieves the capacity for infinite players and matches of online poker game, which will drive the core evolution of the online poker game and opens up a huge growing market. The AIPoker Platform helps players fulfil their psychological needs through the provision of a space for experiencing human brain decisions, quick betting and faster feedback. At the same time, due to the innovative gameplay, the number of games the players can participate in simultaneously increases geometrically. These features are anticipated to attract new players at different levels of experience from all over the world to participate.

Based on the automated strategy execution system, the AIPoker Platform creates the core

gameplay of automated player strategy, which will no longer be limited to the singular form of a live-action game and innovatively transforms the form of participation by players. In this way, the number of players and matches in the online poker game reaches the infinite level.

In the AIPoker Platform, players can customise their game strategy and create and adjust it to match their personal style and achieve a high win rate. The created strategy can be automatically applied through the AIPoker automated execution system to multiple games or matches simultaneously in the game lobby. The system will automatically execute multiple games or matches on behalf of players based on their pre-set rules.

The behaviour of players has the following characteristics in the game process of AIPoker:

1. They can develop their playing strategy and apply it to the game.

2. The game is played automatically based on the strategy set by the player.

3. Since the game is played automatically, the player need not play every match in person so that they (their set strategy) can play multiple games simultaneously.

4. Without the interference of human and environmental factors, the game improves its quality and the win rate.

5. Different games can use different strategies, they could be highly targeted and flexible.

6. Big data analysis of a large number of game processes are fed back to players, which provides objective and effective data analysis and recommendations to improve their playing skills and optimise their strategies.

7. The optimised strategy is applied to many games and in turn the strategy is continuously improved through the feedback data so that the skills of individual players are improved. In this way, the game is continuously developing, and user loyalty is strengthened.

In the core gameplay of automated execution player strategy provided via the AIPoker Platform, high-level poker playing strategies with a high win rate will become a necessary equipment of poker players.

Therefore, the AIPoker Platform creatively designs the product form strategy supermarket to provide players with game strategy transaction services. Senior players can share their personal strategies with the community through the strategy supermarket under a winnings sharing agreement (in the form of secondary smart contracts on the AIPoker Platform) to achieve continuous incentives for sharing. Newcomers and casual players can also select different game strategies that meet their needs according to the real-time strategy leaderboard data provided via the platform. Once winning, policy users can be receiving a portion of the winnings based on the ratio as decided by the policy provider (in the form of secondary smart contracts on the AIPoker Platform).

The big data analysis system of the AIPoker Platform can not only help poker players at different levels adjust their personal strategies according to various data indexes and achieve a precise optimisation of personal win rate but can automatically implement strategic optimal configuration so that poker players at different experience levels can play games based on dif-

ferent skill levels, making it convenient to maximise gains. More importantly, this big data system can achieve the building of playing skills through data analysis and help players improve their skills and win rate in the traditional poker game.

3.1.2 Advantages and Innovations of the AIPoker Platform

The AIPoker Platform is the first to propose the innovation of ***building an AI automated strategy execution platform based on the personal knowledge of players and combine with patented AI technology,*** big data and blockchain to improve the game experience. It has following prominent advantages:

1. AI technology can activate the in-depth imagination for the future development of online poker projects and improve the fun and skills of players in a new way, thus, it provides opportunities to solve the impact of the existing game mechanism on player engagement.

2. Different from existing blockchain games, the technical team of the AIPoker Platform is committed to creating a unique online poker platform to increase the excitement and fun of games and transforming the existing investment-driven behaviour of blockchain participants into game-driven behaviour.

3. It breaks the limitation on the number of players. The AIPoker Platform uses the AI machine to automatically operate online poker games, and each game on the AIPoker Platform can realise unlimited reconnections so that when players rest, the computer can automatically complete the game. At the same time, a player can play different games with infinite potential for matches. Players only need to issue their commands as automated strategies and AI can execute it. The AIPoker Platform breaks the limitation on the number of players so that the game capacity is infinitely large.

4. Different from the confrontation between an AI computer learning system and people, the AIPoker Platform provides contests between people. It breaks the physiological limit of players and eliminates their psychological fluctuations. The AIPoker team is committed to minimising the probability of irrational decision-making due to subjective factors such as emotion, time and environment. Due to the rule-based decision tree (RBDT) used by the AI machine, players would tend not to be emotionally affected in their decision-making process. The AIPoker Platform provides contests between the decision-making mechanisms of players, which will be implemented via the AI machine, this has the potential for greatly improving the win rate and gaming experience of players.

5. It avoids the cheating behaviour of platform and player. The execution function of AI machine can avoid platform cheating and player cheating, because the strategy is set before the game starts so that the player can no longer operate online in the game. At the same time, the platform uses the technical principle of big data RNG to realise open and transparent dealing. The combination of these two aspects further avoids platform cheating, which has the potential to completely solve the problem of joint cheating between players and platform cheating.

6. Without any barriers to entry, anyone can use shared strategies to play the game and obtain two-way AIG winnings/incentives. The AIPoker Platform creatively designs the product of the strategy supermarket to provide players with game strategy transaction services. Senior players can focus on improving the pinnacle of their own game strategies and gain more feedback incentives from strategy users via sharing high win rate strategies. Newcomers and casual players can also select high win rate strategies and the joining of mul-

tiple games with low skill barriers to entry to quickly gain feedback. Once winning, policy users can share in the winnings based on the ratio marked by the policy provider (in the form of secondary smart contracts on the AIPoker Platform).

7. Different from the profit model of other games, the AIPoker Platform has the advantages of transparency and security. Its service fee, game props and entry fee ratio are automatically executed through the system. All the data is on the chain, so players can see the transaction details, which avoids platform cheating, ensures transparency and security.

3.1.3 The AIPoker Platform promotes a multi-user incremental market

The AIPoker Platform is oriented to the application at mobile phone, and the breakthrough in gameplay greatly reduces the operation cost to players.

The innovative gameplay of the AIPoker Platform will attract casual players who are accustomed to using mobile phones to enter the online poker more conveniently.

The fun, excitement and potential winnings of the AIPoker Platform is also expected attract a large number of ordinary casual players who are keen on online strategy games.

The multiple revolutionary characteristics of the AIPoker Platform in gameplay and technology can achieve multi-player market crossover, expand the market share of online poker industry and attract online poker enthusiasts and casual players. The AIPoker Platform provides players with full and diverse transaction scenarios, which will also promote existing cryptocurrency enthusiasts to participate widely so that the AIPoker Platform will truly promote the huge incremental market of gamers, online poker players and cryptocurrency enthusiasts.

3.2 The AIPoker Platform products under development

The new ecosystem built under the AIPoker Platform model can drive the industry to move forward. The products under the new ecosystem of the AIPoker Platform include:

3.2.1 The AIPoker Platform automated execution system

System principle: AIPoker game automated execution system consists of player strategy configuration system, game processing system, information identification system and game execution system.

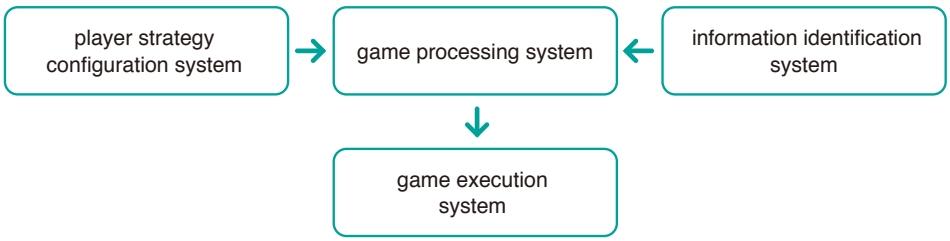


Fig. 3-1 System schematic

Player policy configuration system and information identification system are both connected to the game processing system, and then the fully automated online game platform is implemented through game execution system. After entering the system, players first configure their game strategy through policy configuration system and then save their configuration. After the game starts, players start the system and retrieve the previously configured policy. the AIPoker Platform is an AI automated strategy system based on the personal perspective of the player, therefore as the game progresses, its information identification system will implement the automated response playing strategy based on the hand of the player, community card, position setting, player action analysis, stack, quantified attack action and other data and combined with the custom policy configuration parameters previously selected by the player. The Processing system matches the current game information with policy configuration system and then sends the matched information to the game execution system for automated execution.

Policy configuration system: The AIPoker Platform policy configuration system consists of the following modules: policy parameter configuration module, weight configuration module and decision matching module.

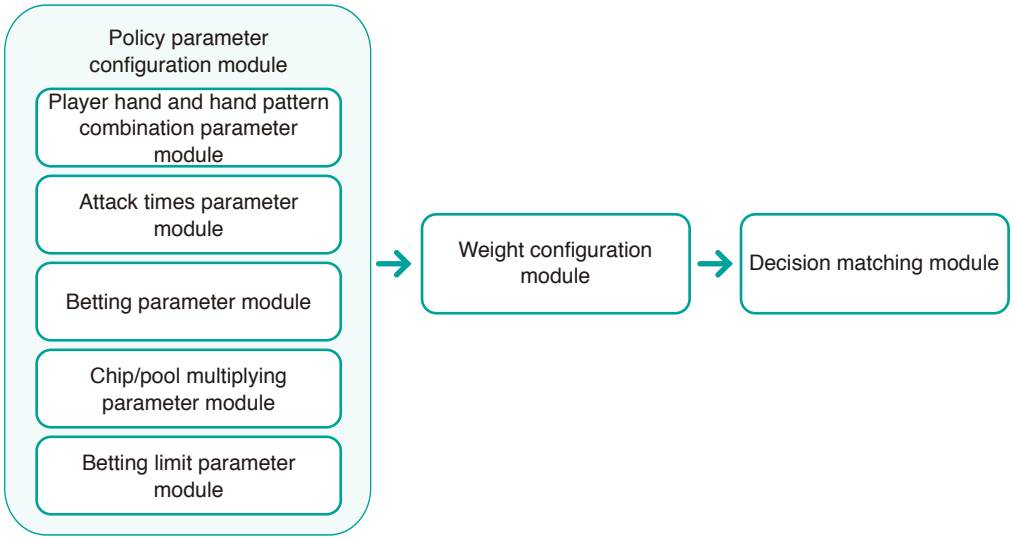


Fig. 3-2 Player policy configuration system

Strategy parameter configuration module consists of player hand and hand pattern combination parameter module, attack times parameter module, betting limit parameter module, chip/pool multiplying parameter module and betting parameter module. Player hand and hand pattern combination parameter module is used to set player status information, game process information, hand information, information matched with community card to form maximum card value, and combination information of hand pattern matched with community card. Player status information includes the stage of online poker game, such as pre-flop, flop, turn and river, and table position. Game process information includes various action information (excluding hand information) and community card information of other players. Attack times parameter module is used to set different strategies after different times of attacks from other players. Betting limit parameter module is used to set the betting limit. Chip/pool multiplying parameter module is used to set the interval value of multiplying between player chip and pool. Betting parameter module is used to set the chosen behaviours of the player, such as fold, call, check-raise, all-in, check and bet in the player hand parameter, attack times parameter module, betting limit parameter module and chip/pool multiplying parameter module.

Weight configuration module is used to set specific probability of parameter values of player hand parameter module, attack times parameter module, betting limit parameter module, chip/pool multiplying parameter module and betting parameter module and compute random number generation of betting parameter module.

Decision matching module acquires player hand information, attack times information, betting limit information, chip/pool multiplying information and betting information through information identification module to match with the parameter values of player hand parameter module, attack times parameter module, betting limit parameter module, chip/pool multiplying parameter module and betting parameter module set by corresponding player and generate policy execution information of current player, which is sent to game processing system to generate game execution information. Game execution module receives such game execution information to execute corresponding game operation

When the system automatically executes the strategy, the total percentage of the fold, call, check-raise, all-in, check and bet set according to the betting parameter module configured adds up to 100%, but the number of each fold, call, check-raise, all-in, check and bet is automatically executed based on the percentage generated via the system random number, but in each round of game, the ratio of fold, call, check-raise, all-in, check and bet is set as a percentage value.

The player sets the game strategy through player policy configuration system, and after detecting the game character of the current player the automated execution system receives and identifies the hand information and disclosed progress information. They are matched with player configuration strategy to generate game execution information, and game execution system automatically executes the game, which eliminates the trouble that the player needs to manually operate the game according to the game strategy and saves the game time.

Steps to execute the game strategy:

After the AIPoker Platform starts up the network, the process that the system automatically executes the game strategy consists of:

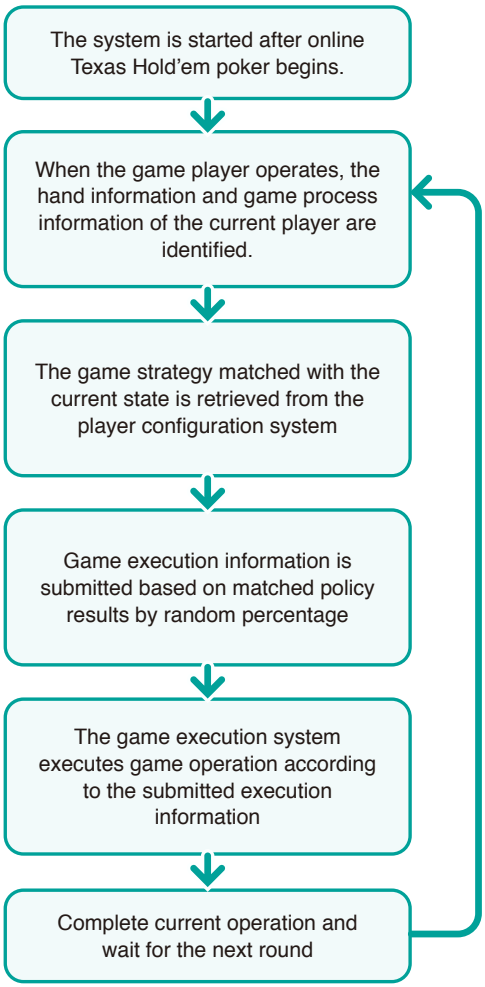


Fig. 3-3 Automated game strategy execution process

After the game begins, automated policy execution system is started; when the current player operates, the hand information and game process information are identified and acquired; the game strategy of the current game player matched with the hand information and game process information is retrieved from the player policy configuration system; game execution information is randomly generated through the execution result of the matched game strategy according to the randomised percentage pre-set by the player; the game execution system executes game operation according to the generated game execution information; completes corresponding game operation of the current player and wait for the next round of operation.

3.2.2 Strategy supermarket

Strategy supermarket classifies strategies into different categories and ranks each category of strategies, such as rank of winning rate and rank of bonus. In the strategy supermarket, users can be fully mobilised through the official incentive mechanism and players can achieve creation and balance of products.

Strategies in the strategy supermarket are mainly developed through the personal experiences of players combined with the big data acquired via the system AI analysis, which are also updated on a regular basis.

Players can not only consume in the strategy supermarket but also share their strategies. Any player can freely obtain the strategy shared by other players, and players who share strategies in the strategy supermarket can set the ratio of sharing for the winnings. Any player winning through the shared strategy needs to split the winnings according to the ratio set in advance by the initial player who shared the strategy (in the form of secondary smart contracts on the AIPoker Platform).

This mechanism reduces the barriers of entry for new players, and many junior players who do not understand the rules can easily increase their win rate through leveraging on the shared strategies of other players.

According to the game principle of poker, the strongest strategy does not necessarily win, for the player cannot determine what strategy the opponent uses, and it also dependent on luck. Players who have good cards can win the game even with a lower ranked strategy.

Therefore, the rank of strategies is only effective in the cases of it being the singular determinant factor, but in reality, there is no single winning strategy. At the same time, considering strategic balance, the platform will incentivise the development of strategies that can defeat certain otherwise invincible strategies. The platform on a regular basis encourages players to challenge strategies with a high win rate and allows all players to work together to end the monopoly of current high win rate strategies. This total involvement also conforms to the decentralisation of blockchain, which helps avoid the long-term placement of specific strategic products in the high win rate list.

The platform will also push the monthly best winnings rank and highest win rate rank so that new strategies can be displayed more prominently, which avoids the disadvantages of comparison with historical total winnings rank and total win rate rank and gives players more choices of strategies to leverage on.

3.2.3 Game lobby

The AIPoker Platform will set up various types of games in the Game Lobby, such as star strategy challenges that require no online players or online games that break the physiological limits of human and have no limitation on the number of players, and this type of games can directly highlight the advantages of AI control and the lack of necessity for manual operation. The platform of game lobby will also provide new players with a system template to quickly improve their rank. In addition, the game lobby will also set its derivatives according to the game, such as advanced teaching, game viewing and online small gifts.

3.2.4 Data analysis system

The big data system of the AIPoker Platform online poker game platform records all the games that have been played, including all the game processes such as hand pattern, position, attack times and community card information. The AIPoker Platform not only records such general information for players to trace previous games but also innovatively contains a hand pattern big data analysis system to provide players with win rate result data, which provides players with real data support to optimise personal strategies. It can also provide historical real data analysis report for a certain strategy, provide constructive suggestions based on the whole historical data for reference and research to improve the skills of players in offline poker games, and provide practical reference for optimised strategy.

3.3 Blockchain-driven game revolution

3.3.1 Anonymity based on blockchain technology

The decentralised operating platform of the AIPoker Platform ensures the anonymity of players as token holders so that game participants can determine the existence of transactions through smart contracts and transaction records. Blockchain and smart contracts can ensure the anonymity and security of token holder, so the personal information of players will be encrypted, and the identifier code of each player is just a long string of unique characters in the entire chain so that no one knows the specific player behind this string. The anonymity here refers to the anonymous real-world identity of the player, but the unique string account representing the identity is made public so that all transactions of this account can be seen in the whole network.

Supported by reliable global legal advice, the AIPoker Platform will implement the simplest registration process to avoid collecting redundant user data. The AIPoker Platform registration will integrate the account login authentication of blockchain wallet, so the user will log on the AIPoker Platform and the blockchain account with a single procedure. At the same time, the AIPoker Platform will avoid collecting private data and encrypt the sensitive data during registration, which avoids privacy leaks from the data source. Most transactions in the AIPoker Platform are conducted through smart contracts, and when a smart contract is activated, a transaction starts. Both the originator and receiver of the transaction are only represented by a long string of unique character account, so players can verify the authenticity of transaction and keep anonymous.

3.3.2 Verifiability of random seed

In order to solve the problem of unfair dealing of online poker, the AIPoker Platform will use blocks to record each dealing and use relevant machine learning technology to identify the cheat. If the computer algorithm is used to detect the unfair behaviour of player, the detection system will be used to query team collusion or systemic fraud.

The random seed RNG can ensure the randomness of dealing in each game. When a game starts, a random seed will appear to generate a random number for shuffling. After the first card is dealt, a new seed is generated accordingly, and then a random number is generated for reshuffling before the second card is dealt. Before the game, each player will set their own strategy mode so that the AI robot will execute the game strategy. When the dealing is over,

each player can see all the cards for everyone in the chain but cannot change their strategy, which achieves an open and transparent dealing mechanism. Meanwhile, in order to prove that the cards for each player are random, the data written in the chain can be verified by everyone at the end of each game, and the chain contains the number of each game and random series (card number) generated via each seed. This method will not put all the data in the chain, so it technically reduces the invalid information recorded in the chain and increases the effective information (because the logic in the chain has been recorded, it can be verified) so that the dealing in each game is transparent and fair.

The verifiability of random seed is achieved after the seed provided by the player is recorded on blockchain. Each player provides a random seed to the AIPoker Platform, and The AIPoker Platform will generate a random series (card number) accordingly. The AIPoker Platform will not control the generation of random seed but the player will decide.

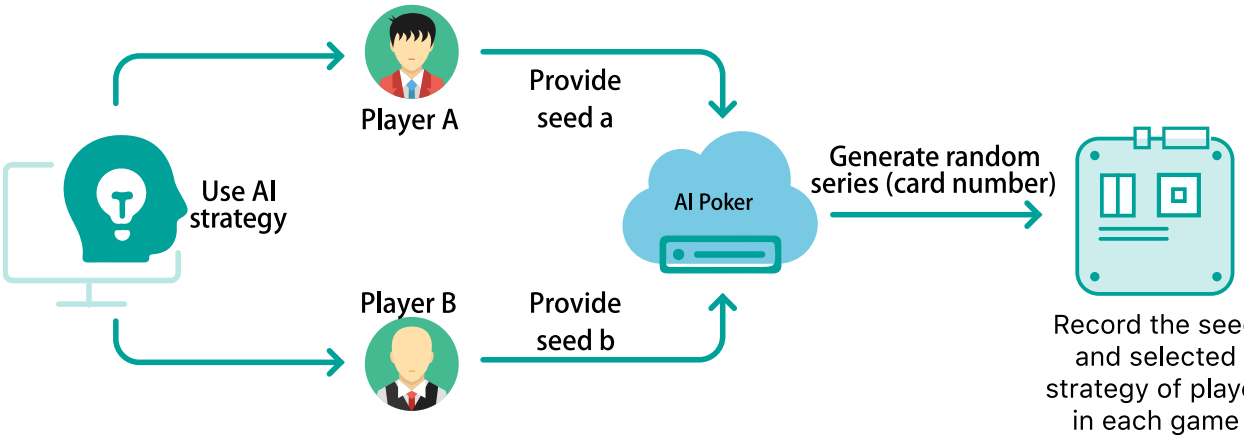


Fig. 3-4 Verifiability of random seed

Players can view their own random seeds and numbers on blockchain, and because different players control the generation of random seeds, cheating is avoided to a great extent.

3.3.3 Token economic advantage in the AIPoker Platform

In the AIPoker Platform, blockchain technology enables game scenarios to rewrite economic activities and production relationships. The AIPoker Platform creatively builds an economic system in the platform in which game strategies can be commoditised so that players can achieve both consumer and producer identities in the production relationship within the AIPoker Platform. Based on the community ecosystem related ideas of sharing and co-building, all the players contributing to the platform will obtain incentives, so they are not only participants of games but also spreaders and beneficiaries.

The player behaviours of playing, production and contribution within the platform will continue to generate value in the resource of the game cycle, and these will be rewarded with AIG incentives. The community token AIG is not only the token representative of various interests within the platform but also the kinetic energy of community operation.

The public ledger technology of blockchain ensures that the community token AIG is fairly distributed. The platform reserves 50% of AIG as community rights protection fund to ensure the players are able to receive incentives and associated benefits within the platform to ensure that the contributions of various contributors in the community can be redeemed.

The game scenarios and game ecosystem within the platform enrich the utility scenarios of AIG, which enables it to have a solid base for utility value. This effectively drives the circulation of the community token AIG in the external secondary market.

3.3.4 Transparency and account security of community token

Community token AIG can circulate easily on major transaction platforms. The public ledger on blockchain can be used to easily query any transaction, balance and resource staking. Due to adequate liquidity and diverse channels, assets of players can be withdrawn at any time, which ensures the security of assets. Different from traditional platforms with unclear token reserves, the AIPoker Platform keeps 50% of AIG as a community rights protection fund that can be audited by anyone at any time on blockchain. This ensures the successful withdrawal of game winnings on AIPoker platform and redemption of incentives for platform contributors. At the same time, all platform incentives are redeemed in AIG, and AIG obtained by the player after redemption of contribution incentives may be transacted in independent secondary exchanges.

3.4 Innovative Grand Jackpot mechanism ensures the sustainable development of decentralised model

The innovative Grand Jackpot mechanism uses decentralised blockchain technology to create a decentralised model in a true sense. The Grand Jackpot mechanism of the AIPoker Platform puts all the platform surplus into the Grand Jackpot, records the contributions of each AIG holder and community member according to the smart contract and distributes all Grand Jackpot according to the contribution, which realises the decentralised model.

The great significance brought via decentralised blockchain technology is reflected in the rewiring of economic activities and production relations. Players can have dual identity of production relations within the AIPoker Platform, for they are spreaders and beneficiaries of the game as well as stakeholders in the AIPoker Platform. Through the Grand Jackpot mechanism, the AIPoker Platform distributes incentives according to the contribution of platform participants, so that they are compensated for the value they have created and contributions to the platform. Meanwhile, under the community consensus, all the platform interests can be used to jointly create a community ecosystem that is democratic, open, credible and transparent with freely circulated value so as to achieve the sustainable operation of the community to meet the common needs of platform participants. Only a symbiotic platform and community can inspire the creativity of all participants and provide a truly decentralised model, which conforms to the core vision of blockchain to transform productive and economic relations. In the sustainable ecosystem development mode, the economic direction and future development of the community will be determined according to the consensus of platform participants.

3.5 Broad expansion prospects

After upgrading and optimising existing gameplay, the platform relies on the community power to continuously expand new gameplay and upgrade to better strategic AI to meet more gameplay needs.

The platform gradually realises the capabilities of an open AI game platform and opens and shares AI game ability, user system and financial system across the entire ecosystem, which encourages the community ecosystem to launch more AI games based on the open AI game platform to meet the needs of community players and provide endless fresh blood and power

for the long-term development of the community. This open game platform is decentralised, which facilitates other stakeholders in the ecosystem to jointly serve and prosper the community and share their winnings subject to the smart contracts.

The platform will gradually expand the payment and circulation capabilities of AIG in other occasions so that it will become one of the most competitive and stable tokens in the market with the objective of bringing more financial opportunities to the platform.

4. Technical implementation

4.1 The AIPoker Platform based on blockchain smart contract

4.1.1 Blockchain technology greatly facilitates players

The AIPoker Platform will operate on a token protocol based on blockchain smart contract and introduce a new type of token named AIG. Its biggest advantage is that at any location with internet access one can register one's account on the AIPoker Platform to play games, if one have a token wallet address. In addition, due to the faster processing speed of the AIPoker Platform than traditional online poker platforms, players can instantly recharge or withdraw from their accounts, so AIG can greatly improve the platform user experience.

At the same time, smart contracts protect the decentralised services of the AIPoker Platform.

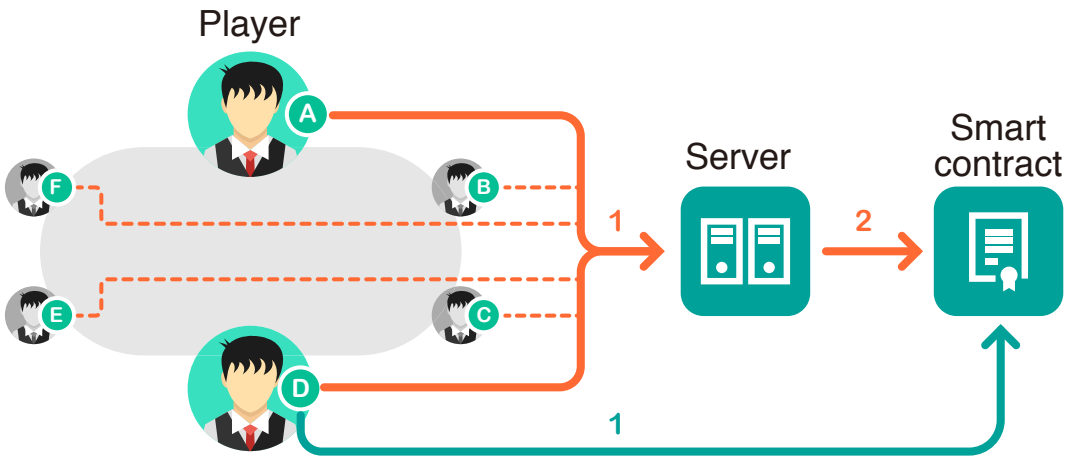


Fig. 4-1 AIPoker based on smart contract

Because designers, traders and subscribers are anonymous, it is difficult to track their credibility and robot tampering. As one of the key features of smart contracts, automation of conditional execution allows and ensures anonymous execution of subscription activities. Smart contracts will be saved in decentralised infrastructure, so it is almost impossible to damage and supervise them, and the AIPoker Platform will publish all smart contracts for public review and inspection.

4.1.2 Secure token system based on blockchain smart contract

In the traditional game platforms, the game token held by the player completely depends on the reputation of the platform, but because the platform is not transparent, asset security is not ensured. In the AIPoker Platform, the community token AIG is implemented through smart contracts, and each transaction is recorded on the public ledger and can be viewed and audited at any time, which ensures asset security. The platform reserves 50% of AIG as community rights protection fund, which is visible on the public ledger and smart contract to cater for the payment of platform incentives to contributors.

4.2 Artificial intelligence based on personal consciousness – a rule-based decision tree (RBDT)

4.2.1 Automated policy execution and sharing based on decision tree AI

Based on the concept of shared AI, the decentralised automated strategy execution system of cloud AI is built. The automated strategy execution system is responsible for the strategy of each user and achieves intelligent participation of each user in the game. A cloud-based AI system serves every player and shows the characteristics of different players.

The automated policy execution system is built based on a decision tree and allows it to be continuously upgraded. The operation of the decision tree has completely different execution processes and results according to different rules and strategies.

After gradual training, cloud shared AI can continuously enrich and upgrade its decision tree so that the decision is more robust and intelligent. Players only need to set key strategy parameters, for AI will automatically supplement other strategies or execute the best strategy, which greatly saves energy.

4.2.2 Decision tree

A decision tree is a basic classification and regression method with a tree structure. In terms of classification, it can be regarded as a collection of if-then rules or a conditional probability distribution defined in feature space and class space [1]. The method first processes the data and uses the induction algorithm to generate a readable rule and decision tree. This process aims to infer data characteristics, learn the classification rule of decisions and use the concept of machine learning to build a model predicting target variables to analyse and classify the new input data.

In short, the decision tree-based classification algorithm can extract the tree-shaped classification model from given unordered training samples to classify decisions. The non-leaf node records which feature is used for class judgment, while the leaf node represents the judgment result – according to classification. From the root node to each leaf node, a rule for classification path forms. When the new input data sample is tested, it only needs to start from the root node to test at each branch node and recursively enters the subtree along the corresponding branch to continues to test till the leaf node, and the class represented by the leaf node is the predicted class of the current test sample.

Therefore, the decision tree can be regarded as an if-else strategy structure. The judgment condition for such tree structure is generated via the computer without manual intervention. At present, most methods are based on data examples to generate corre-

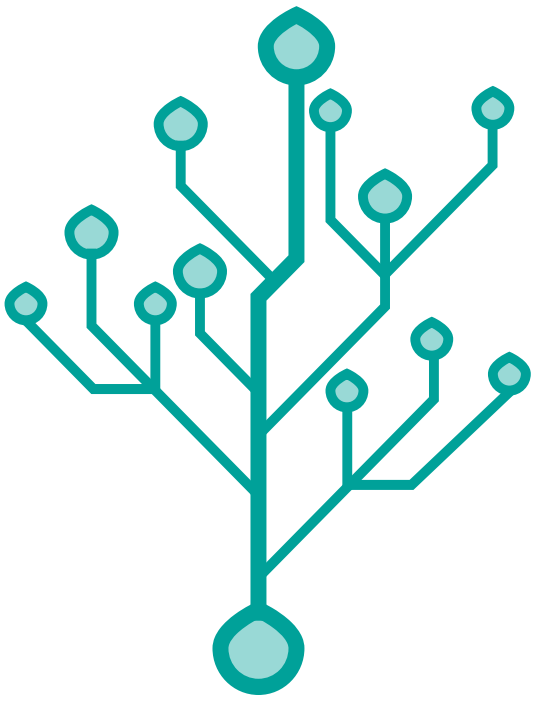


Fig. 4-2 Decision tree

sponding decision trees.

Most traditional decision tree algorithms require resident memory of training set [1], which limits the improvement in their scalability, precision and efficiency. When the data size exceeds the main memory, the building stage of decision tree needs to continuously import and export data in the main memory and cache, so the computing efficiency affects its performance in the whole system.

A decision tree is often created based on a set of examples (data records). Such method is called data-based decision tree, which essentially creates the selection criteria for different attributes. The methods creating these criteria include the reduction of entropy [2], diverse Gini index [2] and other different defining modes.

Based on the above data algorithms, the decision tree can be seen as an effective tool to guide the decision process when the data set used to create the decision tree has no changes. However, because the data-based decision tree method adds an evaluation order to the attributes, it has some limitations: once the data set changes significantly, it is necessary to rebuild the decision tree, but once the decision tree model is created, it is difficult to manipulate or rebuild it [1].

4.2.3 RBDT

Data-based decision tree (DBDT) can only process the operations through the usage of a data set, it is not reliant on a set of its own inherent rules. This means that when a set of decision rules encounter new data, it is easier to update gradually than procedural data, because the RBDT system has no restrictions with regard to the evaluation order of rules. In addition, in order to make decisions on certain situations, the evaluation and test order needs to be determined.

In this case, a decision tree needs to be created based on rules. Therefore, the method of creating a decision tree within the rule set has more advantages. On the one hand, when the rules are modified rather than the decision tree itself, the user can be allowed to change the data as needed. On the other hand, the rules arranged in an organised manner and the decision tree is applied in a simple and efficient way to make the best decisions upon classification.

RBDT-1 creates a short and accurate decision tree through a stable or dynamically changing set of rules. According to the research literature, RBDT-1 performs better than AQDT-1 and AQDT-2 in terms of tree complexity (number of nodes and leaves in the decision tree). At the same time, RBDT-1 algorithm also performs well in terms of tree complexity [3].

Besides, the tree structure may be more quickly generated from decision rules than from training examples. Because the number of decision rules for each decision class is usually much smaller than that of training samples, there is no obvious delay in this process. For the method of creating a decision tree from examples or data, the model of the decision tree needs to be checked to extract a related class of information. Unless the decision tree is large, and the input data is excessive, a large number of sub-rules will be generated even if the tree is converted into a separate set of rules. Otherwise, for the method of creating a decision tree from a rule set, information about any related classification can be extracted directly from the declarative rules [3]. RBDT not only can create decision trees from rules but also can be applied to the method of creating a decision tree with each data example as a rule. DBDT can only create

decision trees based on input data, so RBDT is the only solution when a particular problem provides only rules rather than data.

In order to create intelligent algorithms based on human consciousness, AIPoker applies RBDT-1 to the system platform. Its advantage is that the user can decide the order of rule evaluation and test so that the robot can make decisions on certain situations rather than learning the decision tree in the decision rules of data examples.

4.2.4 Implementation principle of RBDT-1

1) Related definition

The input of RBDT-1 consists of a set of rules that can be provided by the expert or generated by the algorithm.

A1, A2, ..., An represent the attributes of the data considered;

D1, D2, ..., Dn represent the domains of these attributes;

C1, C2, ..., Cm represent the decision classification associated with the data set.

Given P represents the complete rule set, Ri represents the rule set associated with decision class Ci.

Therefore, the following logical relationship can be obtained:

$$i \neq j \longrightarrow R_i \cap R_j = \varnothing, where 1 \leq i, j \leq m; P = \bigcup_{1 \leq i \leq m} R_i$$

2) Preparation rule:

First, the decision rule must be set as the appropriate format RBDT-1 applies to. This step needs to be completed by assigning the “don’t care” value to the attributes omitted in each rule [4]. The “don’t care” value is equivalent to the list of all values for the attribute.

Given there are three same attributes a1, a2 and a3, v1, v2 and v3 are values that may occur in the same domain.

Given the following rule corresponds to c1:

$$r_1 \quad c_1 \leftarrow a_1 = v_1 a_2 = v_2$$

$$r_2 \quad c_1 \leftarrow a_1 = v_3$$

The above two rules generate the following two formatted rules:

$$r_1 : c_1 \leftarrow a_1 = v_1 a_2 a_3 = \text{"don}$$

$$r_2 : c_1 \leftarrow a_1 = v_3 a_2 = \text{don't care} a_3 = \text{"don care}$$

Each rule is submitted to RBDC-1 in the vector mode of attribute value. This vector will first contain the attribute value that appears in the rule, and then the last element in the vector is used to represent the classification decision. Therefore, the first two rules will be expressed as:

$$r_1: (v_1, v_2, don\ tcare, c_1)$$

$$r_2: (v_3, don\ tcare, don\ tcare, c_1)$$

3) Attribute selection criteria

a) Effectiveness (AE):

Effectiveness is the first attribute selection criterion to be checked, which tends to be the most affected attribute in the decision class. In other words, it tends to be the smallest attribute of "don't care" value, because this indicates that it has a high degree of correlation between the rule sets that distinguish between given decision classes. The attribute selection based on this criterion maximizes the likelihood of reaching leaf nodes, which minimizes branching processes and results in smaller trees.

Vij represents the set of values of attribute aj involved in Ri, which is a rule set related to the decision class ci, 1≤i≤m, and DC represents "don't care" value.

Cij(DC) can be expressed as:

$$C_{ij}(DC) = \begin{cases} 1, if DC \in V_{ij} \\ 0, otherwise \end{cases}$$

For a given attribute aj, 1≤j≤n, the corresponding attribute effectiveness is expressed as:

$$AE\left(a_j\right) = \frac{m - \sum_{i=1}^{m} C_{ij}(DC)}{m}$$

The highest AE value is selected as the most appropriate attribute. If two or more attributes have the highest AE value, then its autonomy is judged.

b) Autonomy (AA)

Autonomy is the second criterion to be checked. The autonomy criterion for the attribute is checked when it has the highest AE value through multiple attributes. Attributes consistent with this criterion will reduce subsequent nodes required in the branch before reaching the leaf node, so when a decision class is decided, the attribute less dependent on other attributes is selected. The attribute with the highest AA value is selected as the appropriate attribute. If more attributes reach the highest AA score, their minimum value distribution will be checked to determine the best attribute.

Given

The attribute set that reaches the highest AE value is a1, a2, ..., as, 2≤s≤n;

Vj1, ..., vjpi represents the possible value in attribute aj, including "don't care" value;

Rji represents the rule subset consisting of rules that arise from aj and vji, where 1≤j≤s, 1≤i≤p_j

The value of AA depends on the attribute disproportion score (ADS)

$$ADS(a_j, c_i, c_k) = \begin{cases} 0, if V_{ij} \subseteq V_{kj} \\ 1, if V_{ij} \supseteq V_{kj} \\ 2, if V_{ij} \cap V_{kj} \neq (\varnothing or V_{ij} or V_{kj}) \\ 3, if V_{ij} \cap V_{kj} = \varnothing \end{cases}$$

The disproportion score ADS(aj) of attribute aj is the sum of (3):

$$AA\left(a_j\right) = \frac{1}{\sum_{i=1}^{p_j} AA(a_j, i)}$$

The attribute with the highest AA value will be selected as the most appropriate attribute.

c) MVD

MVD is an attribute that has numerical value in the current rule. When the highest AA score is obtained through multiple attributes, the criterion selects the attribute with the smallest value in the current rule. MVD criterion can minimize the size of the decision tree, and because the smaller the attribute value, the fewer the branches involved, the tree will become smaller.

Given:

The attribute set that reach the highest AA value is a1, a2, ..., aq, 2≤q≤s;

For the given attribute aj (1≤j≤q), corresponding MVD is:

$$MVD\left(a_j\right) = \left| \bigcup_{1 \le i \le m} V_{ij} \right|$$

|X| represents the cardinal number of set X;

When the lowest MVD score is obtained through multiple attributes, any of these attributes can be randomly selected as the appropriate attribute.

d) Decision tree construction:

In decision tree construction, the fitting attribute to be assigned to each node is selected from the current rule set CR according to the attribute selection criterion specified in the previous section. CR1 is a subset of decision rules, which satisfies the combination of attribute values

assigned to the path from the root to the current node. Each node draws multiple branches based on the sum of values available for the corresponding attribute in CR. Each branch is associated with the set of reduced rules RR, which is a subset of CR that satisfies the value of the corresponding attribute. If RR is empty, it will return to the single node, including the value of the most frequent class found in the rule set. Otherwise, if all the rules in RR assigned to the branch belong to the same decision class, the leaf node will be created and the value of decision class will be assigned to it.

4.3 Fair game system based on blockchain verifiability

4.3.1 Game rule management system & random number management system

The basic game rules are managed based on smart contracts that record the key processes, result and final bonus of the game in the public ledger for everyone to audit at any time. This ensures game fairness, and with transparent source data it completely avoids banker cheating and other cheating. Random number generation is another mechanism basis for game fairness, so the platform relies on blockchain to implement a fair traceable random number generator and manages the generation and recording of all random numbers.

4.3.2 Random number generator based on blockchain verifiability

At this stage, random numbers are widely used in different fields of daily life, including simulation, sampling, numerical analysis, decision making and entertainment. The dealing system based on a random number generator is particularly important for online poker games, this can basically minimise cheating on the game platform if properly used. Therefore, the random number generator is one of the core competencies of an online poker platform.

4.3.3 Random seed

At present, all software-based random number generators are effective pseudo-random number generators (PRNGs), which do not achieve true randomness but and can be manipulated due to vulnerability to hikers. Therefore, the current market urgently needs a verifiable random number generator algorithm for online poker game products. In other words, this algorithm should not be run on a centralised server, for its transparency of information disclosure is extremely low and cannot be supervised and verified by players. Decentralisation technology ensures that no matter which device runs and how many times it runs, the same result will be obtained. Only in this way, the random number generator can achieve verifiability so that everyone can verify and supervise it on their device.

In order to solve the difficulties of the current market, the AIPoker Platform will combine blockchain technology to put the random seed on the chain. The AIPoker Platform server randomly generates a random seed from players and adds its own seed to form a new random generator, which ensures that each stakeholder of the game participates in the random number generation and decentralises the platform power. At the same time, the AIPoker Platform encrypts the seed generated in each game with a hash function and writes it into the blockchain smart contract, so players can see and test the entire process but cannot intervene in the result.

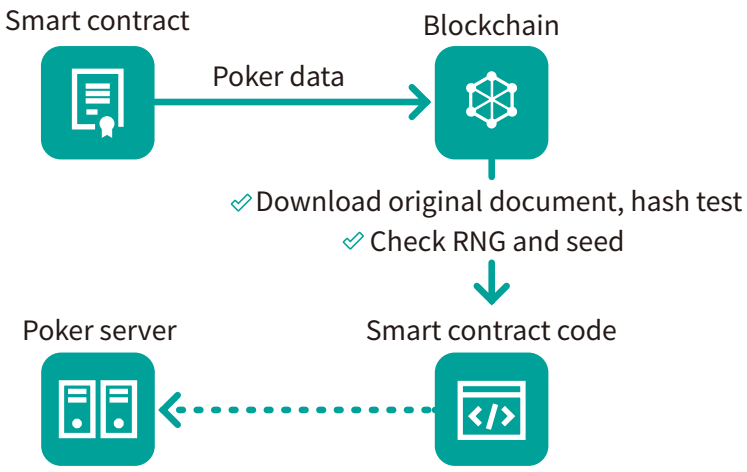


Fig. 4-3 Verifiable random seed - smart contract

Design of the AIPoker Platform mainly applies the Commit-Reveal Approach:

1) Commit: commit the encrypted content to the blockchain smart contract;

2) Reveal: announce the random seed and verify the correctness of the seed to generate a random number. This core process takes place on the chain.

This approach is implemented jointly between players and platform, which collects hash seeds from different parties to ensure the principle of openness and transparency. In addition, all stakeholders are absolutely equal in the process of random number generation, and no one has a comparative advantage. Second, each step and result in this process is open and auditable to ensure that the generated random number has not been tampered with.

4.3.4 Design of traditional RNG system

PRNG uses an input value as the initial value to generate a series of output values, as shown in Fig. 4-4.

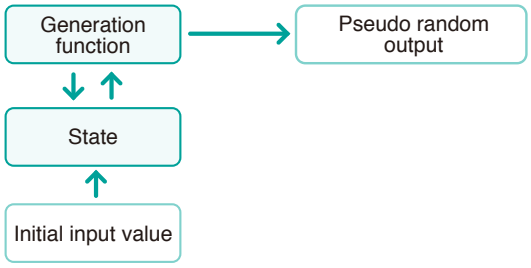


Fig. 4-4 PRNG frame

In PRNG, the initial input value is called a seed, and because its output value is a deterministic function of the seed value, the output value is pseudo-random. In online poker games, the random algorithm usually uses the system time (server time) the algorithm is started as the seed basis when acquiring the random seed, which is precise at the millisecond level, so it is almost impossible to trigger the same time factor. Meanwhile, the purpose of PRNG is to make the result close to statistical randomness through machine operation, so most platforms use the pseudo-random number dealing mechanism to ensure game fairness.

The existing academic research on pseudo-random sequences can be roughly classified into two categories:

1) Pseudo-random sequences constructed directly through mathematical theory;

2) Pseudo-random sequence built through LFSR

For the pseudo-random sequences built through mathematical theory, their random performance can be analysed theoretically, but they are difficult to build, which means that the cost of research is not proportional to the cost of implementation. The random sequence built based on LFSR is easier to implement with lower cost of research and better performance.

For poker game platforms, the security of the entire system relies on the selection of an unpredictable random seed, so it had better use hardware-based technology to select it, which can obtain unpredictable random data directly from the physical environment. Online poker and other games involving money have higher requirements of security, so they have certain requirements for the performance of RNG.

a) Overall frame

Frame of Combined Tausworthe RNG:

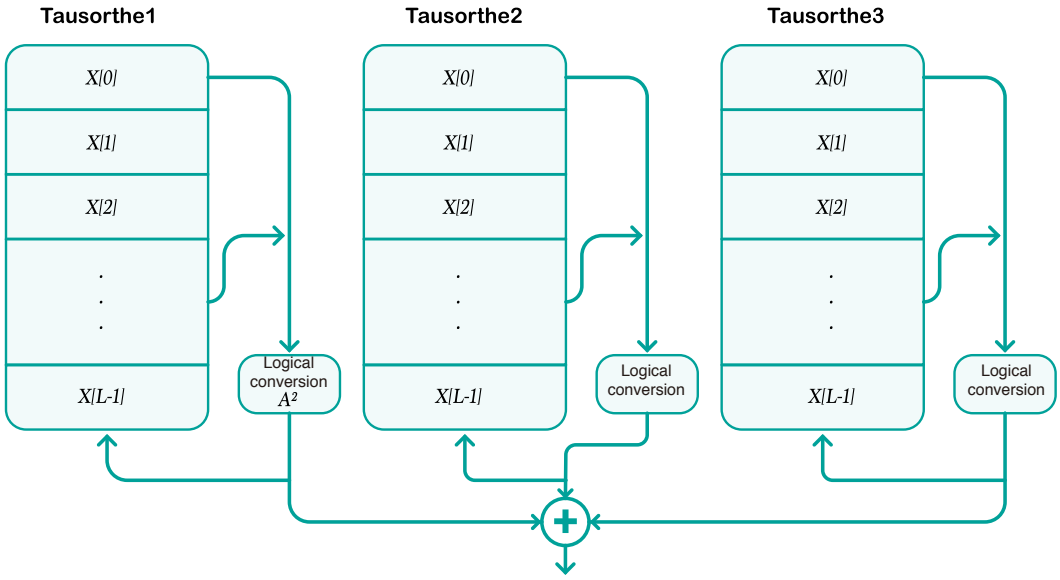


Fig. 5-5 Combined Tausworthe RNG

The output result un of this RNG is an XOR result of the output data of J Tausworthe RNGs. Each Tausworthe RNG consists of an L-bit register and conversion logic As.

Random number generation algorithm

As shown in the above figure, Combined Tausworthe RNG consists of multiple Tausworthe RNGs, and each random number generated by Tausworthe RNG can be expressed as follows:

$$u_{n,j} = \sum_{i=1}^{L} x_{j,ns+i-1} \times 2^{-i}$$

L is the output bit width of the random number, and s is the jump step size, both of which are

non-zero positive integers.

Xj,ns+i-1 is a random sequence, and its recursive relation is:

$$x_{j,n} = a_1 x_{j,n-1} \oplus a_2 x_{j,n-2} \oplus \ldots \oplus a_k x_{j,n-k}$$

ai is the coefficient of characteristic polynomial P(z)=z^k-a_1 z^(k-1)-...-a_k, and when characteristic polynomial P(z) is a polynomial function, the output cycle reaches its maximum value, 2k-1.

In most cases, P(z) is selected as P(z)=z^k-z^q-1, and the generated random number equidistributed in the interval (0,1) is:

$$u_n = \sum_{i=1}^{L} (x_{1,ns_1+i-1} \oplus x_{2,ns_2+i-1} \oplus \ldots \oplus x_{J,ns_J+i-1}) \times 2^{-i}$$

x_(J,ns_J+i-1) is the output data of the Jth Tausworthe RNG. Apply the equality of P(z):

$$z^k - a_1 z^{k-1} - \cdots - a_k = z^k - z^q - 1$$

$$a_k = 1; a_{k-q} = 1$$

$$a_i = 0 \quad , \; x_{j,n} = x_{j,n-(k-q)} \oplus x_{j,n-k}$$

The core of this part is the design of a hardware structure for the state transition logic matrix, which uses s binary input XOR gates to implement the random sequence that is updated for every clock cycle.

Gaussian random number generation method

Box-Muller algorithm is used for conversion. In hardware implementation, IP core is added to realize data operation, and the maximum value analysis method and static error method are used to determine the bit width of each operand to ensure the correctness and accuracy of the data.

According to the principle that the quadratic sum of two independent Gaussian distribution random numbers obeys exponential distribution, the conversion process can be expressed as:

$$\alpha = \sqrt{-2 \times \ln u_1} \times sin(2\pi u_2)$$

$$\beta = \sqrt{-2 \times \ln u_1} \times cos(2\pi u_2)$$

u1 and u2 are two randomly distributed random numbers;

α and β are the final Gaussian random numbers, and the specific generation process is as follows:

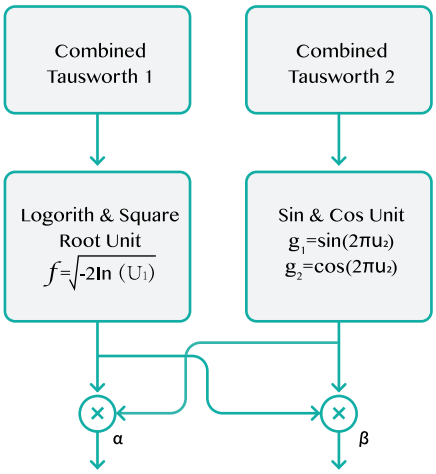


Fig. 4-6 Gaussian random number generator frame

The configurability of output bit width L is reflected in the selection of parameter combination (L, kj, qj, sj). In the design of Combined Tausworthe RNG, the output bit width L can be selected according to the design requirements, and the parameter combination (L, kj, qj, sj) satisfying maximally equidistributed (ME) conditions can be obtained. It should be noted that not all L can find a parameter combination (L, kj, qj, sj) that satisfies ME conditions. If there is no such parameter combination, a compromise is taken: given l>L, (L, kj, qj, sj) corresponding to Combined Tausworthe RNG satisfies ME conditions, then L bit in the Combined Tausworthe RNG output can be selected as a new output to form the RNG of L bit output.

Therefore, in the design of Combined Tausworthe RNG, the appropriate output bit width L can be selected according to actual needs to realize the configurability of hardware design.

5. Community token

5.1 The AIPoker Platform token economic model

The AIPoker Platform issues its community token AIG as a support for the community economic model. AIG can circulate in major exchanges. Players can use AIG and other digital currencies to participate in platform games. The platform uses AIG to pay for game related payments and incentives for platform contributors.

Traditional online poker games have complicated transaction and settlement, but blockchain technology brings a fast and credible settlement method for online poker. When players participate in the game, they do not need to transfer funds to the platform for management but directly use the platform token to participate in the game, and at the end of the game, the AI system will make automatic settlement. Throughout the process, players need not worry about the long transfer time, currency or other cross-bank restrictions, but on the contrary, they can hold the platform token AIG.

The design of the AIPoker Platform token economy refers to the virtual currency economic model. Theoretically, there is always certain deviation between the market price and utility value of token on the virtual currency market, and the core of such deviation is the supply and demand relationship of token. If the token economic model focuses on liquidity (additional demand), then the digital token will have more consensus, and the currency of the token may have faster transaction and settlement, lower charge and more convenient payment. However, the liquidity of the token will give the holder the subconscious perception of consumption so that they will lack the motivation to hold such it for a long time.

Conversely, if the token economic model focuses on scarcity (controlled supply), then the token will be in greater demand. However, in situations of scarcity, users tend to hold the token for a long time rather than focusing on transactions so that its liquidity will be weakened.

Therefore, AIPoker team is committed to designing an excellent token economic model to balance the value circulation system of the token.

The AIPoker Platform issues AIG as a community token for the participation in the platform and community activities and payment of incentives. The platform reserves 50% of AIG as community rights protection fund that can be audited by anyone at any time on blockchain, which ensures that the platform has sufficient assets to provide incentives/winnings for users and contributors.

The AIPoker Platform provides interesting and unique games and encourages players to actively participate. In addition, the platform recovers a certain proportion of AIG as service fee, which forms a forward return path. All of recovered AIG enters Grand Jackpot, which will be re-distributed to incentivise participation in the community.

The game scenarios and game ecosystem within the platform enrich the usage scenarios of AIG, which enables it to have a solid base of utility value. This effectively ensures that the community token AIG has a robust circulation value in the external market.

5.2 Use case of token

The native digital cryptographically-secured utility token of the AIPoker Platform (AIG) is a major component of the ecosystem on the AIPoker Platform, and is designed to be used solely as the primary token on the platform. AIG is a non-refundable functional utility token which will be used as the unit of exchange between participants on the AIPoker Platform. The goal of introducing AIG is to provide a convenient and secure mode of payment and settlement between participants who interact within the ecosystem on the AIPoker Platform. AIG does not in any way represent any shareholding, participation, right, title, or interest in the Foundation, the Distributor, its affiliates, or any other company, enterprise or undertaking, nor will AIG entitle token holders to any promise of fees, dividends, revenue, profits or investment returns, and are not intended to constitute securities in Singapore or any relevant jurisdiction. AIG may only be utilised on the AIPoker Platform, and ownership of AIG carries no rights, express or implied, other than the right to use AIG as a means to enable usage of and interaction within the AIPoker Platform.

Community token AIG is the most important community medium in the ecosystem economic system of the AIPoker Platform. AIG can be obtained by players through digital currency exchanges. After entering the AIPoker Platform, players can use AIG to pay the game service fee, or participate in various community contribution activities to obtain contribution scores that can be redeemed into AIG. The platform classifies the user level based on the number of AIG held by players and their contribution scores, and the players can participate in the game activities accordingly.

In the AIPoker Platform, players use AIG to participate in games and pay the game service fee, and the platform pays the game winnings in AIG. Players can use the game strategies for free, but the winnings won with the strategy must be shared with the strategy author (through secondary smart contracts). The consumption and payment behaviour of players in the platform community are all settled through the usage of AIG.

Users of the AIPoker Platform and/or holders of AIG which did not actively participate will not receive any AIG incentives. AIG is an integral and indispensable part of the AIPoker Platform, because without AIG, there would be no incentive for users to expend resources to participate in activities or provide services for the benefit of the entire ecosystem on the AIPoker Platform.

The contributions made by the player in the AIPoker Platform are recorded on blockchain in a transparent and auditable manner. Players can share in the Grand Jackpot of the platform on a regular basis according to the proportion of their contributions. Players can also transact AIG in the exchange at any time or withdraw it into their wallets.

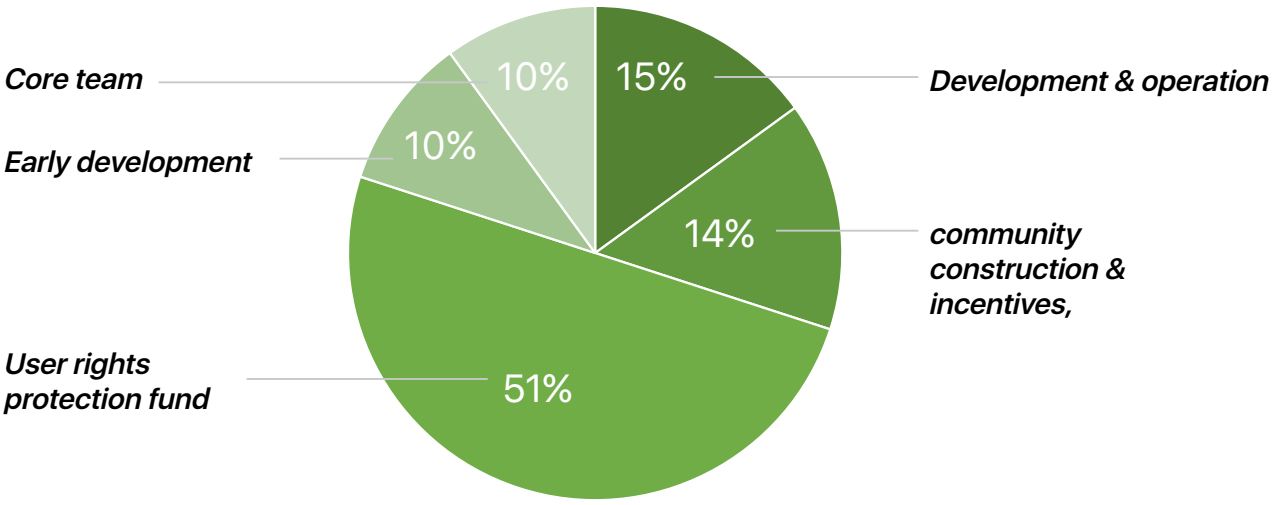
5.2.1 Long-term usage of AIG

AIG can be transacted in different exchanges, so in the short run, its price fluctuates with market conditions. The AIPoker Platform is a community-driven project, so in the long run, the utility value and market price of AIG is based on the utility value of the entire community platform, and users holding AIG can benefit from the community and share in the benefits of the platform ecosystem. The long-term utility value and market price of AIG is projected to increase as the shared platform utility grows.

First, game service fees are charged in AIG and the corresponding locked AIG enters Grand Jackpot. The platform incentivises community users with AIG according to their contributions. More and more players redeem and hold AIG and place it in the platform to obtain incentives, which increases AIG locking and reduces circulation of AIG in the market. As further use cases for AIG are created and more scenarios are explored, AIG long term utility value may increase.

5.3 Token distribution

Through the operation of smart contracts, the community issues 10 billion fixed community token AIG, which is distributed as follows:



- 10% is for core team incentives, including incentives for founding team members and future core community members. This portion of the AIG is fully locked for one year and half a year after the game is officially online. It will be unlocked over four years, 1/48 per month.
- 10% is for expenditure on early development activities.
- 51% is for user rights protection fund, which is used to safeguard the redemption of various platform winnings/incentives and Grand Jackpot incentives.
- 15% is for later development and operation, which is fully locked in the exchange and will be unlocked over three years, 1/36 per month.
- 14% is for community building and incentives, which will be used for community outreach incentives, platform activity incentives and other community building activities to rapidly expand the community and game users and improve platform vitality. This portion of the token will be unlocked over two years, and the unlocking and usage per month will be no more than 1/24.

The AIPoker Platform puts all platform surplus (from fees) into Grand Jackpot based on the innovative Grand Jackpot mechanism, uses the smart contract to record the contribution of each AIG holder and community member and distributes all Grand Jackpot according to the contribution so that the AIPoker Platform participants can continue production and consumption. The continuously generated platform surplus a closed loop of circulation within the AIPoker Platform, which realises the decentralised model and effectively supports the healthy, sound and stable development of token model in the AIPoker Platform.

In particular, it is highlighted that AIG:

(a) is non-refundable and cannot be exchanged for cash (or its equivalent value in any other virtual currency) or any payment obligation by the Foundation, the Distributor or any affiliate;

(b) does not represent or confer on the token holder any right of any form with respect to the Foundation, the Distributor (or any of its affiliates), or its revenues or assets, including without limitation any right to receive future dividends, revenue, shares, ownership right or stake, share or security, any voting, distribution, redemption, liquidation, proprietary (including all forms of intellectual property or licence rights), or other financial or legal rights or equivalent rights, or intellectual property rights or any other form of participation in or relating to the AIPoker Platform, the Foundation, the Distributor and/or their service providers;

(c) is not intended to represent any rights under a contract for differences or under any other contract the purpose or pretended purpose of which is to secure a profit or avoid a loss;

(d) is not intended to be a representation of money (including electronic money), security, commodity, bond, debt instrument or any other kind of financial instrument or investment;

(e) is not a loan to the Foundation, the Distributor or any of its affiliates, is not intended to represent a debt owed by the Foundation, the Distributor or any of its affiliates, and there is no expectation of profit; and

(f) does not provide the token holder with any ownership or other interest in the Foundation, the Distributor or any of its affiliates.

The contributions in the token sale will be held by the Distributor (or its affiliate) after the token sale, and contributors will have no economic or legal right over or beneficial interest in these contributions or the assets of that entity after the token sale. To the extent a secondary market or exchange for trading AIG does develop, it would be run and operated wholly independently of the Foundation, the Distributor, the sale of AIG and the AIPoker Platform. Neither the Foundation nor the Distributor will create such secondary markets nor will either entity act as an exchange for AIG.

6. Development plan

Second quarter of 2020

Release of version 2.0 It promotes the breadth and depth of games, expands the gameplay, connects multiple application scenarios, further enriches and improves the user experience, and establishes a community with more than 1 million registered users who participate in the subsequent development planning and building of the game platform.

Third quarter of 2019

Beta version It completes the configurations of all interfaces and parameters, optimises the performance, enhances the user experience, strengthens visual effects and achieves basic game functions to organise various matches and support 50,000 users online. There are 200,000 users in the community.

First quarter of 2019

Community version It includes community function and basic game interface. Users can view project updates through community function, obtain community token incentive and become involved in community building.

Second quarter of 2019

Alpha version It achieves the configuration of main game interface as well as main gameplay and parameters and can complete the main game flow. Users can configure their game strategies.

Fourth quarter of 2019

Release of official version The version is online for beta test, which supports 100,000 users online simultaneously. It optimises the data transmission performance of network, improves the high load capacity of server, and improves the transmission and storage of encrypted data of users, game interface and game flow based on real-time data as well as user experience.

7. Project background

7.1 Singapore AIGame Foundation

The AIPoker Platform is a non-profit community initiative sponsored by Singapore AIGame Foundation ("the Foundation"), which is committed to the building and governance of the AIPoker Platform to ensure the sustainable development of the AIPoker Platform project. In order to avoid disagreement between community members on the direction and decision and even the resulting division of the community, the Foundation establishes an effective governance structure to conduct the general affairs of community management. The Foundation designs the governance structure to maintain the sustainable development of platform ecosystem, efficiency of decision-making and compliance of fund management. Its rights are exercised by the decision committee. In the future, the Foundation will continue to launch more AI-based game projects.

7.2 Core members

Dong Wang

As the patent applicant of the automated strategy system of the AIPoker Platform, he has more than ten years of experience in the poker industry as well as insights and unique strategic thinking for poker-related industries.

- A pioneer in poker-related industries in Greater China.
- An early pioneer of Internet chess and card game platform.
- Founder of business model of offline poker club in China.

Alex Armany

Alex Armany is the president and CEO of one of the largest housing, commercial real estate and mortgage loan companies in Beverly Hills, California, America. Founded in 1992, the company has had 16 offices and 200 employees after 26 years of development. Alex is an investor, and a poker player with more than 24 years of poker playing experiences, allowing him to be equipped with unique and excellent insights into poker tactics. Therefore, Alex is happy to actively promote poker culture and share poker tactics, and he holds that most successful businessmen are great poker players as well.

KeYue WANG

KeYue WANG acts as the pioneering contributor to the online poker games and relevant industries in the Greater China Region. WANG has the multidimensional business experiences in terms of online poker games, business integration, major event planning, organization and management, as well as the implementation of offline poker club business mode. Having lived, studied and working in countries around the world, WANG now lives in the US. She led poker players to participate in global poker games, and became the first woman to sit for the final table of Asian Poker Tour. In addition, she also took on the final tables in WSOP Women's Competition and WSOPC.

Johnny Ma

One of the first Chinese Internet game reviewers and review expert.

Johnny Ma entered the field of Internet game review in 1999 and has worked for the companies such as IHW, Sina Games and SDG as the head of the game column at various stages of Internet development.

In 2007, he entered the online chess and card game field, responsible for the operation. He has more than 10 years of experience in the integrated operation of Internet games and has rich experience in the management and operation of large online games.

MIKE CHEN

As an Internet infrastructure expert, senior technical expert and blockchain expert, he has worked as the R&D director for a large information enterprise and has engaged in R&D, marketing and senior product management in Sony Ericsson, Lucent and Bell-labs. He has a profound technical background and excels at implementing large-scale complex system architecture.

Since blockchain technology appeared, he has invested much in the research and integration of new technologies. Relying on strong technical background and understanding, he has the technical strength of development and application in the field of distributed computing and smart contract.

David Tang

The heavyweight producer of mobile games.

He has more than 15 years of experience. He graduated from BUAA and entered the game industry in 2003. He has worked in the world top game companies such as Gameloft and EA China and produced more than 30 popular mobile games such as Need for Speed, FIFA, SimCity, GTA, and Assassin's Creed. He has worked as a game producer for IGT, a gaming game giant, and produced a large number of online games popular worldwide.

LIU Chen

Senior commentator and media person in the poker industry in China.
Editor-in-Chief of " Card Player" magazine.
Producer of the poker theme talk show "poker's talker".

Chunyang Zhao

Master degree of computer science from Dalian institute of technology.

The first professional writer of Texas Hold'em Porker and the discriminator of Texas Hold'em Porker culture of China.

The author of the book "Introduction and promotion of Texas Hold'em Porker ",which is the first book about Texas Hold'em Porker. The first translator of "The little green book of Texas Hold'em Porker " which is the Bible of the enthusiasts of Texas Hold'em Porker.

The host of the TV show "Crazy Texas Hold'em Porker ", which is the first TV show about Texas Hold'em Porker in China.

Rich Zhu

Rich Zhu has ranked first among players from Chinese-speaking countries and regions in WSOP Player of the Year in the last three years, and he is also one of the six top players in the

world who rank TOP 50 in WSOP Player of the Year for the last three years.

Bachelor of Electronic Engineering, Tsinghua University.
Master of Electronic Engineering, Peking University.
PhD in Electronic Engineering, University of Wisconsin.

One of the six top active players who rank TOP 50 in WSOP Player of the Year for three consecutive years. Boasts the best record of Chinese players in world poker tournaments since the turn of the century.

Distributor and promoter of deep culture concepts of poker game, opinion leader among professional poker players.

Rich Zhu is one of the pioneers who promote Hold'em poker culture in the Chinese world. As a world-class poker player, he has promoted deep culture concepts of poker in various approaches for decades, and unreservedly shared high-level poker technology theories.

Rich Zhu has many years of in-depth research and unique insights into the theories of intelligence games. He is the first in the Chinese world to promote Hold'em as an intelligence game, and has been advocating the promotion of Hold'em among the populace as an intelligence game.

Professional Experiences:

- Founded and participated in Zhiyoucheng, the most authoritative poker community in the Chinese realm, and Pushi, best Chinese poker magazine in Asia.
- Served as FTP Friend of Full Tilt Poke, and Dafa Poker Ambassador.
- main member of the Chinese team in the First World Team Poker in 2010, which eventually won the championship.
- Ranked 34th in the 47th WSOP Player of the Year in 2016. (10 times in the money, runner-up once, third place once.)
- Ranked 42nd in the 48th WSOP Player of the Year in 2017. (10 times in the money, twice final table.)
- Ranked 23rd in the 49th WSOP Player of the Year in 2018. (13 times in the money, won 35# Gold Bracelet, ranked 10th in the main competition.)

As of November 2018, Rich's "78 times in the Money" record ranked 13th in the history of WSOP series. His ranking of 10th in the main competition is also the best record of players from Chinese-speaking countries and regions in world poker tournaments since the turn of the century.

In the accumulated data of over ten years in "PokerStars", he personally has extremely rare records of high buying and high return.

7.3 Strategic cooperation

科银资本 Collinstar Capital

链享基金

7.4 Intellectual property protection

Patent name: Information Processing Method and Related Methods, Systems and Devices
Patent No.: 201710327174.2
Application date: May 10, 2017
First review June 7, 2017
Substantive review: September 6, 2017
Public enquiry: http://cpquery.sipo.gov.cn/
Abstract: The present invention relates to an information processing method and related methods, systems and devices. The information processing method includes acquisition of game process information of a preset category, matching of the acquired game process information with a preset game strategy configuration table, and determination of strategy. The content of the strategy is selected through PHP probabilistic algorithm. Compared with existing technologies, the information processing method provided by the present invention can set different strategies through the game strategy configuration table and can also use the PHP probabilistic algorithm to select the executed content in the current game situation, which increases the randomness of the executed content.

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郭文浩(010-82601877) 杨晓莉(010-65258340)

发文日：
2017 年 06 月 07 日

申请号或专利号：201710327174.2　　发文序号：2017060200428210

申请人或专利权人：王东

发明创造名称：信息处理方法及相关方法、系统、设备

发明专利申请初步审查合格通知书

上述专利申请，经初步审查，符合专利法实施细则第 44 条的规定。
申请人于 2017 年 05 月 10 日提出提前公布声明，经审查，符合专利法实施细则第 46 条的规定，专利申请进入公布准备程序。

初步审查合格的上述发明专利申请是以：
2017 年 5 月 10 日提交的说明书摘要；
2017 年 5 月 10 日提交的权利要求书；
2017 年 5 月 10 日提交的说明书；
2017 年 5 月 10 日提交的说明书附图
为基础的。

提示：
1. 发明专利申请人可以自申请日起 3 年内提交实质审查请求书，缴纳实质审查费，申请人期满未提交实质审查请求书或者期满未缴纳或未缴足实质审查费的，该申请被视为撤回。
2. 专利费用可以通过网上缴费、邮局或银行汇款缴纳，也可以到国家知识产权局面缴。
网上缴费：电子申请注册用户可登陆 http://www.cponline.gov.cn，并按照相关要求使用网上缴费系统缴纳。
邮局汇款：收款人姓名：国家知识产权局专利局收费处，商户客户号：110000860。
银行汇款：开户银行：中信银行北京知春路支行，户名：中华人民共和国国家知识产权局专利局，账号：7111710182600166032。
汇款时应当准确写明申请号、费用名称（或简称）及分项金额。未写明申请号和费用名称（或简称）的视为未办理缴费手续。
了解更多详细信息及要求，请登陆 http://www.sipo.gov.cn 查询。

审查员：宋晓璐　　审查部门：专利审查协作北京中心初步审查部

联系电话：010-82246919

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纸件申请，回函请寄：100088 北京市海淀区蓟门桥西土城路 6 号 国家知识产权局受理处收
电子申请，应当通过电子专利申请系统以电子文件形式提交相关文件。除另有规定外，以纸件等其他形式提交的文件视为未提交。

8. Important notes and risk warnings

As a global poker game platform, the AIPoker Platform only operates in the regions where it is permitted by local laws and regulations, regions prohibited by local laws and regulations shall not use the services provided by the poker chain.

The development and operation team of the AIPoker Platform believes that there are numerous risks in the development, maintenance and operation of the AIPoker Platform, many of which are beyond the control of the team. In addition to this white paper, Each community token AIG (hereinafter referred to as AIG) purchaser should carefully read, understand and consider the following risks: despite the fact that development and operational entity of the AIPoker Platform is established in Singapore, both the AIPoker Platform and AIG exist only in virtual space of network and do not have any tangible existence, so they do not belong to or involve any particular country.

8.1 Insufficient information

By the publication date of this white paper, the AIPoker Platform is still in the development stage, and its philosophy, consensus mechanism, algorithm, code, and other technical details and parameters may be updated and changed frequently. Although this white paper contains the latest key information of the AIPoker Platform, it is not complete and will be adjusted and updated from time to time by the development and operation team for specific purposes. The development and operation team is incapable and has no obligation to keep participants informed of every detail of the development of the AIPoker Platform (including its progress and expected milestones, delay or not), so it will not necessarily give buyers timely and full access to the information generated from time to time in the development of the AIPoker Platform. Non-exhaustive disclosure of information is inevitable with good reason.

8.2 Regulatory measures

Digital token is being or may be regulated by the authorities of different countries, so the development and operation team may receive inquiries, notices, warnings, orders or decisions from time to time from one or more authorities regarding the development of the AIPoker Platform or AIG actions. Therefore, the development, marketing, and promotion of the AIPoker Platform may be severely affected, hindered or terminated. As regulatory policies may change at any time, existing regulatory approvals or tolerance of any country for the AIPoker Platform may be temporary. In different countries, AIG may be defined as virtual goods, digital assets or even securities or currencies at any time, so AIG may be prohibited from trading or holding in accordance with local regulatory requirements in some countries.

8.3 Cryptography

Cryptography is evolving continuously but cannot guarantee absolute security at all times. Advances in cryptography (such as password cracking) or technical advances (such as quantum computer) may bring danger to cryptography-based systems, including the AIPoker Platform. This may result in the theft, disappearance, destruction or depreciation of any AIG held. In the reasonable range, the development and operation team of the AIPoker Platform will be prepared to take preventive or remedial measures, upgrade underlying protocols to cope with any advance in cryptography, and incorporate new rational security measures where appropriate.

The future of cryptography and security innovation is unpredictable, and the development and operation team will try to cater to the continuous changes in the field of cryptography and security.

8.4 Development failure or stoppage

The AIPoker Platform is still in the development stage. Due to the technical complexity of the system of the AIPoker Platform, the development and operation team may face unpredictable and/or insurmountable difficulties from time to time, so the development may fail or stop at any time for any reason (e.g. shortage of funds).

8.5 Source code flaws

No one can ensure that the source code of the AIPoker Platform is completely flawless. The code may have certain flaws, bugs and vulnerabilities that may prevent users from using certain functions, exposing user information or causing other problems. Such flaws will damage the usability, stability or security of the AIPoker Platform and have a negative impact on the utility value of AIG.

8.6 Security weaknesses

Based on open source software, the blockchain of the AIPoker Platform is a distributed ledger without access permissions. Despite the efforts of the development and operation team to maintain the security of the system of the AIPoker Platform, anyone can intentionally or unintentionally bring weaknesses or flaws into the core infrastructure elements of the AIPoker Platform, and the development and operation team may be unable to prevent or repair them by means of safety measures. This may eventually result in the loss of AIG or other digital tokens of participants.

8.7 DDoS attack

As the AIPoker Platform runs on the public Internet, and despite multiple layers of protection, its network nodes may suffer from DDoS attacks from time to time, which will cause negative effects, stoppage or fracturing of the system of the AIPoker Platform, so that the transactions will be delayed from being written into Ethereum blockchain or even cannot be executed temporarily.

8.8 Unauthorized claim for AIG for sale

Anyone who decrypts or cracks the password of AIG purchaser and obtains the registered email or access to the account of the purchaser will be able to maliciously obtain the AIG for sale of the purchaser. Therefore, the AIG for sale may be sent incorrectly to anyone who claims it through the registered email or account of the purchaser, but such sending is irrevocable and irreversible. Each AIG purchaser should take the following measures to properly keep their registered email address or account: (i) use a high security password; (ii) do not open or reply to any fraudulent email; (iii) strictly keep confidential or personal information.

8.9 Private key to AIG wallet

The loss or damage of the private key required to obtain AIG is irreversible. The AIG can only be manipulated through the unique public and private key to a local or online AIG wallet. Each purchaser should properly keep their private key. If the private key is lost, disclosed, damaged or stolen, the development and operation team of the AIPoker Platform or any other person will not be able to help the purchaser retrieve relevant AIG.

8.10 Popularity

The utility value of AIG depends highly on the popularity of the AIPoker Platform, but the AIPoker Platform is not expected to be popular, prevalent or widely used in a short time after its launch. In the worst case, the AIPoker Platform may even be marginalised for a long time and be able to attract only a small number of users. However, a large portion of AIG demands may be speculative, so the shortage of users may increase market price fluctuations of AIG and thus affect the long-term development of the AIPoker Platform. In the case of such price fluctuations, the development and operation team will not (and have no responsibilities to) stabilise or affect the market price of AIG.

8.11 Price fluctuations

Cryptographic tokens tend to have huge price fluctuations when transacted on the open market, and short-term price oscillations often occurs. The price may be quoted in Bitcoin, ETH, US dollar or other legal tenders. Such price fluctuations may be caused through market forces (including speculative trading), changes in regulatory policy, technological innovations, availability of exchanges and other objective factors, which also reflect the changes in the balance of supply and demand. The development and operation team of the AIPoker Platform is not responsible for any AIG transaction in the secondary market no matter whether there is such a market for AIG transactions. Therefore, the development and operation team does not have any obligation to stabilise the price fluctuations of AIG, and AIG transactors should bear the risk of the transaction price by themselves.

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