Review Form 1.7

Journal Name:	**Asian Journal of Research in Computer Science**
Manuscript Number:	**Ms_AJRCOS_96169**
Title of the Manuscript:	**AE-FT: Auto Encoder Fixed-Target Training Features Extraction Approach for Binary Classification Problems**
Type of the Article	**Original Research Article**

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty'**, provided the manuscript is scientifically robust and technically sound.
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PART 1: Review Comments

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Compulsory REVISION comments 1. **Is the manuscript important for scientific community?** (Please write few sentences on this manuscript) 2. **Is the title of the article suitable?** (If not please suggest an alternative title) 3. **Is the abstract of the article comprehensive?** 4. **Are subsections and structure of the manuscript appropriate?** 5. **Do you think the manuscript is scientifically correct?** 6. **Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form.** **(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)**	**1.** **In general, the manuscript contains an interesting subject that has been significantly addressed in today's literature due to the increasing dominance of a large group of data that, in classification procedures, extremely burdens the analysis of data and content. Certain problems as well as a possible solution that should mean a contribution to the literature of the area are presented clearly enough to a certain extent, although sometimes the incomprehensibility of the procedures and the idea itself appears due to incomplete statements of certain settings, especially with regard to the currently known research results in the field of machine learning based on systematic classification by application forms offered by the autoencoder in the binary classification problem solving procedures offered by the common features extraction model.** **2.** **The title sufficiently expresses the subject of the study, although the possibility of removing the abbreviation AE-FT from the title should be considered (it is a symbolic and not a real abbreviation.)** **3.** **The abstract presents the basic idea and subject of the study, as well as the approach to solving the problem of classification of complex structures through a machine learning model. It is also possible to consider the possible addition of a few sentences that would present the basic thought and main message of the study.** **4.** **Although the organization of the manuscript has a certain level of clarity and sufficiently follows the basic idea of the study, it would be necessary to additionally shape the structure of the chapters in order to present the content of the study more clearly and comprehensibly to the readers. In this sense, it is possible to harmonize section 1. Introduction in the direction of a clearer presentation of the study in a way that will give the readers a complete insight into the subject of the study, the problem environment and the results of the study. The other chapters 1.1 to 1.5 should be combined in the background section and specifically deal with autoencoders, their use and limitations (to pretrain a model as the encoder part to create the decoder, for example) in the domain of classification problem solving through machine learning environment and common feature extraction in binary classification. At the same time, the term Deep Belief Network requires additional explanation in relation to the study in question and alignment with new knowledge in the field, which includes the analysis of additional currently published seminal works. Also, the same applies to the term common features extraction on which the idea of study in classifications problem solving is based - for example, it is possible to see the work of Subasi, A. (2019). Feature Extraction and Dimension Reduction. In Practical Guide for Biomedical Signals Analysis Using Machine Learning Techniques: A MATLAB Based Approach. Academic Press, pp. 193-275. DOI: https://doi.org/10.1016/B978-0-12-817444-9.00004-0.** **Furthermore, the Discussion section should give a concise and comprehensible insight into the dynamics, problems and findings of the study as a basis for the Conclusion section, which should deal in more detail with the entire topic of the study, the main idea and the message of the paper in order to give readers a comprehensible insight into the subject discussion presented. through the manuscript.** **5.** **The passability of the procedures and the analysis of the results through the**	

	applied data groups to a certain extent meet the basic scientific standards, although there is room for improvement through a clearer presentation of the methodology as well as an explanation of the correctness of the results obtained. **6.** **Some titles are not relevant in content or time to the subject of the study, for example:** **19. Werbos. Beyond Regression: New Tools for Prediction and Analysis in the Behavioral Science, Appl. Math. Harvard University (1974). which should also be corrected in** **Werbos, P. (1974). Beyond Regression: New Tools for Prediction and Analysis in the Behavioral Sciences. Ph.D. Thesis, Harvard University: Cambridge, MA.** **Also, it is necessary to additionally review current literature in the field, which is extremely rich in seminal works. Today's literature contains extensive insight into the basic subjects covered in the study, and as such, to a considerable extent, they have already provided answers to certain aspects expressed in the manuscript.** **Here is just as suggestion several titles that could be considered for additional review:** **Arul, V.H. (2021). Deep Learning Methods for Data Classification. In: Binu, D., Rajakumar, B.R. (Eds.) Artificial Intelligence in Data Mining. Cambridge, MA: Academic Press; pp. 87-108. DOI: https://doi.org/10.1016/B978-0-12-820601-0.00001-X.** **Dahouda, M.K. & Joe, I. (2022). Neural Architecture Search Net-Based Feature Extraction With Modular Neural Network for Image Classification of Copper/ Cobalt Raw Minerals. IEEE Access, 10, pp. 72253-72262. DOI: 10.1109/ACCESS.2022.3187420.** **Vahdat, A. & Kautz, J. (2020). NVAE: A Deep Hierarchical Variational Autoencoder. Advances in Neural Information Processing Systems, 33, pp. 19667–19679.** **Additionally, just as a comment about the term PCA on page 2. Suppose the aim of PCA is to do some classification task on tested data. PCA will then be useful if the data are linearly separable. And, Kernel PCA was developed in an effort to help with the classification of data whose decision boundaries are described by non-linear function. The idea is to go to a higher dimension space in which the decision boundary becomes linear. It is desirable to consider the possibility of a brief discussion about the mentioned feature of PCA and KPCA terms. Therefore, the impact of PCA and kernel PCA on the success of classification procedures using machine learning algorithms should be emphasized more strongly.**	

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Minor REVISION comments **1. Is language/English quality of the article suitable for scholarly communications?**	Although the text is fairly correctly written, it is necessary to carry out final proofreading in order to eliminate existing errors in grammar and spelling. In general, the text is written in a comprehensible and clear way, and with minor corrections, it will correspond to journal paper standards.	
Optional/General comments	Related to Figure 1. Denoising autoencoder training. (a)-traditional unsupervised training, (b)-fixed-target supervised training - a clearer description of the starting point and results of the modeling as well as the display source is needed. Furthermore, the citation of references in the text should be additionally checked, for example: 30. Eyheramendy, Susana, David D. Lewis, and David Madigan. On the naive bayes model for text categorization. In International workshop on artificial intelligence and statistics, pp. 93-100. PMLR, 2003. should be displayed as 30. Eyheramendy, S., Lewis, D., & and Madigan, D. (2003). On the Naive Bayes Model for Text Categorization. In Bishop, C.M. and Frey, B.J. (Eds.) Proceedings of the Ninth International Workshop on Artificial Intelligence and Statistics. Society for Artificial Intelligence and Statistics, PMLR R4:93-100. Abbreviations as shortened forms of words and phrases need additional proofreading. Namely, it is necessary to write abbreviations in their entirety on their first appearance both in abstracts and the manuscript. After the first mention of an abbreviation it should be used frequently in the format that should be consistently followed throughout the manuscript (for example, PCA and Kernel PCA - where PCA is an abbreviation for Principal Components Analysis).	

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

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