ChainMath

Quant research studio for crypto players

Designing crypto financial instruments that create alpha instead of blow ups

What ChainMath does

ChainMath is a specialist quant research and advisory studio focused on crypto derivatives and risk. We work with teams that need rigorous design, modeling and validation for

- Options and perpetual options
- Perpetual futures and funding mechanisms
- Credit and structured products in DeFi
- Liquidity and market making on AMMs
- Designing and backtesting crypto trading strategies/
- Designing and implementing risk management tools tailored to the protocol's needs.
- Building a tokenomics model specifically tailored to the token's ecosystem in partnership with Vess3l, a token consultancy firm.

Our job is simple we turn vague ideas into models, models into numbers, and numbers into decisions founders can trust.

Core services

Quant strategy and protocol design

- Design and refinement of options, perps and vault architectures
- Funding rate models, payoff design, fee and incentive structures
- Scenario analysis and recommendations on parameter choices

Independent risk and model validation

- External review of protocol design and risk framework
- Stress tests, scenario analysis and Monte Carlo type simulations
- Health checks before launch and during major parameter changes

Ongoing research partner

- Continuous research on new products and optimizations
- Monitoring of key metrics and risk indicators
- Sparring on roadmap decisions from a quant and risk point of view

Example outcomes

- Improved LP profitability together with reduced tail risk for a vault
- Redesigned funding logic for a perps product to prevent toxic flow
- Credit and liquidation model for a protocol that needed to protect lenders and keep borrowers competitive
- Independent quant review that surfaced hidden failure modes before launch
- Built volatility models to price and trade options
- Build a machine learning model to score wallets on-chain.

How ChainMath works

- Clear problem statement, then data, then model, then decisions.
- Research reports with an immediate executive answer and deep technical appendix.
- All work delivered with reproducible notebooks and documented assumptions.

Why ChainMath

- Deep specialization in crypto derivatives, options, perps and DeFi risk
- Combination of academic level rigor and trader mentality
- Ability to speak product, engineering and risk in the same conversation
- Reputation built in public through research, writing and community work

Who Did I Work With?

I've worked with Ribbon Finance (Aevo), Deribit, Re7, TripleOne (market maker), Panoptic (DeFi option protocol), IVX labs, Kaiju Finance (Credit Protocol), and many others, partnering with over 25 clients across the crypto space.

Selected Previous Quantitative Work

- **Volatility Modeling & Option Pricing:** Developed advanced volatility models in Python, including SABR, SVI and extensions, and Local Volatility, to price CEX options using Deribit market data.
- **Pricing Infrastructure & Risk Sensitivities:** Built custom pricers and automated pipelines for Greeks computation, scenario analysis, and systematic sensitivity studies across model and market parameters.
- **DEX Market Making:** Designed market making strategies for Uniswap v3 and v4, improving liquidity provision efficiency through rigorous inventory and microstructure aware design.
- **Portfolio Construction & Risk Management:** Applied portfolio optimization methods across private portfolios, including Conditional Value at Risk objectives and dynamic allocation frameworks under evolving constraints.
- **Research & Strategic Documentation:** Authored whitepapers, research bytes, and technical documentation to support decision making, protocol design, and go to market strategy for DeFi initiatives.

- **Vault Design, Backtesting & Stress Testing:** Engineered quantitative vault strategies and backtested them with simulation frameworks for LP behavior, risk limits, and governance driven parameter tuning.
- **Credit Protocol Modeling:** Developed a fixed rate model grounded in lending and borrowing primitives, with an emphasis on robustness, risk controls, and incentive consistency.
- **Perpetuals Funding Rate Specification:** Designed the full mathematical specification for a perpetual futures funding rate mechanism, including stability considerations and manipulation resistance.
- **Onchain Reputation & Wallet Scoring:** Developed a scoring system for Solana wallets to support oracle and risk workflows, leveraging behavioral features and robustness oriented aggregation.
- **OTC Options for Token Risk Hedging:** Designed OTC option structures to hedge locked token exposure, with payoff design aligned to liquidity constraints and tail risk objectives.
- **Options Strategies & Systematic Backtesting:** Designed options strategies and implemented end to end backtests with performance attribution, risk decomposition, and robustness checks.

Contact

If you are designing or scaling a derivatives, vault or credit product and want a serious quant partner, reach out. Please fill in the form here.

Note: We work best with teams who want to build products that survive cycles, not just narratives.