U. PORTO

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# *Investment Agents for The Technological Market*

Agentes e Inteligência Artificial Distribuída

2018/2019 – 1º Semestre

MIEIC 4º Ano

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In the technological market a lot of factors affect a company's success with investors over a long period of time. Consequentially the investors' attitude towards technological companies can also affect their ability to profit or lose money.

Our goal is to explore how changes in a company, such as management decisions or product launches, affect its business and its success, and explore which investment strategies from the company lead to the most profit for investors, long term and short term.

The investors can buy and sell from, and to each other, the investor agents try to sell at maximum profit and try buy at the lowest price so they need to reach an agreement. When buying, they consider the company's financial situation, its latest earnings reports, overall sentiment towards it and its management. One thing to note about investors is that some are more risk-takers than others, based on their personality and financial situation. One investor will find a high buy price a great investment, while another may find that same price too high according to his prediction of the company's value down the line.

Companies can release, update, stop production or support, or change the price of products already released. All these actions have consequences that affect consumer sentiment towards the company and its products, this consequently affects the investors' decisions in relation to the company's stock worth. Company management can also affect investors' decisions. Mass layoffs, wage changes, and actions in the life of notorious figures of the company, for example, if the CEO decides to donate money to a charity, the public's perception of the company will be positive, therefore increasing its value. However, if that same CEO is involved in a bad situation, the stock price will decrease.

We will take into account as many factors as possible for our simulations, with the purpose of obtaining the most credible results and discover how to best invest in the technological market.

In short, we propose a multiagent system for investment simulation in the technological market where our agents are **the companies**, **the company managers** and **Investors.**

Examples of dependent variables:

- Current Stock Value of a company
- Current Market Sentiment Towards company
- Financial Situation of the investor
- Risk Tolerance of the investor
- Overall stock performance of the company in the last 5 years
- Overall stock performance of the company in the last 3 months / Quarter
- Recent Quarterly Earnings report of the company.

Examples of independent variables:

- Number of investors and companies
- Time between stock values changes
- Initial funds available to investors

- Initial funds available to new companies