Student's Name

Professor's Name

Class

Date

How the Rise of AI Will Reshape the Financial Industry

The proliferation of machine learning (ML) algorithms based upon artificial intelligence (AI) concepts promises to dramatically transform the financial industry. Particularly in the context of investment firms and fiduciaries, it is critical to be able to marshal the growing volume of both raw and preprocessed data to support analytical decision-making.

The essential notion of artificial intelligence is not only to deduce—one might say 'learn'—improved analytical techniques from prior efforts, but, *a fortiori*, to learn how to learn (Diaz Castro). A variety of superjacent machine learning tools have become prominent. Among these are clustering—which enables voluminous datasets to be streamlined into distinct taxonomic classes, based upon representation of the data in Kotelnikoff space (Duda & Hart *passim*) and, often, reduction of its dimensionality via such techniques as Karhunen-Loève compression (Duda & Hart *passim*)—and neural networks—which implement various layers of 'sensors' and "decision nodes" that store intricately encoded knowledge ("deep learning") and generate decisions (Sharma). Machine learning environments can typically be 'supervised' by a human expert to increase their accuracy and creativity (Sharma).

AI and ML furnish competitive advantage to the financial firm that chooses to employ them. Not only do they enable the prediction of patterns and trends, but they also support executive and managerial decisions by distilling concise suggestions and recommendations from

formidable corpora of raw data. They therefore far transcend the traditional notion of "executive information systems" that offer little more than graphically quaint tricolor management dashboards (Lavinsky). They potentially enable the firm to mine non-numeric data sources such as social media posts to gauge the evolving interests of stakeholders and to 'understand' applicants' resumes so that superior strategic and tactical hiring decisions can efficiently be reached. Through this combination of time- and labor-saving improvements, AI and ML may enable the firm to significantly streamline its organizational structure according to newfound understandings of productivity, efficiency, and agility.

Works Cited

Diaz Castro, Diana. "8 Concepts You Must Know in the Field of Artificial Intelligence."

 Becoming Human, 23 February 2021.

 becominghuman.ai/8-concepts-you-must-know-in-the-field-of-artificial-intelligence-5d91

 7fd3e385.

Duda, Richard O., & Hart, Peter E. *Pattern Classification and Scene Analysis*. John Wiley &

 Sons, 1973.

Lavinsky, Dave. "Executive Dashboards: What They Are and Why Every Business Needs One."

 Forbes, 6 September 2013.

 www.forbes.com/sites/davelavinsky/2013/09/06/executive-dashboards-what-they-are-wh

 y-every-business-needs-one/?sh=6cdf196737d1.

Sharma, Jitendra. "Introduction to Supervised Deep Learning Algorithms!" *Analytics Vidhya*,

 20 May 2021.

 www.analyticsvidhya.com/blog/2021/05/introduction-to-supervised-deep-learning-algorit

 hms/.