

Judge RESEARCH

AI
DEFI
PROPOSAL

AGENDA

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The Full DeFi Software Stack

- base layer (Ethereum, fiat on-ramps)
- assets (ETH, tokens, stablecoins)
- open data services (Dune Analytics)
- machine learning & AI
- decentralized funds & DAOs
- lending (Aave, Liquity)
- DEXs & derivatives (Uniswap, DyDX)

WHO



Gina Ackerman
Operations

Gina served as the Director of External Relations under Jeffrey Sachs at Columbia's Earth Institute, focusing on growing private revenue for the UN's Millennium Development Goals.

Gina holds an MA in Quantitative Studies for Finance from Columbia University.



Nicholas Adams Judge, Ph.D.
Cofounder

A political economist whose research focused on the use of GARCH models to examine large covariance matrices as they change over time, Nick has worked full-time in crypto since 2016.

Feature election has been a core focus of Nick's since the days of his doctoral dissertation.



Professor Marc Ratkovic
Cofounder

Marc is an Assistant Professor in Politics at Princeton University and affiliated faculty with Princeton's Center For Statistics and Machine Learning.

Feature selection has been a major focus of Marc's for more than a decade. His award-winning work has appeared in top journals in the fields of political science and statistics, and has been cited more than a thousand times.

WHAT

An AI software stack for systematic trading

It assesses and assembles data and algorithms at a scale so large
it can govern a decentralized fund

WHY

The development time for a systematic strategy is typically multi-year. This is why forecasting competitions like Numerai mainly attract amateurs.

By designing an AI that makes the complex architectural decisions, the researcher keeps their workflow simple: Design a particular variable or algorithm, feed it into the machine, and move on.

The workflow is so simple that a researcher can contribute without coordinating with others or spending too much of their time.

By reducing coordination and time costs, the door is opened to a decentralized network of experts, and the powerful economies of scale that that entails.

HOW

A binary genetic algorithm (GA) assesses features and algorithms *simultaneously* while minimizing computational costs. This organizes a constantly-evolving universe that is a scaled version of the scientific research method.

Internal Scalability → Decentralizability

The process is, simply, evolution. If you want to contribute a gene - data or algorithm - to the gene pool, you can. If it is good, it reproduces. If not, it dies.

WHY NOW

This project would not be technologically feasible five years ago.

Full time work began two years ago. The remaining roadmap is 4-6 months long. Funding is appropriate at this point because efficacy is related to scale.

Terms

- SAFE
- \$20m cap
- 33.3% Discount
- \$250k minimum
- \$3m Total Raise
- Potential token ownership proportional to equity purchase and purchase order*[†]

* This is a traditional SAFE round. Should the network grow in decentralization sufficiently to legally allow for an airdrop, and there be full regulatory clarity, network participants would receive the airdrop.

[†]Holders of x percent of the equity would, pursuant to the above and pursuant to a vesting schedule, receive an additional $2x/\sqrt{2+i}$ percent of the total token supply, where i = 1, i = 2 connotes the first, second investor and so on.

Appendix I - FAQs

- **Use of funds?**
 - Beyond legal, server and gas fees and basic operational costs, funds will be spent on salary and hiring: Specifically a QA, frontend and backend engineer, solidity developer, connectivity engineer, one quantitative developer to assist the Cofounders and another to hone order and execution software, and a community manager
- **What improvement in forecast fit can your algorithm generate?**
 - With our current data set, our binary genetic algorithm protects against over-fitting, increasing validation set fit by 7% - 13%, relative to several other advanced feature selection algorithms. The increase in performance grows as the data environment becomes more complex.
- **What will be the relationship between the AI-owning entity and the fund?**
 - The fund will be a progenitor of, and participant in, the decentralized AI system. Developers working for the fund will, of course, also contribute inputs to the AI. The fund will execute on the signals generated by the decentralized inputs to the AI. This implies order & execution, accounting, and so on. Inputs will be obfuscated such that contributors are aware of the role their own contributions play, but do not know enough about the whole system to duplicate it or steal IP pertaining to other's contributions.
- **What would the role of a token be?**
 1. **Security:** Like other decentralized networks, a decentralized network of feature and algorithm providers is open to attack. A system of staked ERC-20 tokens will be one of several important tools necessary to secure the integrity inputs supplied to the network.
 2. **Early & Rapid Scaling:** Rewards for contributions will be proportional to the importance assigned them by the algorithm. That means early contributors of obviously-important features - BTC's price changes, for example - are very strongly incentivized to participate. Further, those who lay claim to obviously-important feature and algorithms will have a strong motivation to continuously promote the network.
 3. **Incentive Alignment:** Rewards being paid out in an asset whose value covaries with that of a decentralized systematic fund's profits creates a 'team-player' set of incentives.