TO PREDICT STUDENT PERFORMANCE FROM ONLINE PLATFORM BY USING META LEARNING

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ABSTRACT

Number of student use online platform for their preparation. For meta-learning is the science of systematically observing how different machine learning approaches perform on wide range of learning tasks, and then learning from this experience, or meta-data, to learn new tasks much faster than otherwise possible. Meta learning is an idea of "learning to learn," model for performing various tasks. We implemented a predictive model of a deep neural network, taking as a use case an educational dataset that contains information from students. Its one of the most relevant research topics is student performance prediction through clickstream activity in virtual learning environments, which provide information. From this result, what are important factor that impact on the result can be extracted to help the students prepared and predict student performance.

Keyword- Meta learning, Online platform, Virtual learning environment, Student performance, prediction of student

1. INTRODUCTION

We all know how important the online teaching is today. It made our educational system more flexible and comfortable than before. Taking advantage of this remote methods two million student graduated from 157 countries from all over the world by open university. Adding this methods to other famous universities like Havard and standford it went more free to take advantage of. However this is helpful for environmental learning. Teacher are getting better responses and feedback on daily basis website served as database. It will be

more efficient for analysing one's educational learning by model. AI which means artificial intelligence will help us to know the performance of students in virtual classes. Online education management system create a data of student's interaction with the online system unlike traditional education system. One of many strategies applied by those researchers is in tailoring learning materials. Learning online has been a growing trend for decades now. In 2018, 35% of course online and 17% took all of their classes remotely. With covid-19 a reality, learning online has exploded and become a necessary health and safety issue for more people than ever. Here, for example :

Students can directly interact with the online system without doing manual interaction with other students or group of students.

On the basis of earlier performance we can predict the future grades of students by machine learning unlike traditional education system. Even we can compare the performance of single student by proper analysis and specifications by data

Machine learning is mostly helping us in the education field. In future this method will be use more wildly as it can store the data.

2. METHODOLOGY

Sample in this study were papers which cover automatic detection. This study proposes prediction of student performance using meta learning . Meta learning algorithms learn from the output of other machine learning that learn from data. This means that in required the presence of other learning algorithm that have already been trained on data.

Meta learning algorithms for classification

tasks may be referred to as meta classifiers and meta learning algorithms for regression task may be referred to as meta regressors.

A) Meta-Classifier: Meta learning algorithm for classification predictive modelling task.

B) Meta -regression:- Meta learning algorithm for regression predictive modelling tasks.

After a meta leaning model algorithm is trained, it result in meta-learning model, e.g. the specific rules, coefficient, or structure learned from data. The model can then be used to make prediction.

C) Meta-Model: Result of running a meta learning algorithm.

In that discovery Process from a huge data volume. The machine work in large dataset where the student performance in the end examination is evaluated.

Student related data were collected from the college on sampling method of computer science department from 2020 to 2021. In this step data stored in different tables. In this the student register number, mark obtain by student, attendance of student that type of data required by performance criteria.

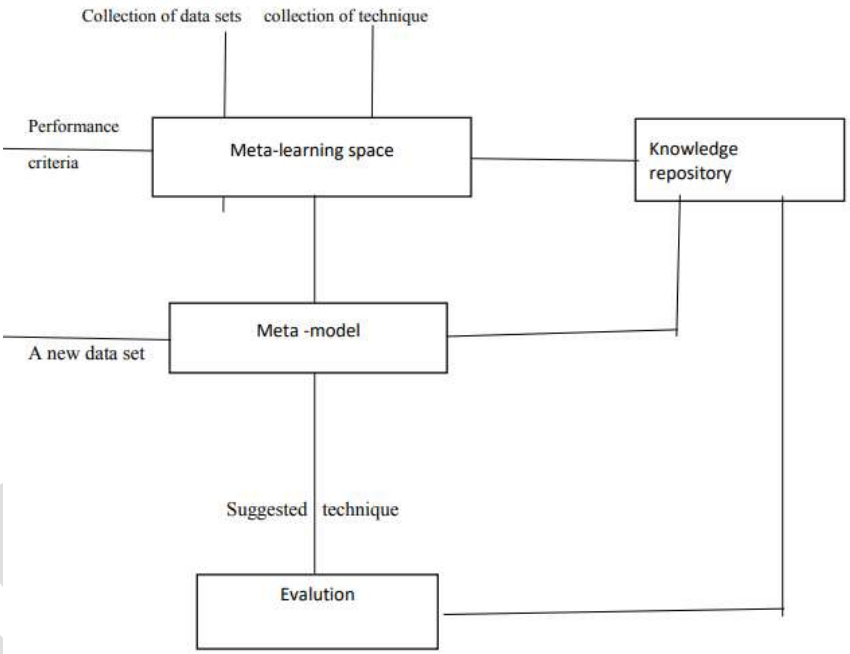

Fig- .1 meta learning model **LITERATURE REVIEW**

J K Jothi and K Venkatalakshmi conducted the students' performance analysis on the graduate students' data collected from the Villupuram college of Engineering and Technology. The data included five year period and applied clustering methods on the data to overcome the problem of low score of graduate students, and to raise students academic performance [1].

Sheik and Gadage have done the analysis related to the student learning behavior by using different data mining models, namely classification, clustering, decision tree, sequential pattern mining and text mining. They used open source tools such as KNIME (Konstanz Information Miner), RAPIDMINER, WEKA, CARROT, ORANGE, Programming, and iDA. These tools have different compatibilities and it provided an insight into the prediction and evaluvation [2].

Mythili M S and Shanavas A R applied classification algorithms to analyze and evaluate school students' performance using weka. They came with various classification algorithms, namely J48,

Random Forest, Multilayer perception, IBI and decision table with the data collected from the student management system [3].

Dinesh A and Radhika V targeted on the techniques and strategies of instructional data processing for data discovery from the information collected from various universities. This paper stated that relationship mining was leading between 1995 and 2005 and in 2008 to 2009 it slipped to 5th place. During the period 2008 to 2015 45% papers are moving to prediction. The prediction model acts like a warning system to improve their performance [4].

Osmanbegovic and Suljic conducted a study for investigating students' future performance in the end semester results at the University of Tuzla. They considered 11 factors and used classification model with highest accuracy for naive Bayes [5]. Suyal and Mohod applied the association and classification rule to identify the students' performance. They mainly focused to find the students who need special attention to reduce failure rate [6].

Noah, Barida and Egerton conducted a study to evaluate students' performance by grouping the grading into various classes using CGPA. They used different methods like Neural network, Regression and K-means to identify the weak performers for the purpose of performance improvement [7].

Baradwaj and pal described data mining techniques that help in early identification of student dropouts and students who need special attention. Here they used a decision tree by using information like attendance, class test, semester and assignment marks [8].

Jeevalatha, Ananthi, and Saravana Kumar presented a case study on performance analysis for placement selection for undergraduate students. They applied decision tree algorithm by considering the factors like HSC, UG marks and communication skills [9].

Backer and Yacef conducted a study for identifying the most appropriate model for EDM. They analyzed data and reached the conclusion that most of the papers adopt prediction than relationship mining [10].

ElGamal A F presented a study for predicting student performance in a programming course. Here the data is collected from the department of computer science from Mansoura University and applied extract rules for predicting students' performance in programming course [11].

Angeline D M conducted a study on the students' performance by using Apriori algorithm that extracts the set of rules specific to every category and analysis the given knowledge to classify the scholar based on their involvement in assignment, internal assessment test, group action etc. It helps to identify the students' performance range like average, below average, and good performance [12].

Bhise, Thorat and Supekar presented a method using K-means clustering algorithm by describing it step by step. This paper mainly focused on reducing drop-out-ratio of the students and improve it by considering the evaluation factors like midterm and final exam assignment. They considered different clustering techniques namely hierarchical, partitions, and categorical [13].

Remesh, Parkavi, and Yasodha conducted a study on the placement chance prediction by investigating the different techniques such as Naive Bayes Simple, Multi Layer Perception, SMO, J48, and REP Tree by its accuracy. From the result they concluded that Multi Layer Perception technique is more suitable than other algorithms [14].

Tair M M A and El-Halees presented a case study with a set of data collected from degree holders of college 'Science and Technology, Khanyounis', during the period of 1993 to 2007. They used two classification methodologies such as Rule Induction and Naive Bayesian classifier to forecast the grades

of the students [15].

3. RESULT

The result of this work is the developed on learning model. The model allow to predict the success of student at the end of the year, based on data on their college success and grades for the first semester of university studies. The implemented model predicted whether the student would pass or fail the exam. The model show performance of student.

TABLE1

Student Performance Table

80 and above	Excellent
79-50	Very Good
49-40	Good
39-20	Fair
Below-20 Fail	Fail

4. CONCLUSION

So finally we can conclude that this type of study can help us to spot out the students with low IQ and who needs to focus more in studies. It is beneficial for all categories of students including all age groups. It can be used in future work including processing techniques for associate in nursing distended knowledge ser with additional typical attributes to urge correct results which will be economical too. It can be used for knowledge classification, webinar, seminar etc. It can be very helpful for predicting the performance at the top of the semester. As this method is based on personal and actual learning of students it will be beneficial for comparing the grades at the end of the semester. However, selection features, determination of behavior pattern, defining behavior and preparing online course need to be considered. It is surely helpful for contributing towards results of automatically detection of learning style.

REFERENCES

1. J.K.Jothi and K.Venkatalakshmi, "Intellectual performance analysis of students by using data mining techniques", International Journal of Innovative Research in Science, Engineering and Technology, vol 3, Special iss 3, March 2014.
2. Nikitaben Shelke and Shriniwas Gadage, "A survey of data mining approaches in performance analysis and evaluation", International Journal of Advanced Research in Computer Science and Software Engineering , vol 5, iss 4, 2015K.
3. M.S. Mythili1 and A.R.Mohamed Shanavas , "An analysis of students' Performance using classification algorithms ", IOSR-JCE, Volume 16, iss1, Jan. 2014.
4. A.Dinesh Kumar and V.Radhika, "A survey on predicting student performance", International Journal of Computer Science and Information Technologies, Vol. 5, 2014. [5] E. Osmanbegović and M. Suljić, "'ata mining approach for predicting students performance", Economic Review, vol 10, iss 1, 2012.

5. C. Romero and S. Ventura, "Educational data mining: A survey from 1995 to 2005," Expert systems, vol. 33, pp. 135- 146, 2007.
6. M. Hanna, "Data mining in the e-learning domain," Campus-wide information systems, vol. 21, pp. 29-34, 2004.
7. C. Romero and S. Ventura, "Educational data mining: a review of the state of the art. Systems, Man, and Cybernetics," Applications and Reviews, vol. 40, pp. 601-618, 40.
8. M. E. Zorrilla, E. Menasalvas, D. Marin, D. Mora and J. Segovia, "Web usage mining project for improving web-based learning sites," in EUROCAST 2005, Berlin Heidelberg, 2005.
9. E. A. Amrieh, T. Hamtini and I. Aljarah, "Mining Educational Data to Predict Student's academic Performance using Ensemble Methods," International Journal of Database Theory and Application, vol. 9, no. 8, pp. 119-136, 2016. [6] S. Helal, J. Li, L. Liu, E. Ebrahimie, S. Dawson, D. J. Murray and Q. Long, "Predicting academic performance by considering student heterogeneity," Knowledge-Based Systems, vol. 161, pp. 134-146, 2018.
10. A. A. Supianto , A. J. Dwitama and M. Hafis, "Decision Tree Usage for Student Graduation Classification: A Comparative Case Study in Faculty of Computer Science Brawijaya University," IEEE, pp. 308-311, 2018.
11. S. S. Alfere and A. Y. Maghari, "Prediction of Student's Performance Using Modified KNN Classifiers," in 1st International Conference on Engineering & Future Technology, Gaza, Palestine, 2018.
12. O. Park and J. Lee, "Adaptive Instructional Systems," in Handbook Of Research For Educational Communications And Technology, D. H. Jonassen, Ed., ed Mahwah, NJ: Lawrence Erlbaum, 2004.
13. Brusilovsky, "Methods And Techniques Of Adaptive Hypermedia," User Modeling and User-Adapted Interaction, vol. 6, pp. 87-129, 1996b.
14. F. P. Henri, "Computer Conferencing And Content Analysis. In Collaborative Learning Through Computer Conferencing," presented at the The Najaden Papers, Berlin, 1992.
15. N. Bajraktarevic, W. Hall, and P. Fullick, "Incorporating learning styles in hypermedia environment- Empirical evaluation," presented at the Proceedings of the Workshop on Adaptive Hypermedia and Adaptive Web- Based Systems, Nottingham, UK, 2003.
16. F. Dag and A. Gecer, "Relations between online learning and learning styles," Procedia - Social and Behavioral Sciences, vol. 1, pp. 862-871, 2009.
17. R. M. Felder and L. K. Silverman, "Learning and Teaching Styles In Engineering Education," Engineering Education, pp. 674-681, 1988.
18. D. H. Lim, M. L. Morris, and S.-W. Yoon, "Combined Effect of Instructional and Learner Variables on Course Outcomes within An Online Learning Environment," J. Interact. Online Learn, vol. 5, pp. 255-269, 2006.
19. S. Graf, Kinshuk, Z. Qinsheng, P. Maguire, and V. Shtern, "An Architecture For Dynamic Student Modelling Of Learning Styles In Learning Systems And Its Application For Adaptivity," presented at the IADIS International Conference on Cognition and Exploratory Learning in Digital Age (CELDA 2010), 2010.

20. F. A. Dorca, L. V. Lima, M. r. A. Fernandes, and C. R. Lopes, "Automatic student modeling in adaptive educational systems through probabilistic learning style combinations: a qualitative comparison between two innovative stochastic approaches," Journal of the Brazilian Computer Society, pp. 1- 16, 2013.