

Introduction:

In week 4, the team in charge of our cognitive bias investment project made great progress toward our goal of incorporating cognitive biases into a reinforcement learning model. This week's focus was primarily on completing the data cleaning process, expanding our data collection, and refining our preliminary reinforcement learning model, which was sketched out in week 3.

Key Achievements:

Data Cleaning: We completed our data cleaning procedure by cleaning and preparing 95% of the financial and behavioral datasets. The completed data set is now ready for the last stages of our work, considerably speeding up our procedure.

Algorithm Refinement: Using the insights from our cognitive bias mapping and the cleaned data, we refined our reinforcement learning algorithm significantly. Additional cognitive biases have been effectively encoded, adding to the viability of our conceptual framework.

Data Collection: This week, we expanded our data collection activities to provide a more comprehensive picture of investor behavior and related cognitive biases. More data points and external sources have been added to help us better understand the numerous aspects driving the financial market and investor behavior.

This week, we expanded our literature review to deepen our knowledge of cognitive biases within the reinforcement learning paradigm. This allows us to ensure that our model reflects the most recent results in the area.

Challenges Overcome:

Algorithm Refinement Complexity: While we have made progress, fine-tuning our algorithm to appropriately capture more sophisticated cognitive biases remains a problem. However, with ongoing upgrades and modifications, we are rapidly approaching the end of this struggle.

Data Collection Scaling: Extending our data gathering procedures to cover a broader spectrum of cognitive biases in diverse market scenarios has proven to be time-consuming and labor-intensive.

Following Steps:

Optimization of the method: Our primary focus will now be on further refining our reinforcement learning method. We intend to include more cognitive biases and increase the model's accuracy and efficiency.

Deeper Data Analysis: Now that the majority of our data cleaning procedure is complete, we intend to delve deeper into data analysis, looking for more patterns and correlations to cognitive biases.

Data gathering: We will expand our data gathering operations to include new scenarios, with the goal of capturing a broader range of cognitive biases.

Cognitive Biases and Reinforcement Learning Research: We plan to look more into the research surrounding the incorporation of cognitive biases in reinforcement learning. The goal is to keep our model up to date with the most recent scientific findings.

Despite the difficulties encountered this week, we are encouraged by the progress made. Our main goal of constructing a dependable, cognitive-bias-aware reinforcement learning model is gaining traction. We remain committed to our clear plan of action and are excited to continue the momentum into the coming week.