

Judge

RESEARCH

THE
AI-DEFI
PROJECT

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)

WHAT

The world's first decentralized systematic fund: a protocol for quantitative development, so experts can build forecasts faster and work together at a scale not previously possible.

The initial focus is on building intra-day forecasts of crypto assets but the system grows in efficacy as more asset classes are added.

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, Nick has worked full-time in crypto since 2016. He was a founding partner at blockchain accelerator in San Francisco, and has advised a number of raises.

Feature selection 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.

WHY

How information is aggregated into forecasts is an issue of profound importance to science and markets.

Unfortunately, the dev cycle for systematic strategies is multi-year, so they are simply too large to be easily combined.

Our AI is built so experts can contribute *small components* of forecasts. The (human) workflow is altered: from assembling the whole puzzle to dumping pieces into the puzzle box.

This new workflow scales better and therefore changes the best way to work together: from within the same institution to as part of a decentralized ecosystem.

USER STORY

User: A fund invests in stablecoins. It is a quant fund but not a systematic fund. It has spent a year building data tools to track stablecoins on a number of blockchains and Ethereum's layer 2s.

Belief: Cross-chain stablecoin flows help predict the relative prices of the chains' native cryptocurrencies.

Pain Point: The fund has a successful strategy already. It cannot spend the next year exploring whether they can translate their belief & proprietary data into a systematic strategy. Its mandate prevents holding non-stablecoins, anyway.

Solution: A developer spends one hour formatting their data, and ten minutes writing the cron job to submit it to judgeresearch.co. If it improves forecasts, they monetize their data & gain valuable market intel without revealing their IP.

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.

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 2.25 years ago. The remaining roadmap is 4-6 months long. Funding is appropriate at this point because efficacy is related to scale.

Terms

- SAFE
- \$25m cap
- 30% 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.