

USING MACHINE LEARNING ALGORITHM TO CONTROL INTERNET FINANCIAL RISK

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ABSTRACT

The Web finance industry has risen quickly with the improvement of IT innovation. The Internet finance industry ranked second and first in all industries with a total valuation of more than 700 billion yuan, ranking second among the unicorn enterprises with a valuation of more than US \$ 1 billion in 2017. The whole Web finance industry is hot. In under a year, there was a system "storm" of Web monetary undertakings in 2018. In only one month in July, over 130 Web monetary ventures shut down in a steady progression. Under the ceaseless "Rainstorm" circumstance, the advancement of the Web finance industry is troublesome, and it likewise makes individuals' comprehension of Web Money return to sanity. The examination of the Web monetary risk control model given AI calculation is an examination work zeroing in on the issue. The primary intention is a shrewd framework that can recognize dangerous exchanges continuously and keep them from occurring. The proposed framework will want to quickly recognize dubious exchanges and make fitting moves, like freezing, hindering or detailing them to controllers for additional examination. The venture has been finished, which is of extraordinary advantage to all intrigued parties.

INTRODUCTION

With the improvement of Web innovation and PC equipment, The rising Web finance model is continually improving, and the size of the market is additionally growing. In December 2017, the Hurun Exploration Organization delivered a report on the Hurun Unicorn List in More noteworthy China, in which 120 Unicorn organizations with a valuation of more than \$ 1 billion were recorded. The general valuation of these Unicorn endeavors surpasses RMB 3 trillion [1]. The Internet, e-commerce, and Internet finance industries have the most unicorn businesses, accounting for half of all unicorn businesses, according to industry distribution. With a total valuation of more than 700 billion yuan, the Internet finance industry ranks first among all industries. Among the 17 Web Finance Unicorn endeavours and monetary administrations rank first with a valuation of more than 400 billion yuan[2]. After years of investigation and exploration, the flash has progressively been perceived as a figuring motor for enormous information handling. In the wording of ability, non-social data sets like Redis and MongoDB are additionally steadily arising, making conveyed information capacity and activity simpler. Information investigation is changing with each spending day. After AI strategies return to the public's vision, information examination calculations arise endlessly[3]. Analysts of information examination attempt different insightful techniques, wanting to finish the expectation of obscure things in various fields, or the picture of certain gatherings. In the momentum information examination and exploration, there are many explores on financial exchange expectations, shopping centre direction forecast etc., and a few considerable outcomes have been obtained.

However, research on algorithms and data analysis of mobile Internet has not progressed significantly. As of now, the portable Web has turned into a need throughout individuals' lives, and versatile application is essential forever, in travel and transaction[4]. At the point when clients use applications, the organization traffic produced will mirror clients' conduct propensities and character qualities, which is an entirely important examination course. This additionally makes it conceivable to investigate the gigantic information created by the versatile Web consistently. Among the various information of administrators, this investigation picked the information of the monetary business as the examination object. From credit card lending to stock futures, financial data industries have a lot of app use and a lot of data[5]. Whether considering the quality and aspect of exploratory information or the worth of exploration, the monetary business is a decent examination bearing. In this trial, the Bayesian organization strategy is used to develop the information, and through the investigation of numerous aspects, for example, versatile Web clients ascribes and online propensities, a monetary gamble control model with high ease of use is at last shaped.

ONLINE FUND RISK CONTROL MODEL-BASED ON AI CALCULATION

A. Machine Learning Calculation

Support vector machine

Support vector machine (SVM). In two-dimensional space, the formation concept of SVM can be easily described by drawing a straight line, which best completes the classification of two data categories [16].

At the point when the model is prepared through the informational index, $d_i (X_i, Y_i)$ can be utilized to address test information, where x_i is the element vector of the i th information, and for the most part has a high aspect, while Y_i is utilized as an order marker for managed preparing. The data points that are closest to the classification curve are circled in Figure 1. The two example points of various classes nearest to the division hyperplane are called help vectors, framing two planes lined up with the division.

The bigger the edge, the higher the certainty of right classification.[17]. Hence, the SVM characterization the issue can be depicted as an obliged enhancement the issue of direct characterization when all arrangements are right.

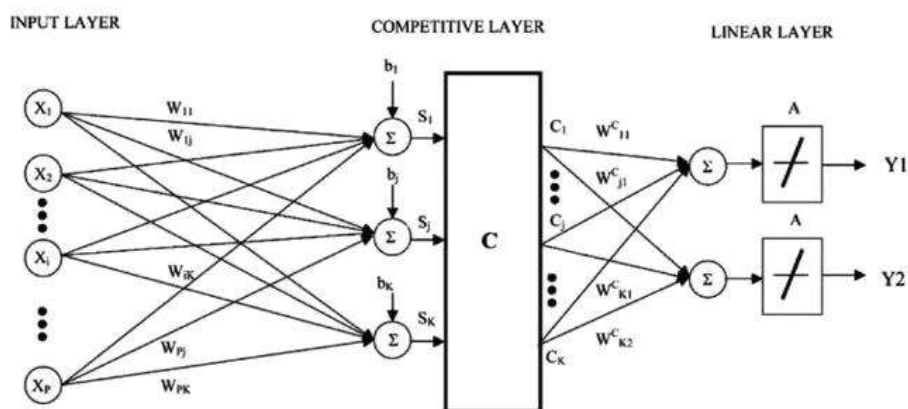


Fig. 1. Machine learning model

B. Financial Risk Control Model

From one viewpoint, customary monetary organizations, for example, banks, protections and insurance agencies are utilizing the Web innovation to change their customary monetary organizations, bringing about new ways like versatile banking, Portable Protections furthermore, online protection Taobao mode[18]. In contrast, Internet technology companies continue to innovate in the financial sector and have developed novel payment, financing, and other solutions and business models. Among them, Alibaba, Tencent furthermore, Ping An of China established Zhong'an online property insurance agency, which understood the business method of selling and claims settlement through the Web without substances. There are three main modes of internet finance, all of which are constantly evolving: P2P stage online advance, outsider instalment also, crowdfunding[19].

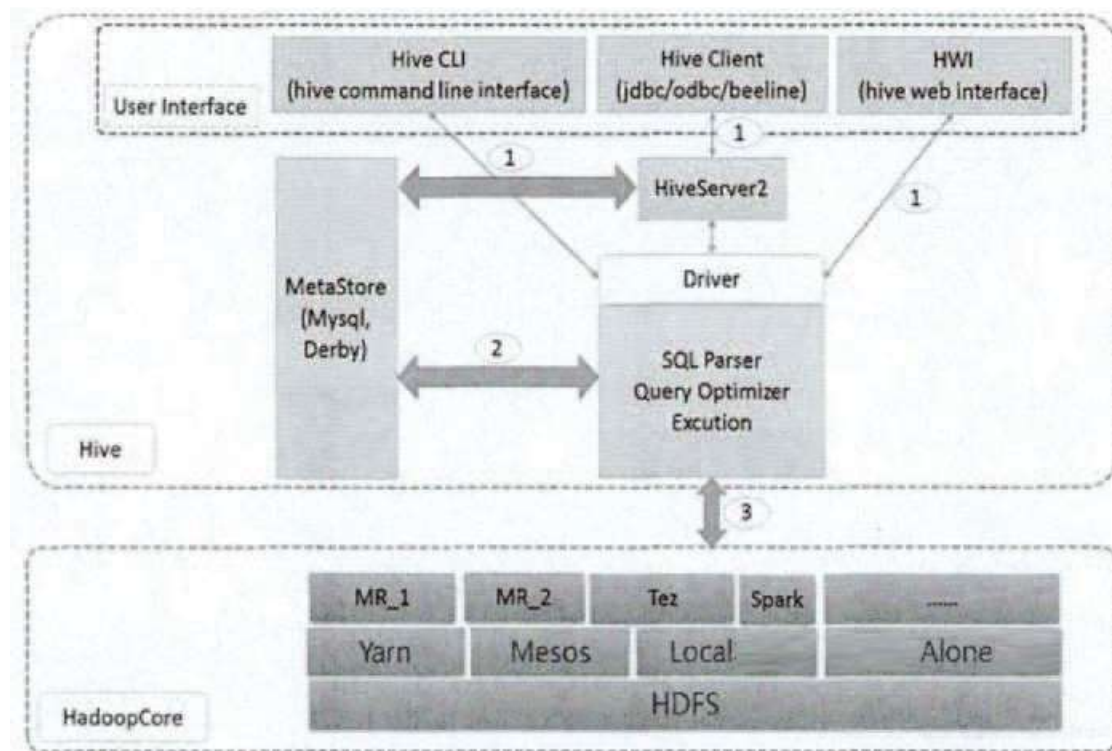


Fig. 2. Internet financial risk control model

"Information picture" should be built by labels, yet truth be told, the development of labels is probabilistic. For instance, when there is a tag to peruse loaning items, there isn't a tag to deal with credits. The probability of the portrait produced by these labels will also change as the probability of these labels changes. Set an information representation $ls-p = \langle lab, oper; p \rangle$, call $\langle lab-p, oper-p, p \rangle$ the likelihood appropriation model of the information representation, and record it as LSM. Where, $lab-p = \{ \langle Lab_i, pi \rangle | i \in [1..N], n \text{ is the quantity of all marks comprising the information representation; } PI \text{ is the likelihood of } Lab_i \}$; $oper-p = \{ oper_j.p_j \} | j \in [1..m]$ is the probability of $oper_j$ [20] and M is the number of operators in the data portrait.

As can be seen in Figure 2, the probability distribution model of data portrait and the probability distribution model of data portrait differ in that the probability distribution model of data portrait

places greater emphasis on the randomness of the appearance of each label that makes up the data portrait, which is a more specific and profound expression of user behaviour characteristics.

RECREATION INVESTIGATION

The gamble control model of the Web is displayed in Figure 2. At the point when we control it, the main thing we ought to consider is the gamble, which should be controllable furthermore, inside a specific reach. Second, we should separate these risks into those that are far-off and those that are near. These are everything we ought to consider. The final decision concerns the classification algorithm. In this segment, we use machines to figure out how to recreate risk control. Figure 3 depicts the results of the simulation. From Figure 3, we can see that from January 1, 2021, to January 6, 2021, we utilized AI calculations to control it. These days' fluctuations are found to be fairly normal, but the graph above shows that this point is more prominent on January 3. Through testing, it is observed that this point is a burst point and won't influence the whole information. As a result, we didn't test it any more. From Figure 4, we can likewise see that various nations have various degrees of hazard command over the Web, which is predictable with the end we have reached by utilizing machine calculations.

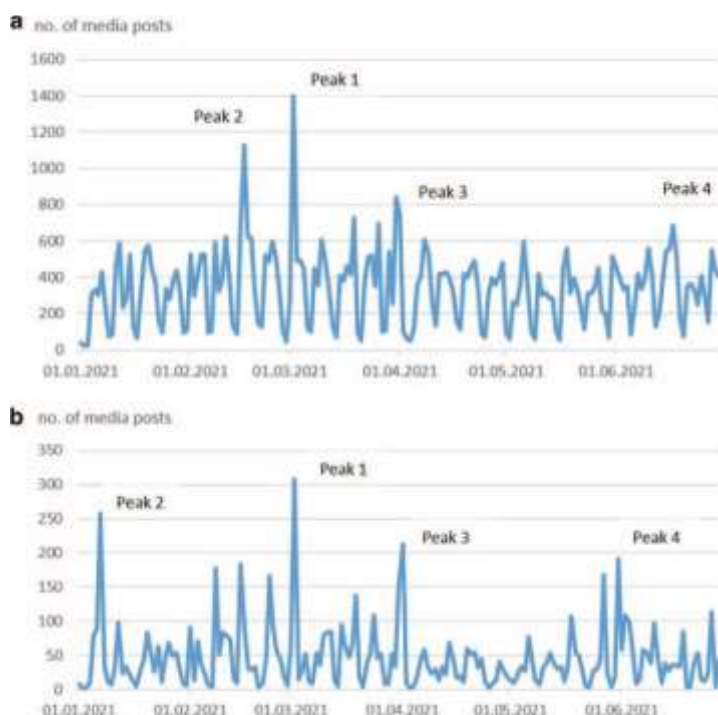


Figure 3. Risk control curve

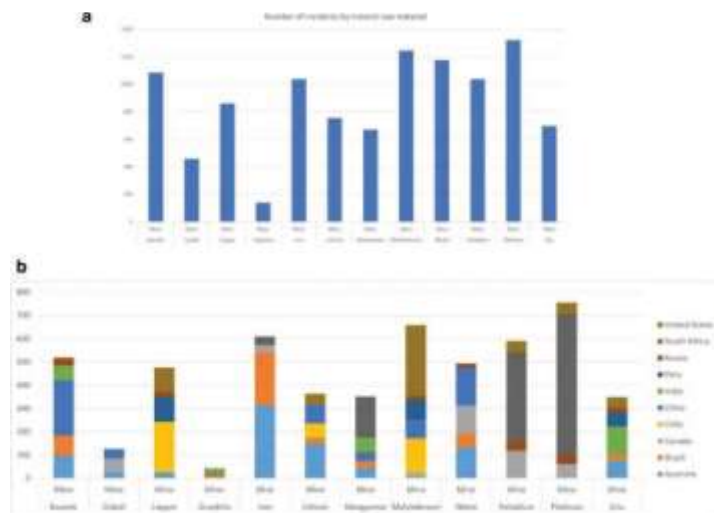


Figure 4. Risk control level comparison

CONCLUSION

Under the foundation that the Web monetary industry controls the gamble of credit default by building a risk control model, this paper endeavours to apply an AI calculation to the field of Web monetary gamble control. An Internet financial risk control model that can effectively identify loan default users is constructed, which provides a method to support solving the current problem of high loan default risk in the Internet financial industry. Through, a single machine learning algorithm, integrated machine learning algorithm and model fusion machine learning algorithm, logical regression algorithm Based on the support vector machine algorithm with different kernel functions, decision tree algorithm, random forest algorithm, light gum algorithm, and stacking fusion, the model construction and model optimization of loan data is carried out. Simultaneously, by contrasting the exhibition distinctions of various kinds of machine calculations applied to the Web monetary gamble control model, it gives a reference to individuals who participated in the Web monetary risk control industry in model selection.

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