Blog Post: Use of Machine Learning within Information Systems

Course: MSc Computer Science

Module: Object-Oriented Information Systems

Assignment: ePortfolio

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Student ID: 126853

Post:

Machine Learning is a widely used technology within the Artificial Intelligence emerging trend. It refers to the ability of a machine to autonomously make decisions/identifications based on subsets of data with which it has been trained. This form of Artificial Intelligence is being used far more within Information Systems over recent years, with one example being Google Lens. This software allows you to hold your camera to any item, and it will subsequently use the Machine Learning algorithm to identify what the product likely is, directing you to the manufacturer's website. It also has practical applications within Fraud Detection, Chatbots and Dynamic Pricing strategies (Pratt, 2020).

Specialised forms of Machine Learning, such as Artificial Neural Networks, are becoming far more widespread throughout the autonomous vehicle industry. Vehicle Manufacturers such as Tesla train vast Machine Learning algorithms with enormous volumes of data crowdsourced from their fleets worldwide (Tesla, n.d.). The large volumes of data allow their algorithms to be suited to any environment worldwide, identifying signs, obstacles, pedestrians, and other relevant road markings. In the case of Tesla, this forms part of their AutoPilot AI system, which allows the car to use its Machine Learning algorithm in real-time to assess a situation and make the vehicle react accordingly, including driving, turning and stopping in the same way a human would.

Machine Learning also brings some legislative issues to the table, with the recent introduction of the General Data Protection Regulations placing restrictions on what individual businesses can use Machine Learning algorithms for. In most cases, if the decision making is likely to be performed autonomously (without human involvement), it is typically prohibited by default (Burt, 2018). This prevents businesses automated systems from making changes that could drastically affect the lifestyle of an individual.

Even though Machine Learning can improve working processes and safety, it also raises some key ethical issues. For example, Machine Learning was used during the judicial process within one USA state to predict an offender's likelihood to re-offend, which affected the sentencing and parole decisions (Lo Piano, 2020). In addition, due to the non-varied subset of data in which the algorithm was trained, it was discovered that sometimes it displayed potentially racial bias. In this case, a manual process for determining the re-offending likelihood should have been made, considering their previous history instead of a broad prediction based on others.

In conclusion, Machine Learning is an important aspect of many Information Systems, providing the ability to improve the decision-making process and general safety. However, I believe that it should only be used in situations where it is likely to bring an overall benefit to individuals, with the potentially negative decisions still being overseen by a human operator.

References:

Pratt, M. (2020) 10 common uses for machine learning applications in business. Available From: https://searchenterpriseai.techtarget.com/feature/10-common-uses-for-machine-learning-applications-in-business [Accessed 25th July 2021].

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The usage of Machine Learning in Information Systems

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by Kieron Holmes

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