Universal Perps Protocol: A Technical Whitepaper

October 12, 2025

Table of Contents:

---

1. Abstract

The Universal Perps Protocol is a next-generation decentralized exchange for perpetual futures, engineered for permissionless access, capital efficiency, and proactive risk management. It fundamentally addresses the asset onboarding limitations of existing protocols by enabling the instantaneous creation of perpetual markets for any on-chain token. The architecture is built upon a fully synthetic trading engine and a unified collateral pool, which function as a central counterparty clearinghouse for PnL settlement without requiring asset-specific liquidity.

The protocol's stability is guaranteed by a novel **Dual-Pillar Stability Model**, which combines a **Proactive Leverage Protocol (PLP)** to prevent the introduction of systemic risk, and a **Dynamic Funding Rate Mechanism** to create powerful economic incentives for market self-correction. This design ensures protocol solvency from inception without reliance on initial capitalization or external liquidity providers, positioning Universal Perps as a truly decentralized and self-sustaining financial infrastructure.

2. Introduction: The Limitations of Current Perpetual DEXs

Decentralized perpetuals protocols have emerged as a cornerstone of DeFi, yet their growth is constrained by architectural designs that inherit limitations from traditional finance. Key challenges include:

- **Permissioned Asset Onboarding:** The creation of new markets is typically a centralized, governance-gated process, preventing traders from capitalizing on nascent or long-tail assets and creating a significant lag relative to market demand.
- **Capital Inefficiency:** Many models rely on dedicated liquidity pools (LPs) for each asset, fragmenting capital and creating dependencies on LP incentives, which can lead to high operational costs and shallow market depth.
- **Reactive Risk Management:** Protocols often rely on reactive mechanisms like socialized losses, clawbacks, or complex auto-deleveraging (ADL) systems, which penalize successful traders for protocol-level risk failures and erode user trust.

Universal Perps Protocol is designed from the ground up to solve these core issues, offering a permissionless, capital-efficient, and proactively secure alternative.

3. Core Architecture

The protocol's foundation is composed of three integrated components.

3.1. Synthetic Trading Engine

All positions within the protocol are fully synthetic. The engine does **not** engage in the spot purchase or sale of underlying assets. Instead, it operates as a sophisticated accounting ledger, creating virtual long and short contracts between participants. This design choice offers two critical advantages:

1. **Infinite Market Creation:** It decouples the protocol from the underlying asset's spot market depth, allowing for the creation of perpetuals on any token, irrespective of its on-exchange liquidity.
2. **Elimination of Asset-Specific Risk:** The protocol is insulated from risks associated with the underlying asset itself, such as smart contract bugs, exploits, or token migration issues.

3.2. Unified Collateral Pool

All trader margin is deposited in a single, asset-agnostic collateral pool (denominated in a primary stablecoin, e.g., USDC). This pool serves as the universal clearing layer for all PnL settlements across all markets. This model maximizes capital efficiency, as the collateral from one market can effectively secure the net positions of another, creating a highly robust and interconnected system.

3.3. Price Feed Mechanism

To ensure price integrity and protect against manipulation, the protocol is designed to source its index prices from the most reliable data feeds available. The protocol's core logic is oracle-agnostic, allowing for a flexible and permissionless approach to market creation.

- **For Established Assets:** In markets for high-volume tokens, the mechanism will aggregate prices from multiple underlying DEXs, preferably using a Time-Weighted Average Price (TWAP) method to provide a smoothed, manipulation-resistant price feed.
- **For New & Long-Tail Assets:** To support the protocol's core function of instantaneous market creation, the system can permissively utilize a price feed from a single source (e.g., a single DEX pool).

To protect users in these more volatile markets, the application-level interface will be responsible for providing clear and frequent warnings (UX) when a user interacts with an asset whose price feed is derived from a single or illiquid source.

4. The Dual-Pillar Stability Model

The protocol's solvency and security are not reactive but are embedded into its core transaction logic through two symbiotic mechanisms.

4.1. Proactive Leverage Protocol (PLP)

The PLP is the protocol's primary defense mechanism, preventing the introduction of catastrophic risk *before* it can enter the system. It analyzes every potential trade and dynamically adjusts the available leverage based on the trade's impact on the market's net open interest (OI) imbalance.

The protocol algorithmically splits every trade into two components:

1. **Matched Portion:** The portion of a trade that reduces the market's OI imbalance or trades within the bounds of the existing minority side. This portion is considered balanced and is always eligible for the **maximum available leverage** (e.g., up to 100x).
2. **Unmatched Portion:** The portion of a trade that increases the market's OI imbalance, creating new systemic risk. This portion is considered an unsecured bet against the entire collateral pool and is restricted to **1x leverage only**.

This non-negotiable rule makes it impossible for a single actor or colluding group to create a large, leveraged position that could threaten protocol solvency in a black swan event.

4.2. Dynamic Funding Rate Mechanism

While the PLP acts as an instantaneous gatekeeper, the Dynamic Funding Rate acts as a continuous economic pressure system that ensures any created imbalance is economically

unsustainable. The funding rate is not tied to a spot/perpetual price spread but is a direct function of the **OI skew**.

- **Mechanism:** The dominant side of the market (e.g., longs) pays a periodic funding fee to the minority side (e.g., shorts). The magnitude of this fee is proportional to the degree of imbalance.
- **Dual Function:**
    1. **Disincentivization:** It imposes a significant, ongoing cost on traders or "whales" who maintain large, unbalancing positions, making such strategies unprofitable over time.
    2. **Incentivization:** It creates a highly profitable arbitrage opportunity. The elevated funding rate acts as a beacon, attracting arbitrageurs and contrarian traders to take the minority side, thereby naturally driving the market back towards equilibrium.

Together, the PLP and Dynamic Funding create a robust, self-correcting system that is secure by design.

5. Protocol Economics & Fee Structure

The protocol is designed as a sustainable business, generating revenue exclusively from user activity.

5.1. Revenue Streams

1. **Trading Fees:** A flat fee of **0.1%** is applied to the notional size of every trade (both opening and closing).
2. **Liquidation Fees:** A minor penalty fee is assessed on the remaining collateral of liquidated positions.

5.2. Fee Allocation Model

All generated fees are programmatically allocated by the smart contract to ensure the long-term health and decentralization of the ecosystem:

- **25% to the Insurance Fund:** This fund is the protocol's first line of defense to cover any potential bad debt arising from extreme market volatility where a liquidated position's collateral is insufficient.
- **37.5% to UPX Token Stakers:** This portion is distributed as a real-yield revenue share to users who stake the native UPX token, aligning their interests with the protocol's success.
- **37.5% to Core Development:** These funds are allocated to the ongoing development, maintenance, and operational costs of the protocol.

6. The UPX Token & Utility

UPX is the native governance and utility token of the Universal Perps Protocol.

6.1. Governance

UPX token holders will have the power to govern the protocol via a Decentralized Autonomous Organization (DAO). Voting rights will extend to key decisions, including:

- Adjusting protocol parameters (e.g., trading fees, funding rate coefficients).
- Approving expenditures for ecosystem growth.
- Managing upgrades to the protocol's smart contracts.

6.2. Revenue Share

By staking UPX tokens, holders are entitled to a pro-rata share of 37.5% of the protocol's trading fee revenue, creating a direct incentive to hold and participate in the ecosystem's success.

7. Governance Model

The protocol will launch under the stewardship of the core development team with a clear and committed path towards progressive decentralization. Upon maturation of the protocol and distribution of the UPX token, control of key protocol parameters will be fully transferred to the DAO, making Universal Perps a public good governed by its community of users and token holders.

8. Disclaimer

This document is for informational purposes only and does not constitute an offer to sell, a solicitation of an offer to buy, or a recommendation for any security or financial instrument. Trading derivatives and cryptocurrencies involves substantial risk and is not suitable for every investor. All trading strategies are used at your own risk. Please conduct your own thorough research before participating in the protocol.