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Using Cloud-Based Tools to Facilitate the Teaching of Machine Learning in Introductory IS Courses

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Machine Learning (ML) technologies has received considerable amount of attention due to its exceptional ability of learning complex patterns from large datasets. ML has a variety of applications in business, such as fraud detection, personalization in e-commerce, and supply chain optimization. As such, scholars have been advocating the integration of ML in introductory IS courses (e.g., Lukyanenko 2018) because of its relevance to practice in the era of big data, the prevalence of unstructured data on the web, as well as its position as a cutting-edge skill desired by companies. However, there are several challenges to introducing ML in introductory IS courses. First, setting up the appropriate and robust computational environment (hardware, software, etc.) can be challenging when teaching ML in the classroom. Second, students in business schools taking introductory IS courses come from many different disciplines. Many of the students may lack a technical background which is often required by ML. Third, introductory IS courses have a focus on breadth rather than depth. Students learn a variety of different concepts and methods that are fundamental to the IS discipline. As a result, instructors often find it difficult to dedicate enough time to incorporate ML into the course.

In this paper, we suggest that using cloud-based software tools (such as Microsoft Azure Machine Learning) could facilitate the teaching of ML in introductory IS courses. Such cloud-based tools offer several benefits that can help address the aforementioned challenges. First, cloud-based services are easy to set up – no local installation is needed, and students can access the services through web browsers, thereby freeing the instructor from various constraints in the computing environment. Second, it allows students to build various models faster by leveraging the power of the cloud. Third, such tools offer a drag and drop interface that allows students to train, deploy, and automate ML models without writing any code. Hence, the instructors can focus on the fundamental concepts of ML and the interpretation of model results, while students can acquire experience on ML without struggling with code.

We have used such a cloud-based tool in an introductory IS course when teaching the subject of business analytics. Students used a common data set available on the web to build a logistic model for prediction using Microsoft Azure Machine Learning, and discussed the results and further application of ML during a single class session. The class was well-received, and our experience demonstrated the feasibility and efficiency of using cloud-based tools to facilitate the teaching of ML in introductory IS courses. Through the TREO talk, we would like to exchange insights related to incorporating ML in introductory IS courses.

References

Lukyanenko, R. 2018. "Time for Machine Learning in Introductory Is Courses?," in: *TREO Talks, the 39th International Conference on Information Systems*. San Francisco, CA.