

# Portfolio Rebalancing with Reinforcement Learning

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FINM33165 Reinforcement and Deep Learning  
University of Chicago

December 3, 2025

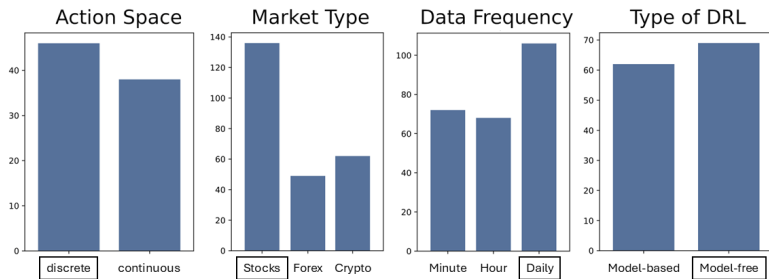
# Outline

Methodology

Results

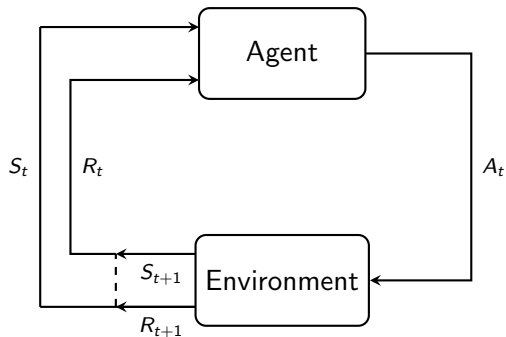
# Literature Overview

# Position of Project within Literature

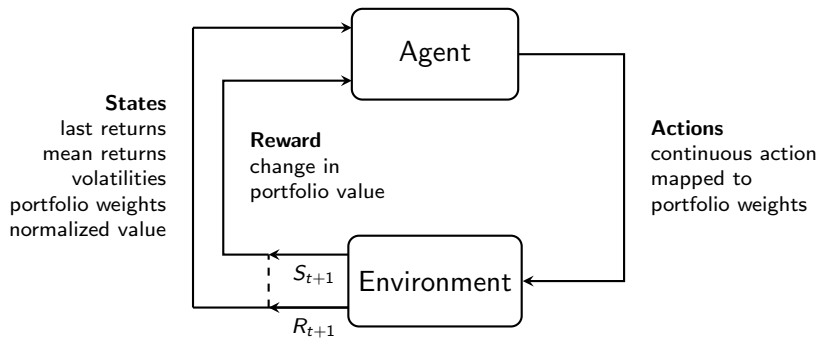


**Figure 1:** Existing literature on using Deep Reinforcement Learning in Trading. Minimally dapted from Millea(2021) for better readability.

# Environment Diagram: General Case



# Environment Diagram: Portfolio Rebalancing



# Model

Text goes in first column.

Text goes in second column

# Results

Table 1: Caption for table one

Heading1	Heading2	Heading3
Row1	0.1	.01
Row2	0.2	.02
Row3	0.3	0.03
Row4	0.4	0.04



# Evaluation

# Conclusion and Outlook

RL performs **profitably, but inconsistently**: inherent to the data, but also due to restrictions in approach

- ▶ **State space:** price predictions, technical indicators
- ▶ **Action space:** more granular weights, more/different assets
- ▶ **Rewards:** transaction costs, risk penalties
- ▶ **Model:** ensemble critics, attention-based networks

# References



Lim, Q. Y. E., Cao, Q., and Quek, C. (2022).

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An application of deep reinforcement learning to algorithmic trading.

*Expert Systems with Applications*, 173:114632.