Reflective essay

e-portfolio

As part of the Master's in Artificial Intelligence, since January 2025 I have been studying the module "Intelligent Agents". During this 12-week journey, I had the opportunity to gain new knowledge by reading books and articles, attending seminars, and working independently or as member of a team to projects and assignments.

More specifically, during the first units of the module, I learnt about the trends in computing that have led to the rise of agent-based computing as well as the concept of an agent, what it is and why they have gained popularity across a breadth of sectors and applications. Through the collaborative discussion 1 "Agent-based systems", I have dived deep into these concepts and via the exchange of ideas with my colleagues I gained additional knowledge (evidence can be seen in my own portfolio).

In addition, during the first half of the module, I learned more about the architecture of the agents as well as the way in which agents communicate with each other (Wooldridge, 2009). During this part of the module, via the e-portfolio activities, the wiki activities, and the preparation activities for each seminar, I practiced the theoretical knowledge gained. Apart from the material provided by the instructor and the practicing activities performed (see in the Artefacts section of my own portfolio), through the collaborative discussion 2 "Agent Communication Languages" I had the opportunity to enhance my theoretical understanding of agents communication and dive deeper on Knowledge Query and Manipulation Language (KQML) as well as other frameworks such as Java Agent Development Framework (JADE) and Smart Python multi-Agent Development Environment (SPADE) that are based on modern programming languages. On top of that, during this first half of the module, I worked as members of a project development team. That activity required collaboration and coordination with other colleagues in order to develop the Design Proposal Document for the development of an Academic Online Research Agent. As it was not my first time as member of a project

team, I was able to transfer my experience to my fellows. Given my background, my role in this project was to develop the first draft of the report. Working with colleagues from different countries, with different time schedules, different academic and professional background, enhanced my collaborative and communication skills, and tested my flexibility to achieve the common goal. Though some of the team members did not commit to the project, and in turn more work had to be done by myself and another fellow student, the outcome was successful and apart from developing a project for the purpose of this module, I came also closer to some colleagues with whom we can exchange ideas, share concerns, and discuss our progress in the Master's degree.

During the second half of the module, there was a focus on Natural Language Processing (NLP) and Adaptive algorithms such as Artificial Neural Networks (ANNs) and Deep Learning. During this part of the module via the e-portfolio activities, the wiki activities, and the preparation activities for each seminar, I exercised my knowledge on Python and enhanced my theoretical understanding of deep learning as well as the use of Python libraries (Chollet, 2021; VanderPlas, 2022). On top of that, during this part of the module, I worked independently to develop the Academic Online Research Agent. This assignment required to use several Python libraries, Google API, and exercise a lot of professional scepticism. This assignment helped me to enhance both my technical and presentation skills, as I first had to perform the development of the Agent in Python and then deliver a presentation. The outcome of this assignment was successful as the relevant Agent was developed and worked properly, and the presentation was delivered within the set deadline (evidence can be seen in my own portfolio).

Finally, as part of the Collaborative Discussion 3 "Deep Learning", I had the opportunity to exchange ideas and thoughts with my fellows regarding the ethical concerns linked to these technologies (evidence can be seen in my own portfolio).

To sum up, through articles, material provided by the instructor, and books I enhanced my theoretical knowledge of the concepts and through activities and assignments I practiced on

intelligent agents and deep learning. As a result, this module enhanced my communication, collaboration, organization, and technical skills and helped me understand better the concept of agent-based systems and their application on our daily life. Now, I can apply these algorithms in my profession where deep learning and agent-based systems start gaining ground, especially when it comes to fraud detection and supply chain sue diligence.

References

Chollet, F. (2021). *Deep Learning with Python .* Manning Publications.

VanderPlas, J. (2022). Python Data Science handbook. O'Reilly Media, Inc.

Wooldridge, M. (2009). An Introduction to MultiAgent Systems. John Wiley & Sons.