I decided to pick reinforcement learning for trading equities. This is of particular interest to me as I spent a few years as a proprietary trader, and as an older person am looking for ways to diversify some of my investments to facilitate retirement at some stage. Investing for retirement should be done at all ages and is something that interests most people. A small portion of your portfolio should/could be in more risky assets that you trade and look after yourself, or you could keep things simple and look for ways to invest that negate or mitigate the fees charged by brokers, giving you a leg up on your alpha in the long run.

Some of the models that I have read about and have developed are based on the Markov Decision Process(MDP) with states, actions, transition functions, and rewards. Your states in theory should represent your different market factors that include things like stock prices, technical indicators, market conditions, news sentiment and order book data. Actions should be items like buying, selling, holding onto stocks, your position sizing, and type of order placed. Your transition function should attempt to model how these different market sates change to the effect of news events, price changes, and the economic environment. The reward function should try to maximize the profit function, taking into account things like drawdowns, risk adjusted returns, and transaction costs. A couple of algorithms that I have played around with these past few months include Q-learning, Deep Q-Learning, and Proximal Policy Optimization. I am still in the process of back testing and beginning to paper trade some of these algorithms that I am seeing some decent results with. Will let you know how this all works out.

Answers