

Our MEV Journey on HyperEVM

ORAKLE MEV Team

김민준^{1,3}, 정윤석^{1,4}, 조은현^{1,3}, 손희정², 고성훈^{1,5}

¹KAIST, ²Radius Labs, ³Bifrost, ⁴Orca ⁵Matroos Labs

September 6, 2025

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Introduction: What is MEV?

MEV

Maximal Extractable Value (MEV) is the value that validators (or miners) *could* extract by including/excluding/reordering transactions in a block.

- Arbitrage (DEX-DEX, CEX-DEX)
- Liquidations
- Frontrunning/Backrunning/Sandwiching
- Long tail MEV

Arbitrages are the most common type of MEV, with around 90% of total MEV.

Introduction: What is MEV?

Searchers

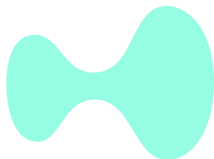
Actively seeking MEV is called *searching* for MEV, and those who search for MEV are called *searchers*.

Searchers are basically blockchain (DeFi) version of traders of high-frequency trading (HFT) firms of traditional finance.

Let's search!

- DEX-DEX arbitrage
- No need for capital
- Open for everyone

Why HyperEVM?



- Early Stage
- Lack of Infrastructure
- Deep liquidity
- High Activity
- (Seemingly) Low Competition

Architecture

DEX Indexer

- Monitor DEX V2, V3 pool:
- Basic info
 - Swap, Mint, Burn Event

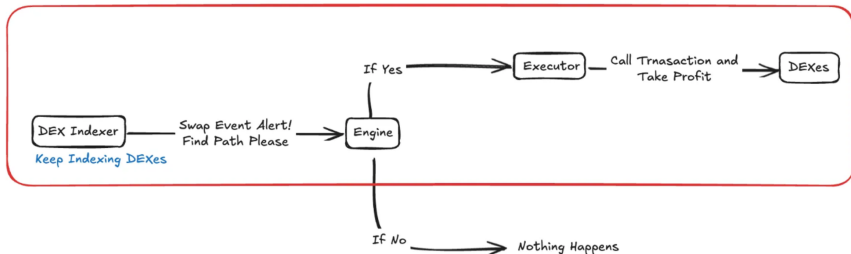
Engine

- Find path using the Bellman-Ford Algorithm
- Calculate swap size using Sizer
- Estimate profit using Engine

Executor

- Send transaction with the estimated value

DEX-DEX Arbitrage Process



Requirements & Strategies

- Low Latency \Rightarrow Colocation (AWS at Tokyo)
- Fast & Efficient Pathfinding \Rightarrow Caching Pool Data
- Precise Calculation \Rightarrow Reuse of battle-tested libraries and custom implementation of long-tail DEXes
- Top-of-Block Inclusion \Rightarrow Higher Priority Fee
- Cost Minimization \Rightarrow Custom smart contract

Results

[illegible]

Transaction details

0xcfc49b1099986e3872196d6861a252bb61f4352d253186f1831105ad3920d336

- Details
- Token transfers
- Internal txns
- Logs
- State
- Raw trace

- Transaction hash: 0xcfc49b1099986e3872196d6861a252bb61f4352d253186f1831105ad3920d336
- Status and method: Failed 0x00000000
- Revert reason:
 - Method id: db42144d
 - Call: InsufficientBalance(address account, uint256 rawBalance, uint256 amount)

Name	Type	Data
account	address	0xB8CE59FC3717ada4C02eaDF9682A9e934F625ebb
rawBalance	uint256	11456633
amount	uint256	11449316

- Block: 9232264 | 42 Block confirmations
- Timestamp: 46s ago | Jul 24 2025 13:00:09 PM (+09:00 UTC) | Confirmed within <= 0.99 secs

Questions

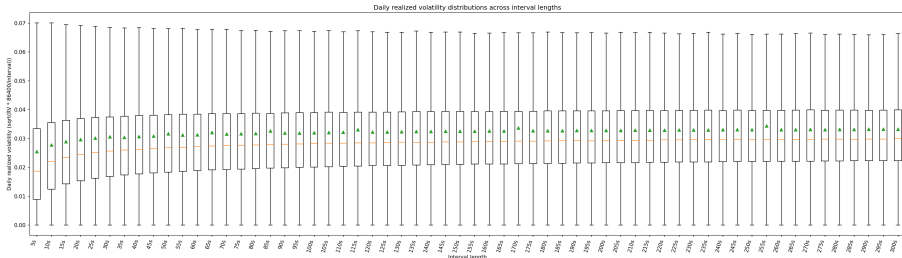
- Who?
- Why?
- How much?

Data

- HYPE-USDT Pair only (Why?)
- Every swap in August 2025
- Orderbook Data: Tardis.dev
- Transaction Logs: `eth_getBlockReceipts` from archive node provided by QuickNode

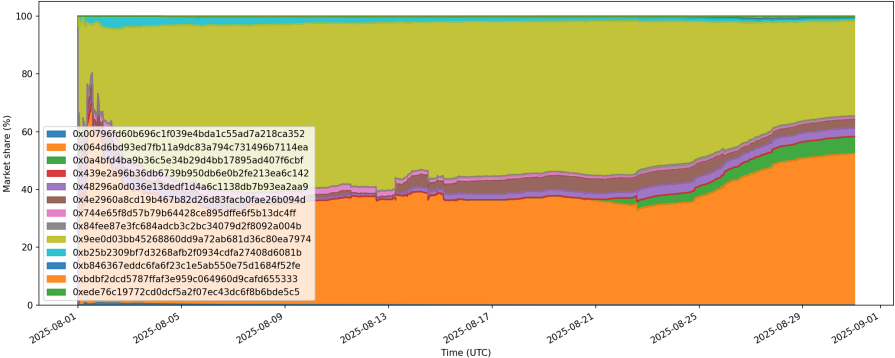
Methodology

- Calculate mid-price as weighted mean of BBOs
- Calculate PnL as 1-second markout minus gas fee
- Judge as Searcher if:
 - ▶ Cumulative PnL is positive
 - ▶ More than 30 transactions (1 per day)
- Volatility (Variance) is calculated as 1 minute realized variance

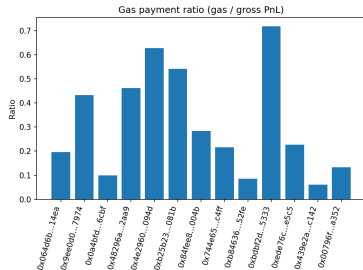
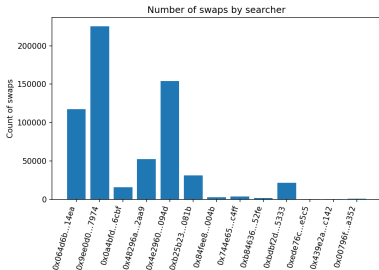
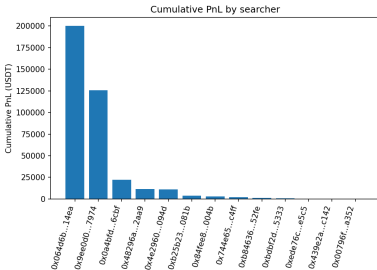
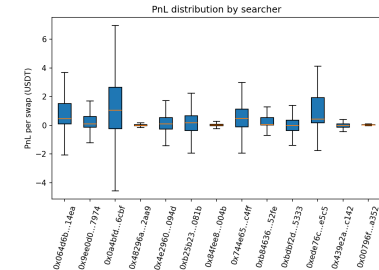


Results

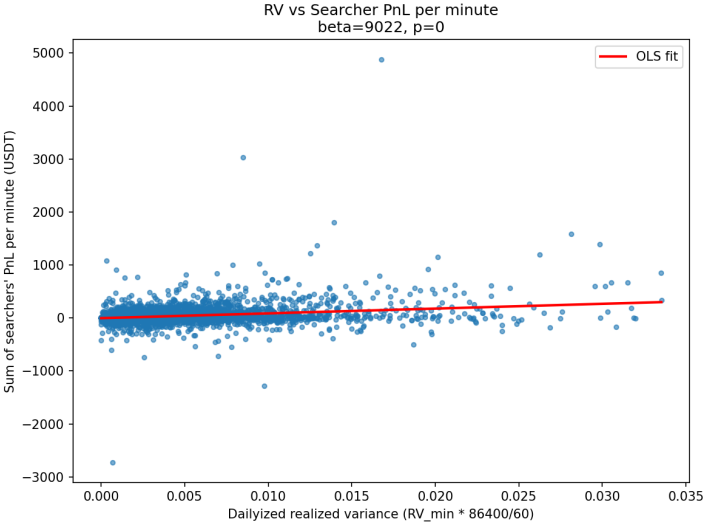
Searchers' cumulative PnL market share over time (top by PnL)



Results



Results



Conclusion

- We tried searching for MEV on HyperEVM but failed
- Market was already highly competitive and dominated by top 2 players
- Classical result of relation between volatility and informed trading was confirmed again

Thank you!