Prof. R. Wattenhofer

BA/SA:

Replicating Liquidity Provision Strategies in Uniswap

The usage of blockchain-based applications running on Ethereum and other blockchains has skyrocketed in the past year. This is in large part due to the rise of Decentralized Finance (DeFi) applications.[1] These allow users to perform a number of financial activities, e.g. trading and lending, in a decentralized manner. Among the most popular DeFi applications are Decentralized Exchanges (DEXs) such as Uniswap, SushiSwap or Curve. The centerpieces of these DEXs are liquidity pools which are smart contracts running on a blockchain. On the one hand, traders can swap one kind of token for another with these liquidity pools. On the other hand, liquidity providers can deposit their capital into liquidity pools and earn a share of the trading fees.

With the launch of Uniswap V3, the concept of concentrated liquidity was added to DEXs. This allows liquidity providers to choose a certain price range to provide liquidity to. So liquidity provider must now come up with strategies which involve choosing and resetting these price ranges. This can be pretty difficult, specially for the average Joe. But wouldn't it be easier to simply replicate the strategies of other liquidity providers, similar to index funds in traditional finance? The goal of this project is to study methods of replicating liquidity strategies. We will implement a number of such replication methods and evaluate their performance using past price and trade data.

Requirements: This project will involve programming in a language of your choice, preferable Python. Interest in finance and blockchain is a plus. We will have weekly meetings to discuss open questions and determine the next steps.

Interested? Please contact us for more details!

Contacts

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[1]For an introduction into DeFi check out this course: https://defi-learning.org/