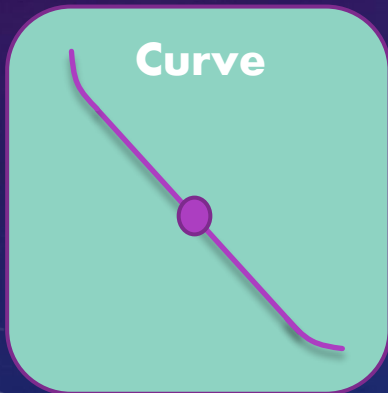




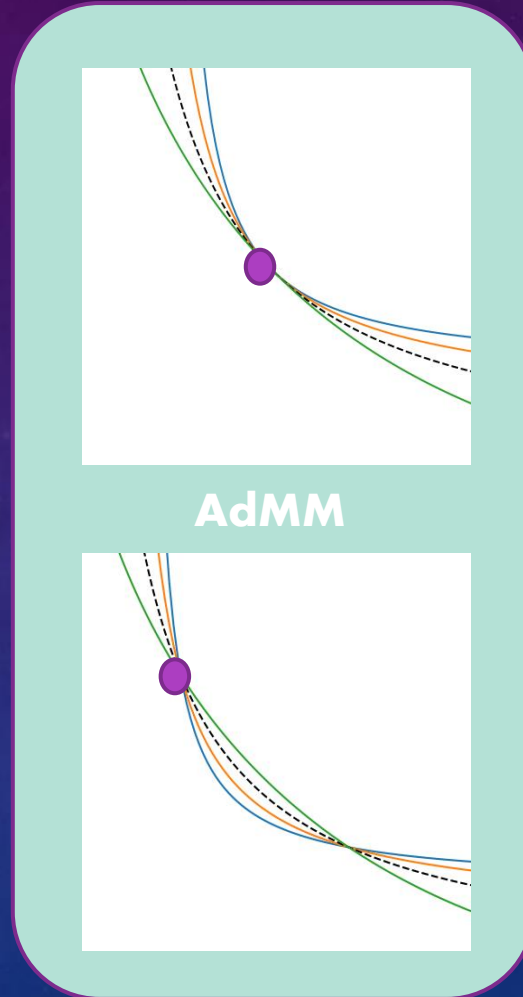
ADAPTIVE MARKET MAKER (ADMM)

CHAINLINK HACKATHON 2022

EVOLVE TO A DYNAMIC DEX



Static
Trading Curves



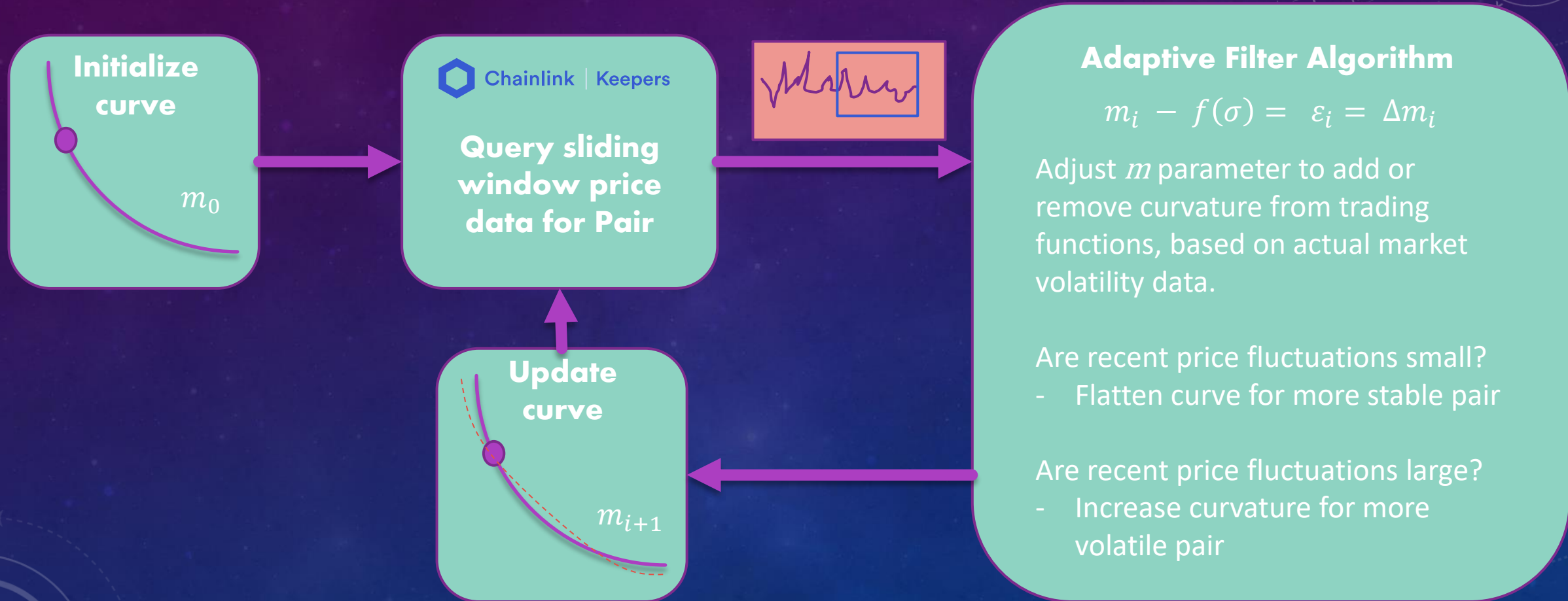
Dynamic, Adaptive
Trading Curves

The current set of DEXs use a static trading curve to facilitate token swaps.

With AdMM, an evolutionary market maker, we aim to change that.

What if the trading curve itself could adapt to changes in market conditions to yield the best value for both LP providers and traders?

ADAPTIVE MARKET MAKER (ADMM)



CURRENT PROJECT

- **For this hackathon, we implemented a Dex with a tunable q -parameter.**
- **We built a front-end to interact with the contract.**

NEXT CHALLENGES

- **Explore need for further q-values**
 - **Currently, we only implemented q-values that were easily calculable with current .sol libraries, (only requiring integer powers and/or square roots)**
 - **Will have to implement a more refined library for dealing with fractional exponents. ABDKMath has some great references on this.**
- **Test extensively using Monte Carlo / Agent-Based modeling to infer optimal q-parameter for given history of token pair prices.**
- **Defer Trades until after bloc when q has updated, or give user option of cancelling trade.**
- **Do more extensive testing on integer rounding.**
- **Check one-sided reserve depletion for negative values of q parameter.**

- **Based on the family of Constant Power Root Market Makers, we will explore the feasibility of tuning the trading curves based on moving window price data extracted from Chainlink price oracles.**
- **The rate of update will be tunable, and the adaptive algorithm can be facilitated through Chainlink Keepers.**
- **We drew inspiration from the generic functional form as shown in the paper below, “Constant Power Root Market Makers”**

Reference Paper:
<https://arxiv.org/pdf/2205.07452.pdf>