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ROLE OF ARTIFICIAL INTELLIGENCE IN FINANCE

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ABSTRACT

In financial management, the best part is that, an organization can adjust its AI powered solutions by writing unique algorithms built for specified tasks. When credits come to decision management, al can also be applied. To establish such implementation, the officials from the officers to the junior employees should go from all the levels of organization. Artificial Intelligence has now become a clear trend in the current market. Now it is being implemented in different areas. The financial institutes apply artificial intelligence in various innovative ways. Apart from this, a study indicated that by 2035, the economy of 20 countries will double and will bounce in productivity. Living is the financial service industry by the super storm. Most of now a day of every financial sector is using AI to take advantage of the benefits of saving time, lowering costs and linking values. Recently, 7 most top and major American commercial banks have made the strategic technological progress by finding AI applications to consumers, improve performance and increase revenue. We cannot refuse the fact that AI has completely changed the financial sector. Everyone is now going toward the folk automation system for every work. AI has changed the banking sector to a large extent. AL has helped the banking sector by providing services like smart wallet, personal banking services, voice assisted banking, underwriting, data-operated AI applications, customer support etc. Banking and financial sector Also, it will also have a positive effect on its competitiveness.

Keywords: *Banking, Data, Artificial, Automation, Machines, Financial, Intelligence, Monitoring, Human.*

Introduction

Automation is one of the most common cross-industry trends. It is popular because it allows organizations to improve productivity and cut operating costs. Companies that have worked properly in stability can thank for different methods of technical integration, which have made business operations easier. Different financial tasks takes a lot of time and organizations should be appointed to work efficient employees on various calculations which can be proven destructive when they are wrongly handled. Artificial Intelligence includes two basic ideas. First of all, it involves studying human ideas. Second, it is related to representing those processes through machines (such as computer, robot, etc.). AI has now taken many areas including financial sector in its own possession. AI in Finance at times complete automation of the system is dangerous. In the field of finance, Al-Indexing continues by continuous monitoring of human psychology. But in fact, predicting human psychology is difficult times, and further results can vary. In finance, there is about continuous learning and re-learning of patterns, data and development in the financial world. This is a time-consuming process and a time-consuming process. Completely handing control over an automated system is dangerous. In this case, a relevant example is

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the occurrence of April 23, 2013, when the Associated Press was dumb and the fake news about the bomb was given in the White House Offset Stock Market. According to the information received from the news, a “Flash crash” appeared due to algorithm trading, a method called a sentiment analysis. Algorithmic abuse can be a destructive result of the publicity without human intervention, just see Microsoft’s Tay Chatbot. If a bank’s virtual assistant is tracked in the same way, then it will probably lose its customers and even some charges will have to face.

Artificial Intelligence in Finance: Opportunities and Challenges

Artificial Intelligence (AI) is no longer a new child on the block and this area is growing in increasingly growing speed. Nearly every day, there is a new development of some kind, whether it is a new or better machine learning algorithm the research paper is, a new library (Python / R / Julia), etc. for one of the most popular programming languages. In the past, many of those advances did not make it for mainstream media. But he is also changing fast. In some examples of Alpha Go, to overcome the world champion of 18 times in Go, using Deep Learning, generating the actual face of humans, which were never in existence, or the defeat of the use of deep fee images or videos in such situations that really never happened. In addition to those new achievements, in the last decades, al-almost every industry has been widely adopted. We can see it around you. The recommendations on us on Netflix are the email that we receive about additional discounts for an online shop, which we have not used recently, just a few names. Business employs al to achieve competitive edge:

- They can take better, data-driven decisions,
- Increase your profit directly by skilled targeting or spot-on recommendations.
- Reduce customer churning by recognizing customers" quick “customers.
- Automating some repeated tasks that can make it very fast than a human employee, and many more.

Keeping In mind the above mentioned above, it is no surprise that Harvard Business Review has data scientists the most of the 21st century has named the name of the new job. The same al revolution is influencing the financial industry. Forbes reports that 70% of all financial service firms are already using the machine learning to predict cash flow events, fix credit scores and detect fraud. In this article, we present those areas of the financial sector, in which the greatest impact of artificial intelligence and which techniques are used to get it. In addition, we discuss the most important challenges that must be taken into account when doing data science in finance.

Applications of AI in Finance

We first mention some major areas within the financial industry in which artificial intelligence is the most influence and provides additional value on traditional approaches.

- **Credit Scoring:** One of the important applications of machine learning in the financial industry is scoring credit. Many financial institutions, be it large banks or small fintech companies, in the lending money. And to do this, they need to be accurate assessment of a person or any other company’s credit. Traditionally, such decisions were made after analysts an interview with an individual and collecting relevant data points. However, Artificial Intelligence allows the rapid and more accurate assessment of the potential borrower using more complex methods than the scoring system of the past. To do this, the advanced classification algorithm uses different explanatory variables (for example, demographic data, income, savings, previous credit history, transaction history, and many others) to arrive at final score that determines whether the person will get the loan. An additional benefit of the AI-based scoring system has the ability to make fair decisions, with no human factors, such as some other factors affecting the mood or decision of the bank employee someday. Apart from this, it can benefit those who do not have extensive credit history, allowing them to prove regardless of their potential and repayment of repayment.
- **Fraud Prevention:** Another important area in which machine learning can put tremendous effect is the prevention of fraud. From fraud, we understand any fraud activity, such as credit card fraud, money laundering, etc. The growing popularity of e-commerce, the number of online transactions, and the third-party integration is increasingly increasing in recent years. In the past, the organization fought with fraud with the set of hardcoded rules designed by domain experts. However, potential risks contain in the fraudsters that discover the rules and then enable the system to explain. This is not the case of AI-based solutions, which can evolve over time and adapt to new patterns found in the data. There are many machine learning algorithms

that are experts in detecting discrepancies and get excellence in detecting fraudulent transactions. Such algorithms can sift through thousands of transaction-related attributes (such as a customer's past behavior, location, spending patterns, etc.), and trigger an alert when something looks amiss.

- **Algorithmic Trading:** perhaps anywhere, this proverb "Time Is Money" is not as much as possible in the trading, because in the trading, because of the analysis means the identity of the sharp pattern, which is better decisions and trade. When some types of patterns are identified and the market reacts, then it is already very late for action and the opportunity goes. This is why so much effort and money is put into algorithmic trading, that is complex systems making spilt-second decisions and executing trades in autonomously based on the identified pattern. Such systems can perform a lot better than human traders, even though they are not affected by emotions. A report of Mordor Intelligence indicates that in 2020, about 60 to 73% of total US equity trades were controlled by al-supported systems. Algorithmic trading system combines the integral education and cutting education from different areas in the machine. While some parts of these systems can focus on the effort to predict property returns (up to a reasonable degree), other components can use more traditional approaches based on econometrics and asset allocation theory. Something that is getting recentness is getting too much traction, using alternative data sources to achieve edge on competitors. Progress in the object identity can help in analyzing satellite images, while the latest techniques in the natural language processing (NLP) allow the exact sense to the exact sense of sources such as news articles, Twitter, Reddit etc.
- **Robo-Advisory:** Given that inflation is influencing our savings and the fact is that now keeping money in the savings account is not profitable, more and more people are interested in passive investment. And this is where the Robo-consultant comes in the game. They are a fund management services in which the investors of individual goals (small and long-term), etc., with the basis of the risk preferences and disposable income, keeps the recommendations together. The investor has to submit money only every month (or to transfer the transfer) and to choose from the property to invest, actually buy them and then after some time, everything is absorbed for them until rebuilding the portfolio. All this to ensure that the customer is on the best possible path towards achieving their desired goals, The main advantage of such systems is that they are very easy for use in the customers and it does not require any financial knowledge. Naturally, the cost also plays an important role of Robo-advisors, which are affordable than the services of human property managers.
- **Personalized Banking Experience:** The banking area tries to use AI"s power to provide a personal banking experience for everyone. An example can be a stick, which is becoming difficult to separate from real human consultants. By using advanced NLP techniques, they can understand the intentions of the customer and can try to point them in the right direction. For example, they can help users change their password, check their current balance, can set the transaction time, etc. In addition, such chatbots can often identify the customer"s feelings and adjust their response on their basis. If they discover that the consumer is very angry, it may make sense to connect them to a human advisor to try to resolve the issue as quickly as possible and further frustration. The continuous growing efficiency of smart chatbots also allows the cost of sailing to reduce the cost of centers. But only chatbots chatting in finance is not personal experience. Many institutions take advantage of large amounts of data to analyze the practice of consumers and provide financial advice that they can help them achieve their goals. Such services can include tips to reduce monthly expenses or maybe imagine their simplest and user-friendly manner for the customer, for example, three places where you spent most of this month. The institute can also tell you that there will be some recurring transfers soon and there is not enough money in your account. These are the tips of iceberg, all these modern financial companies can provide for their customers.
- **Process Automation:** In the end, when it comes to automation, al provides much. Using the Advanced Optical Character Recognition (OCR), the efficacy of worldly and time-consuming actions can increase significantly, which were usually handled by the employees. Digitize an example documents, processing forms, or remove the relevant information from documents. Many financial institutions use either dedicated software or prepare internal solutions for KYC (Learn to our customer) process. In Finance, there is often need to provide any kind of ID to

avoid fraud. Many neo-broker and finatech companies make this process very easy to scan your ID using your mobile phone and then take a selfie to verify that the mail is mail. In the background, verifies an al-based solution whether there is a match, but it does not check whether the ID is or not. Not fake and if anything with the picture is not dangerous. Working with images where architectures like Deep Learning and Architectural Neural Networks (CNNs) show very promising results.

- **Challenges of AI in Finance:** After describing the major areas, in which the artificial intelligence impact within the financial sector, it also understands discussing the potential challenges.
- **Data Quality:** There is a saying in the field of data science "garbage inside, garbage out". While apply for any data related to the data, it is paramount within the financial industry. A day's corrupt data or even a business algorithm can be serious results for the whole system of some wrong observations, which can have bad business and financial loss. This is the reason that in such important areas within the financial sector, it is very important to be clean, cured and well-made data sources that work as input for the machine learning model. And if anything is unwanted with the data or something is wrong, then it should be a way of tracking the process, quickly identifying the problem and fix it within the entire pipeline. Some companies base their business on that concept and provide Git-like version control for data.
- **Biased Data:** Decisions taken by AI can have an important impact on the financial institutions of customers. A single declined loan application can change the person's life. That is why there is a need to pay additional attention to any data sources of data in the data.
- **Dimensionality Reduction:** Financial institutions sit on the treasures of data, because there are thousands of data points in a transaction. This is the reason that the industry has a very low signal-to-noise ratio, which makes data scientists work very challenging and interesting at the same time. Many machine learning techniques measures well with the number of comments, but when the number of features explode they are suffering. This happens when analysts should either select any type of convenience (either under domain knowledge or automatic based) or try to reduce the dimension of the data. For the latter, they may use Principal Components Analysis (PCA), Linear Discriminant Analysis (LDA) or more modern techniques such as t-Distributed Stochastic Neighbor Embedding (t-SNE) or Uniform Manifold Approximation and Projection (UMAP).
- **Black Box:** In many industries, data scientific are very keen to use the latest and greatest cutting-edge techniques which consider tons of till below the hood and provide very accurate predictions. While in many cases it may be appropriate, it is also a lot for finance in finance. The financial industry is highly regulated (and for a very good reason) and many decisions made by algorithms should be fully understood by the institution. Imagine that a person's credit score is bad and its loan application has been declined. Again, such a person can file a claim and request a detailed description of all factors, due to which this decision was made. This is the reason that the model explanation plays an important role in the financial industry. While the latest and greatest neural electronic architecture can be attractive and can provide some percentage points in accordance with the accuracy (or other performance metrics used for evaluation), it is often not the right tool for the job and a simple model (such as logistic fixation) or a decision tree) is selected instead. That's because with such models, analysts can always tell which factor which they shape the decision. In addition, the area of interpreted al-is evolving very fast and the researcher model works on the nude view, which allows the relatively simple and very complex models to explain the decisions of both. Examples of such techniques include Lime (Local Interpretation Model- agnostic Explanations) or game theory-based approach that is called SHAP.

Conclusion

The need to appreciate its help in ensuring sustainability and improving business objectives is basically gaining credit among the elite of the organization. Accepting and appreciating technical trends and how they help in finance management, it has proved that in the field of other areas, the development of businesses has been helped in the context of the need for state-of-the-art professional skills. This literal piece has shown that any organization should adopt an active technical approach to financial management and should ensure that they get the appropriate capacity. Other regions like financial risk

can test the reliability of the business and thus, the implementation of AI has been seen to offer great solutions of different problems. Issues of other stability in financial decisions are important and can mix well to become the driver of the price. Risk management should be constituted as an area of permanent management practices. This measure can help prevent unplanned uncertainties which can prove expensive for business revenues. In this article, we have described the areas within the financial industry, which can be widely used for both the artificial intelligence companies and their customers. We also have included some major challenges, which require tackling while applying such techniques. In any way, the lists are not complete, because AI and financial scenario are both constantly changing and are suitable for progress on daily basis. One thing that can certainly be said, it is that we live on the cusp of the AI-based revolution that affect businesses and individuals equally.

References

1. Arifovic, Jasmina and He, Xue-Zhong 'Tony' and Wei, Lijian, High-Frequency Trading in FinTech age: AI with Speed (November 15, 2019). Available at SSRN: https://ssrn.com/abstract=2771153 or http://dx.doi.org/10.2139/ssrn.2771153.
2. Cao, Longbing, AI in Finance: A Review (July 10, 2020). Available at SSRN: https://ssrn.com/abstract=3647625 or http://dx.doi.org/10.2139/ssrn.3647625.
3. Babel, B., Buehler, K., Pivonka, A., Richardson, B., & Waldron, D. (2019). Derisking machine learning and artificial intelligence. McKinsey Quarterly.
4. Donepudi, P. K. (2017). AI and machine learning in banking: a systematic literature review. Asian Journal of Applied Science and Engineering, 6(3), 157-162. https://journals.abc.us.org/index.php/ajase/article/view/1180
5. Giudici, P. (2018). Fintech risk management: A research challenge for artificial intelligence in finance. Frontiers in Artificial Intelligence, 1, 1. https://www.frontiersin.org/articles/10.3389/frai.2018.00001/full
6. Kaur, Dr. Navleen and Sahdev, Supriya Lamba and Sharma, Dr. Monika and Siddiqui, Laraibe, Banking 4.0: 'The Influence of Artificial Intelligence on the Banking Industry & How AI Is Changing the Face of Modern-Day Banks' (2020). International Journal of Management, 11 (6), 2020, pp. 577-585, Available at SSRN: https://ssrn.com/abstract=3661469.
7. Koshiyama, Adriano and Firoozye, Nick and Treleaven, Philip, Algorithms in Future Capital Markets (January 29, 2020). Available at SSRN: https://ssrn.com/abstract=3527511 or http://dx.doi.org/10.2139/ssrn.3527511.
8. Kumar, K. N., & Balaramachandran, P. R. (2018). Robotic process automation-a study of the impact on customer experience in the retail banking industry. Journal of Internet Banking and Commerce, 23(3), 1-27.
9. Mhlanga, D. (2020). Industry 4.0 in finance: The impact of artificial intelligence (ai) on digital financial inclusion. International Journal of Financial Studies, 8(3), 45. https://www.mdpi.com/2227-7072/8/3/45
10. Rashmi, R., & Nirmal Raj, V. K. (2021). A study on the implementation and the impact of artificial intelligence in banking processes. Asian Journal of Management, 12(1), 47-54.
11. Singh, G., Garg, V., & Tiwari, P. (2019, March). Application of Artificial Intelligence on behavioral finance. In International Conference on Information Technology and Applied Mathematics (pp. 342-353). Springer, Cham.
12. Soni, V. D. (2019). Role of Artificial Intelligence in combating cyber threats in banking. International Engineering Journal for Research & Development, 4(1), 1-7.
13. Vieira, A., & Sehgal, A. (2018). How banks can better serve their customers through artificial techniques. In Digital marketplaces unleashed (pp. 311-326). Springer. https://link.springer.com/chapter/10.1007/978-3-662-49275-8_31.