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Oracle AI Technical Draft

Developer Summary

Oracle Ai is the first intelligent decentralized crypto currency. The alpha system works by collecting data about the blockchain, aggregating it, performing analysis, comparison with previous AI Checkpoints, forecasting and finally performing self regulatory and correctional actions. By basing blockchain policy and events on chain activity and outside influences , specifically global economic climate the AI mimics real world currency trends.

Decentralized digital currencies operate by consensus and have predictable behaviour dictated by hard coded functions. Oracle AI mostly discards rigid immutable code for dynamic, intelligent and responsive decisions made by the AI kernel.

Oracle Ai (alpha) is a Blockchain Artificial intelligence that focuses on blockchain operations, acting as a guardian or moderator maintaining as realistic a monetary system as possible. Through analysis of data, learning and predictive mathematics, it operates an intelligent blockchain that responds to changes in its system and adjusts to compensate. A more robust system that will analyse larger data sets, more historical information, integrate external data and take into account the system’s own performance data in greater detail, process it and perform correctional actions on policies is planned for the beta stage. Along with deeper learning techniques and real-time adjustments, OAI (beta) will make use of simulations and modelling used in global economics and monetary policy planning.

Design Specifications

Kernel

The AI kernel for OIA (alpha) is a small set of higher function subsystems that perform tasks such as data acquisition, aggregation, analysis and many others. In the alpha stage, the kernel operates its main functions once a day and performs self correction only once in every 24 hours. As the data set grows larger and performance is improved, this will eventually become realtime. After every execution of the kernel, it creates a new iteration of itself and uses the new parameters for operations on the chain. Each successive iteration stores AI Checkpoints in the form of parameters and the results of previous kernels and further utilizes them to produce more fine tuned parameters for the next iteration.

Consensus

Consensus in Oracle AI (alpha) is maintained by each individual node which do not contain predictive algorithms, as such with each node performing similar actions on a similar data sets, they should each come to similar conclusions. OAI (beta) will include predictive algorithms, fuzzy logic, simulations and modelling, and as such, each AI node may reach different conclusions. To maintain consensus, nodes will communicate with each other, compare and contrast their results and eventually settling on a kernel iteration based on AI votes. The AI vote system is a point at which individual AI network in a decentralized manner, communicate, present their findings, vote and decide on system behaviour and as a system become a single artificial intelligence. Nodes will relay data during each individual cycle, synchronize and select a policy based on an STV voting system, each node submitting 4 options in order of preference. These policies are stored and relayed to each new node that comes online to ensure smooth sync process without compromising security.

Proof of work and Proof of Stake

Block rewards will start with an initializing figure and as the system gathers more data, makes changes and learns from them, it will eventually settle on policies which best suit the operating environment and economic outlook of the chain. Rewards are controlled by the kernel and are recalculated once a cycle, in the beta version, the aspiration is to make it real time. In order to prevent extremely wild swings, the AI is initially regulated by until it has enough data to make more coherent policies. Eventually in future kernel iterations, after a lot of data has accumulated as well as adequate research has been done the limitations will be removed and the AI will operate the blockchain independent of any forms of hard coded parameters.

Transaction fees

Typically transaction fees are awarded to miners, and in some circumstances, simply destroyed. Oracle has a dynamic fees policy that is determined by the kernel reflecting the free market. Fee policy acts as a tool of supply control and miner incentivization, the kernel can set fee rates that can help further incentivize miners, or in some cases reign in inflation.

Demurrage

While not yet fully developed, demurrage is being considered as a possible deflationary tool, rather than imposing high fees, or perhaps complementing them, the AI in situations where the money supply needs reduction could enforce demurrage of funds. Negative proof of stake is also being considered, however this aspect is still being researched and may or may not be developed. This section will be updated when a final decision is reached.

Supply Cap and Distribution

An initial supply will be allocated in the first few blocks to bootstrap the network token's distribution. Initially during the learning period, the kernel will have limits that allow a range between ⅓ initial supply and 3 times the initial supply. The supply cap is variable and depends on network economic performance, and the kernel will either lower or raise it accordingly. This means that the minimum supply is 1/3 issuance amount with the maximum being 3 times the value. Note that this cap applies to the entire supply. If supply reaches or surpasses the upper limit, the kernel will impose policies that will reduce it to within the required range, and the reverse is true. These policies will include varying combinations of reward, fees , stake and maybe demurrage.

Block Time and Size

Oracle AI blocks may be required to carry AI data, network directives and comments as such with these considerations in mind and further expansion to accommodate IOT and cloud platforms proposed max block size is 8 MB with a block time of 3 minutes. Segregated witness is intentionally left out for now. **This may be subject to change.

Conclusion

I believe Oracle AI to be feasible with existing technologies though i'll make it clear, this is a highly experimental idea whose concepts are sound but as yet untested or proven and as such subject to change.

By far the most difficult tasks, will be consensus, modelling and simulations. These will require a lot of research, writing the algorithms, will be quite an experience.