

# ISRG Journal of Multidisciplinary Studies (ISRGJMS)



**ISRG PUBLISHERS**

Abbreviated Key Title: isrg j. multidiscip. Stud.

ISSN: 2584-0452 (Online)

Journal homepage: <https://isrgpublishers.com/isrgjms/>

Volume – IV, Issue - I (January) 2026

Frequency: Monthly



## A review of the design and implementation of the proposed model for an automatic link generation device with neural network correlation

**Prof. Dr. Erdal DURSUN<sup>1\*</sup>**, **Muaiyid Rasooli<sup>2</sup>**, **Jamshid Rasooli<sup>3</sup>**

<sup>1</sup> Rector, International Science and Technology University, Warsaw / Poland.

<sup>2</sup> PhD Candidate, School of Law, Xi'an Jiaotong University, China

<sup>3</sup> Bachelor's degree, Faculty of Economics department of Banking and Finance , Jawzjan University.

| **Received:** 01.02.2026 | **Accepted:** 05.02.2026 | **Published:** 08.02.2026

\*Corresponding author: Prof. Dr. Erdal DURSUN

### Abstract

*In this article, the modeling of an automatic link generation device or ALE using neural networks or artificial intelligence is introduced.*

*In general, the performance of an ALE device can be modeled.*

*The goal of modeling is to design this device using new methods and implement it using existing tools and, as a result, to make it local.*

*In this regard, this paper attempts to model and implement the overall performance of the ALE device using neural networks and the MLP algorithm.*

*First, after examining the communication channels and the effects of nonlinearity and noise on data transmission, a model for data transmission in communication channels is introduced and coded in the required software environment. Then, the types of neural networks and their applications are introduced and the best algorithm for modeling the ALE device is selected.*

*In the following, several models are implemented and compared using the required software tools and MLP algorithm coding.*

*Finally, the proposed model based on the MLP algorithm can predict the appropriate channel with the least error, instead of a new output. The proposed models, after optimization, can be implemented on FPGA and provide a way to build this device within the country.*

**Keywords:** Autonomous Link; Neural Network; Artificial Intelligence; HF Wireless

## 1. Introduction

Automatic Link Equipment\* or (ALE) is a communications protocol used in radio communications to establish and maintain a link between two or more stations. ALE is designed to provide reliable communications over long distances and under adverse conditions such as interference, noise, and fading.

ALE uses a set of algorithms to automatically select the best frequency and modulation scheme for a given communication link.

The system continuously monitors the quality of the link and adjusts the necessary parameters to maintain optimal performance.

One of the key advantages of ALE is its ability to operate in a dynamic environment.

As conditions change, such as ionospheric conditions or the presence of interference, ALE can be adapted to maintain a consistent link.

This makes it particularly useful in military and emergency communications, where reliable communications are critical. ALE is used in a variety of radio systems, including HF and VHF radios.<sup>1</sup>

It is also used in some satellite communications systems..<sup>2</sup>

Satellite communications are still too expensive for widespread use in the battlefield.

Their vulnerability is also a concern. Traditional VHF/UHF links are not capable of meeting the requirements for communications beyond line of sight.

For all practical purposes, UHF is limited to line of sight and can only be used successfully when there is visual contact.

VHF, although better than UHF in this respect, also suffers from filtering problems.

The only reliable means of communication must use surface waves or short-range sky waves.

Such communications can best be accomplished using the low-frequency end of the HF band. For example, man-portable HF-SSB transmitters are sometimes more useful than VHF sets, especially in dense jungle or rugged terrain.

Although satellite terminals are becoming more common for some naval fleets for long-range maritime communications, a significant amount of traffic is still carried over HF and ship-to-shore broadcast networks.

Communications within a strike group are mainly carried out by HF ground wave.<sup>3</sup>

Coordination with aircraft at long ranges still plays an important role for HF skywave.<sup>4</sup>

Artificial neural networks are models for information processing that are built by imitating biological neural networks such as the human brain.

These networks are made up of a large number of neurons with strong internal connections that work together to solve specific problems.

Humans have long sought to understand the biophysiology of the brain, as the question of human intelligence and the brain's ability to learn, generalize, be creative, flexible, and parallel processing has always been of interest to humans, and the application of these capabilities to machines has been highly desirable.

Algorithmic methods are not suitable for implementing these features in machines. As a result, methods should be based on the same biological models.

ANNs learn using examples, just like humans. Today, neural networks are used in various applications such as pattern recognition problems, which themselves include problems such as line recognition, speech recognition, and image processing, as well as problems of acquisition, function approximation, control, or modeling of systems that have unknown or very complex internal structures. For example, an ANN can be used to control a motor, in which case the neural network will learn the control function itself.

The main advantage of using a neural network in any of the above problems is the neural network's extraordinary ability to learn and also the neural network's resilience to small input disturbances.

For example, if we use conventional methods to recognize a person's handwriting, it is possible that due to a slight hand tremor, these methods will lead to an incorrect diagnosis,<sup>5</sup> while a properly trained neural network will reach the correct answer even in the presence of such a disturbance.<sup>6</sup>

Among the uses of artificial neural networks is in modeling nonlinear systems and networks in the living environment. Therefore, previous works have seen applications such as classification models and predictive models.<sup>7</sup>

However, the use of artificial neural networks in military devices, - \* and HF and military communication devices, is a significant challenge that has not been seen in previous works. In this regard,<sup>8</sup> this article has attempted to introduce and simulate two models based on classification and situation prediction using MLP neural networks for the automatic link generation device in order to build and localize this device.<sup>9</sup>

## 2. Classification model using required tools

In this case, no coding knowledge is required and a simple space is specified that can handle the data. In this case, the `nnstart` code is first typed in the required command window section, then the Pattern recognition app option is selected in the neural network start window.

In the select data section, the Excel files prepared from the variables between the two hypothetical states are used. Here, it is necessary for the target section to group the entries as zeros and ones as follows:

<sup>1</sup> Coleman, C. J. (2002).

<sup>2</sup> Pederick, L. H., & Cervera, M. A. (2016).

<sup>3</sup> Lutsenko, V. I., Lutsenko, I. V., Sobolyak, A. V., Popov, I. V., Ahn, N. X., & Luo, Y. (2020).

<sup>4</sup> Holma, H., Heikkinen, S., Lehtinen, O. A., & Toskala, A. (2000).

<sup>5</sup> Koski, E., Chen, S., Pudlewski, S., & Melodia, T. (2012,)

<sup>6</sup> Suriano, D., & Prato, M. (2023)

<sup>7</sup> Suriano, D., & Prato, M. (2023)

<sup>8</sup> MASLIN, Nicholas. HF communications. Pitman, 1987.

<sup>9</sup> Johns, J. M., & Burkes, D. (2017).



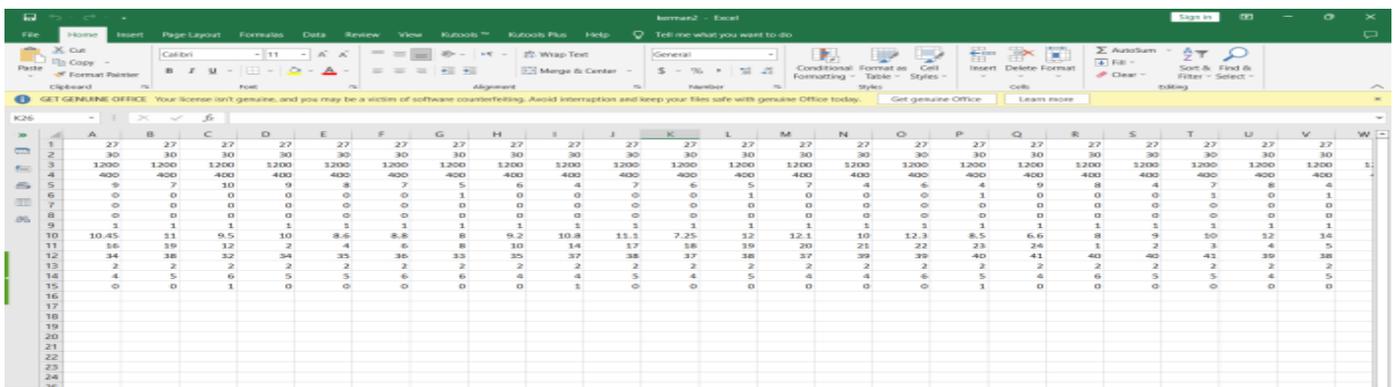


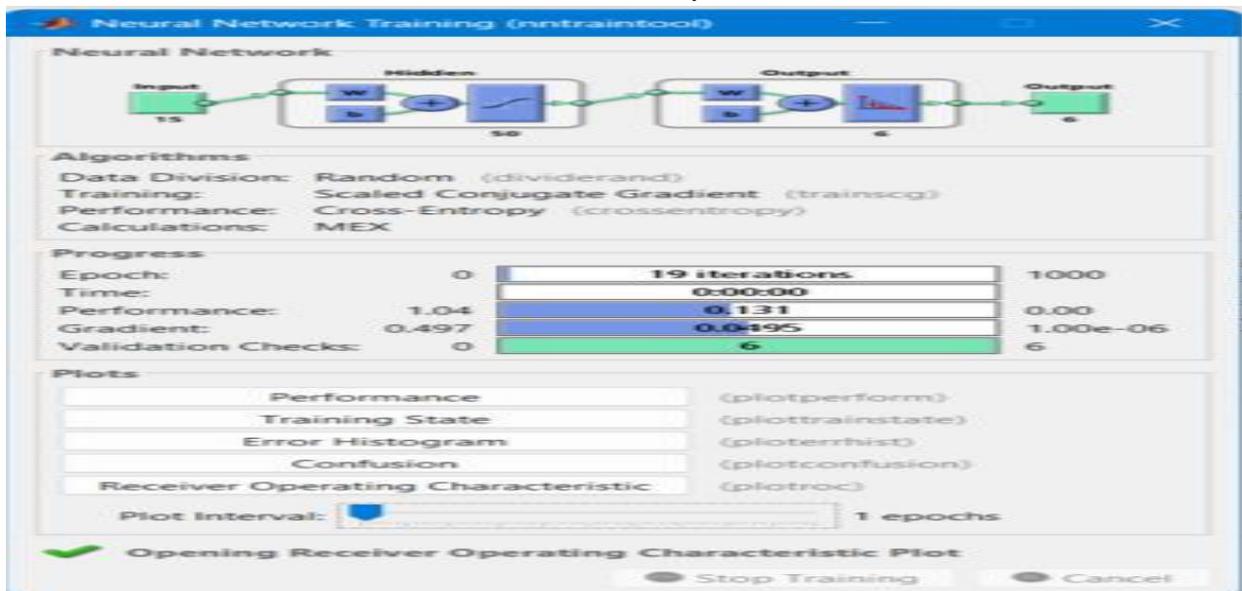
Figure (3) Grouping of entries for a city next to the names of the variables used

As can be seen from the figure above, more variables can be considered for the origin and destination cities.

It is also clear that several variables are constant for a city, such as longitude and latitude, altitude, and distance between origin and destination. Variables that have a constant number can be omitted, or input with a feedback loop that specifies only the city name. As a result, these variables can be ignored.

Using tools requires this advantage that there is no need to normalize the inputs for network learning and it can classify the outputs without normalizing the inputs. The modeling process was carried out by the required program and the results were as follows:

- In the first test, 10 neurons were used in the hidden layer of the network and 6 neurons were used for classification in the output layer for classification. The results are as follows:



B



C

Figure (4) Results from simulation of the required tools with 10 neurons in a hidden layer, a) the most networked, b) confusion results, c) ROC results

The confusion matrix shows the results of the classification based on the available real data.

Now, based on these values, various criteria for evaluating the classification and measuring the accuracy can be defined.

As is clear from the shape of the confusion results, after several loadings of the network, the best answer is 45% accurate and there is 55% error.

This amount of error is too large and the network will not be usable. The results of the Receiver Operating Characteristics (ROC) curve are a graph that is calculated to show the evaluation capability of a binary classification system whose detection threshold is also variable.

In these graphs, the classes identified by the colored lines are closer to the point on the left and top of the graph, the higher the accuracy. As the shape of the ROC results is clear, the classes are close to 0.75 at best, which is not an acceptable result.

- One of the limitations of the tools required for neural networks is the number of hidden layers, which cannot be adjusted.

However, the number of neurons in each layer can be increased. By increasing the number of neurons in a layer, the error rate can be greatly reduced.

After several continuous simulations, and considering 1000 neurons in a layer, the results are as follows:

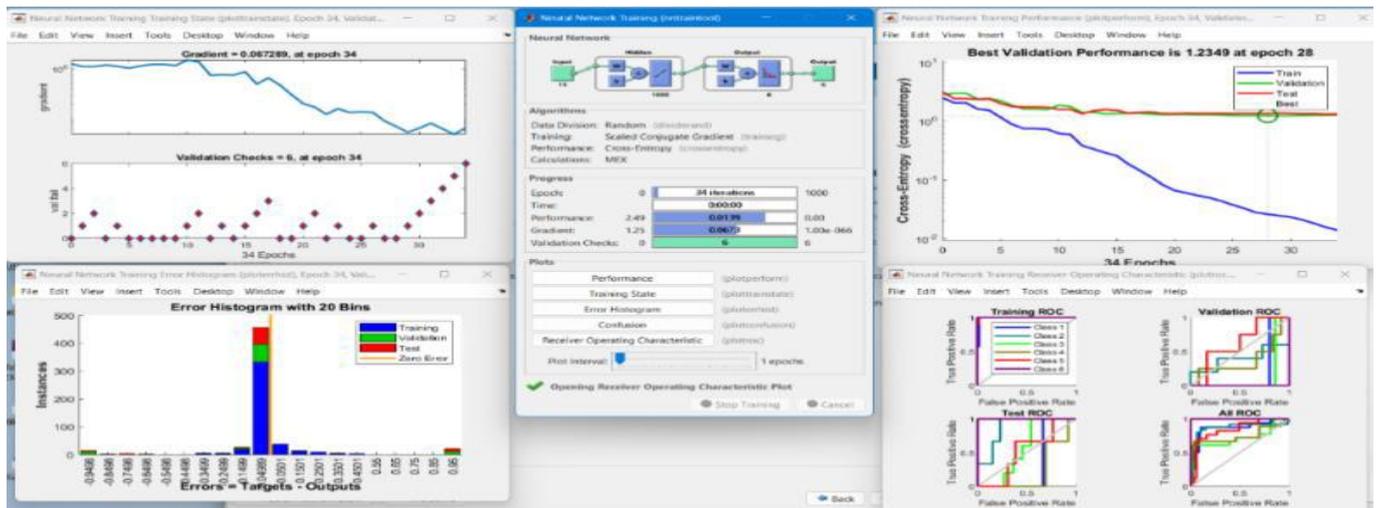


Figure (5) The designed network based on 1000 neurons in the hidden layer and a summary of its results.

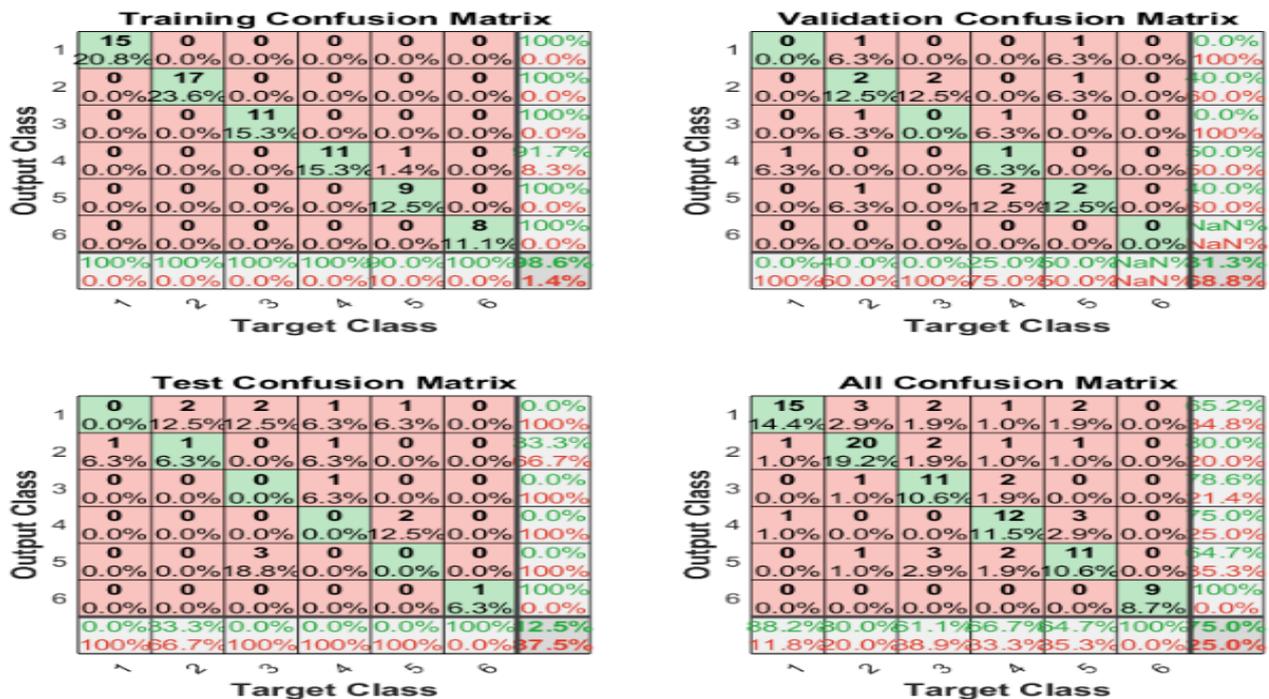


Figure (6) Results of the matrix of the scattering per 1000 neurons.

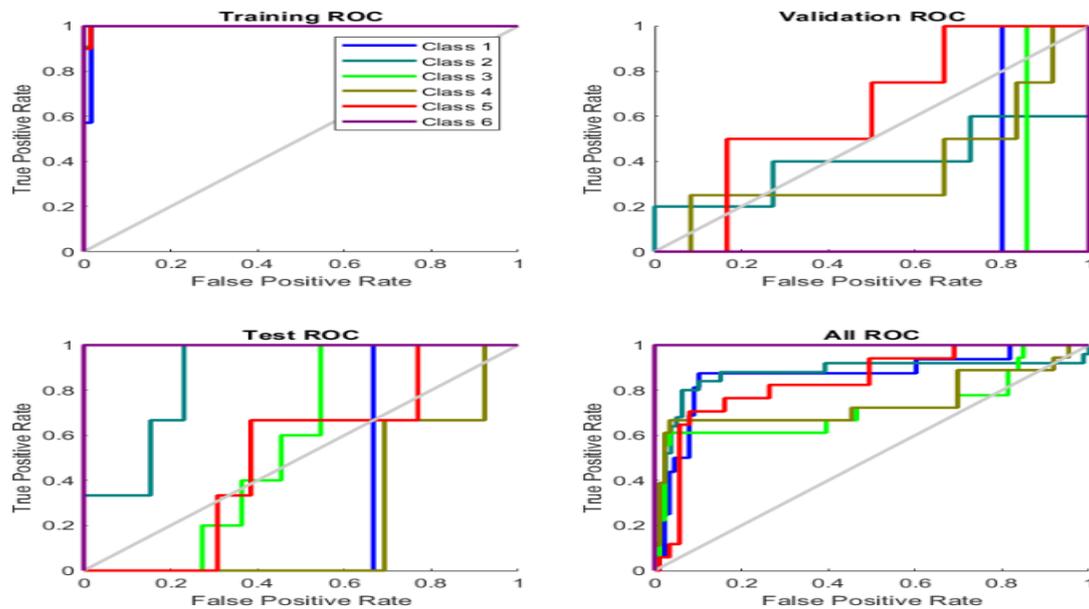


Figure (7) ROC results per 1000 neurons

As can be seen from the figures above, and compared to the previous simulation, increasing the number of neurons by a factor of 100 significantly reduced the error rate and increased the accuracy of the network by 75% for all data. However, increasing the number of neurons by more than 1000 did not have a significant effect or improvement in the accuracy of the network.

As a result, the use of the required tools for modeling the ALE automatic link generation device is not very responsive.

But as is clear, in this case, that is, using the required program tools, there is a limit to the number of layers for designing a neural network.

That is, only one hidden layer can be used. In the previous experiment, 1000 neurons were required in one layer for a noticeable reduction in error.

As a result, the required program tools are used only for simple classifications, and for designs with more than 3 classes, a higher number of hidden layers are needed. After complete coding, the final proposed design was used.

The recommended model codes for the ALE device are as follows:

### 3. First proposed design and its results

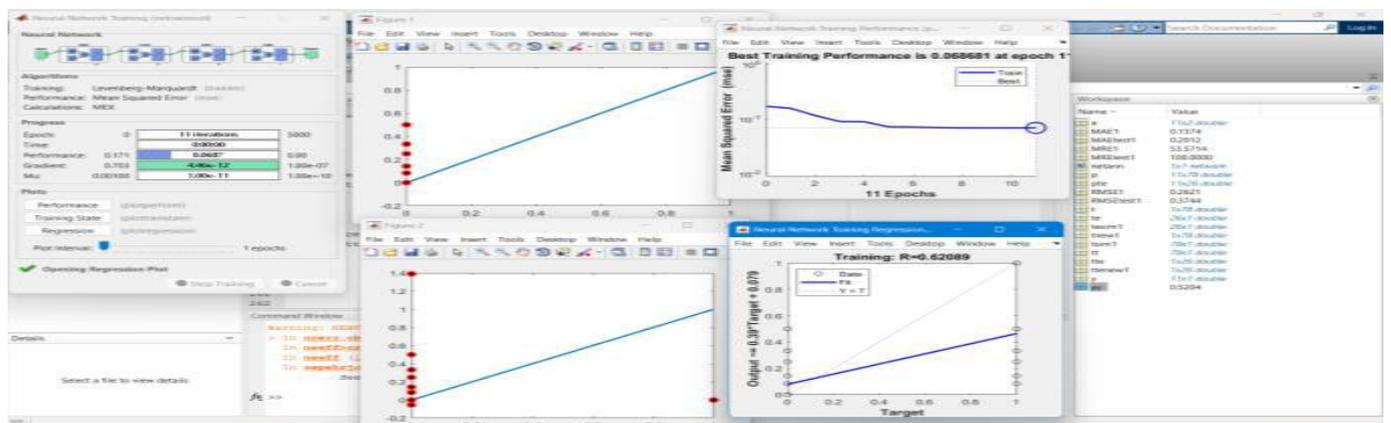


Figure (8) Output results from the first proposed design

In this design, the matrix  $p$  is the percentage of the initial inputs, the matrix  $t$  is the percentage of the outputs over the inputs of the matrix  $p$ .

The matrix  $p$  is the percentage of the initial inputs, and the matrix  $t$  is the percentage of the outputs over the inputs of the matrix  $p$ .

In this design, 70% of the inputs are used to train the network and 30% of the inputs are used to test the network.

This test section is the same as the target section, which is divided into two sections: test and validation. A matrix is defined as  $y$  that predicts the output for a new input. For this design, three hidden layers are formed, which have 5, 11, and 5 neurons, respectively. It is noted that if the input data is not normalized, a large number of neurons and hidden layers and

also high each points are required.

As a result, to reduce the cost and increase the speed of the network, the data is normalized. The normalization process is such that in each column of the samples, the data is divided into the largest number of columns.

As a result, the total data is between the two numbers 0 and 1.

The outputs are also in the same way. The results obtained from this design are as follows.

As can be seen from the figure, for a few epochs, the network converges to the inputs. For a new input that was not present in the previous inputs, an output of  $yy=0.5204$  is predicted. Considering that six channels are considered, they are normalized as 1 to 6, i.e. 0.834, 0.667, 0.5, 0.167, and 1, resulting in an output number of 0.5204 for channel 3.

## 4. Second Proposed Design and Evaluation of Its Results

In the first design, an attempt has been made to introduce a simple model for the ALE automatic link generation device using an MLP neural network. For two layers, each layer having three neurons, after several simulations, the best response is as follows:

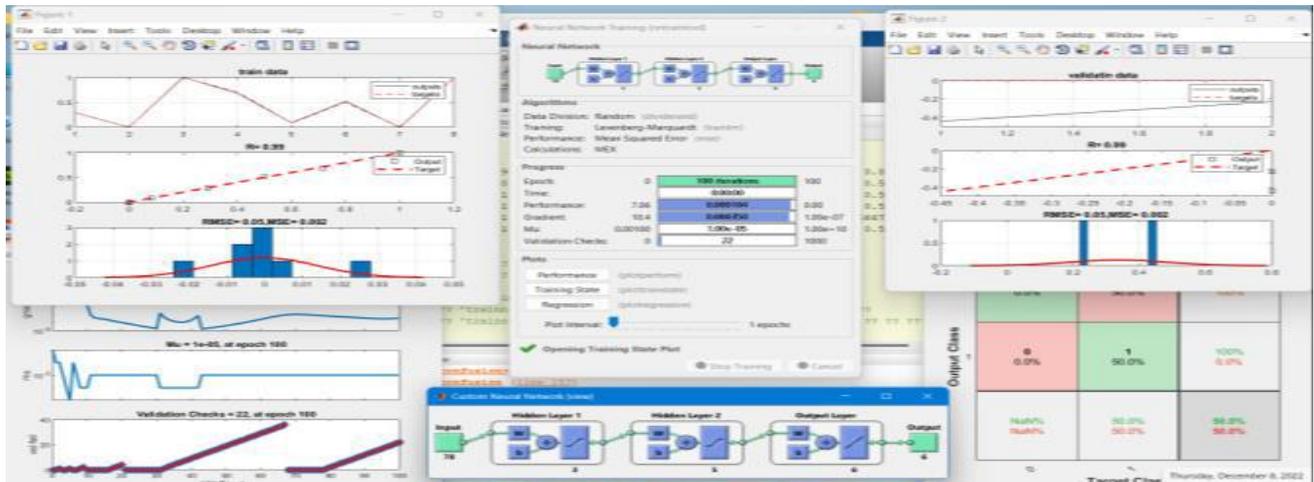


Figure (9) Results from the second proposed design

Better results have been obtained with two hidden layers with the number of neurons of 3 and 5, respectively.

The following figure shows a summary of these results.

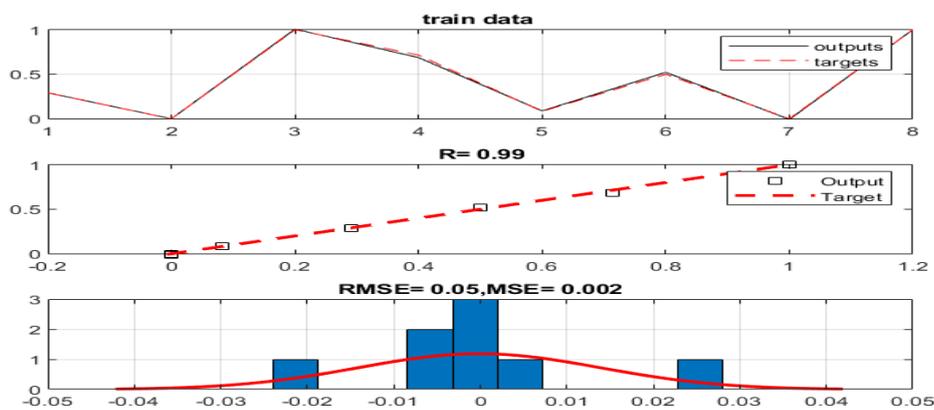
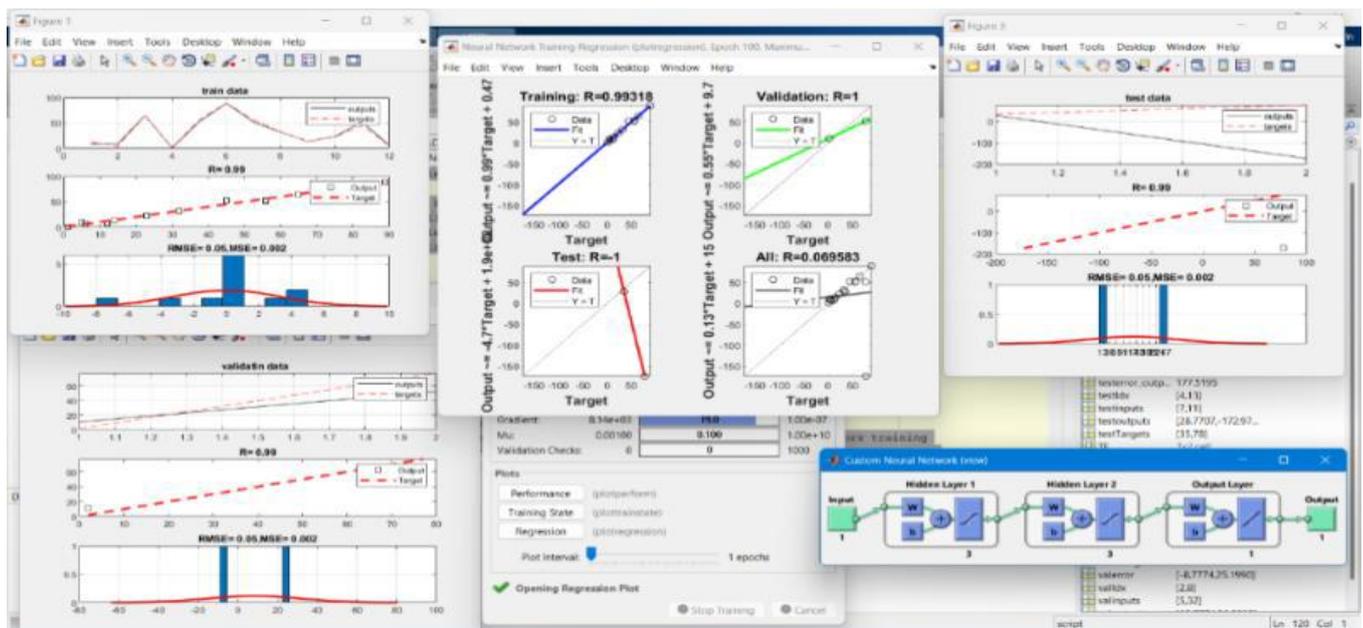


Figure (10) Data learning results, RMSE and MSE values

In order to evaluate the performance of the network, the regression results and the RMSE and MSE values have been examined. The main task of the regression algorithm here is to find a line that has the best position with respect to the points.

The best position is the line that has the least distance to all the points.

In other words, the best position is the lowest RMSE.

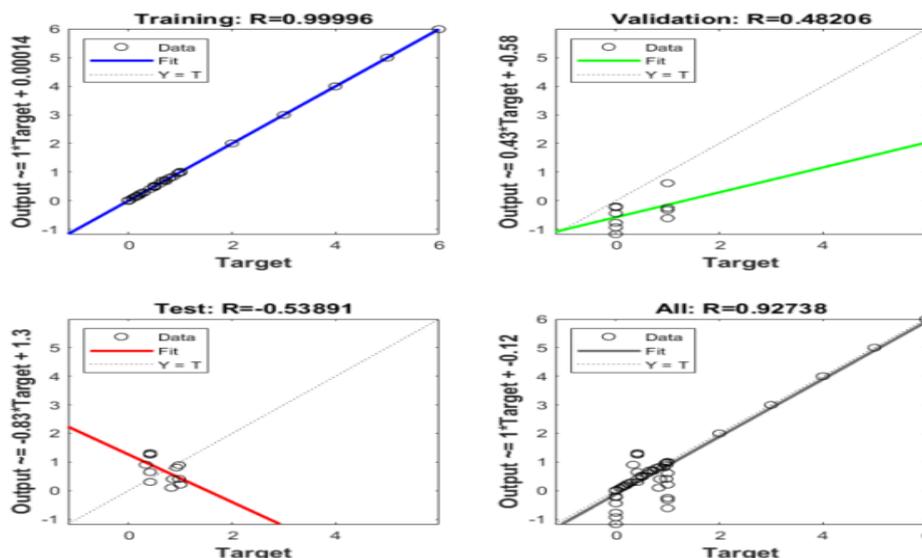


Figure (11) Regression results

In the form of regression results, these graphs show  $y$  as the vector of equations between the predicted value and the target value, where the output is the dependent variable and the target is the independent variable.

These equations can be used to show the level of capability of the MLP network.

The Target coefficient shows the correlation between the output and the targets, so for a good MLP performance it should be as close to unity as possible.

The second term, which is a constant, is the error or residual that must be added to the scaled target to bring it as close as possible to the predicted output, ideally it should be zero or as small as possible. The heading indicates the regression coefficient between the target and the output.

In the figure above, the lines indicate the prediction of the most proposed network with inputs from the city of Tashkent.

That is, the overall behavior of an automatic link generator is approximated by this line and an output is predicted for a new input. In order to accurately estimate this line, the MSE and RMSE values should be very low, which are minimized based on the proposed model. Of course, it should be noted that for this design, all data have been normalized due to the data values that differ greatly from each other. In this way, all the data is divided into the largest number of samples and placed. In this case, the design accuracy of the network between 1 and 0 of the total data increases.

## 5. Conclusion

This article deals with the implementation of the proposed model for the ALE device. Two models are introduced using RPM and MLP neural networks.

Also, the MSE is the mean, the network MSE and RMSE are the sum of the squared errors.

The more accurate the values are, the more accurate we are.

According to the figure above, the values are acceptable and indicate the accuracy of the proposed model. It is also clear from the target graph that the output results are matched to the target data with high accuracy.

First, an attempt has been made to classify the outputs without coding using the tools plugin or the required program.

Then, the modeling of the ALE device using the MLP neural network has been introduced.

## References

1. Coleman, C. J. (2002). A direction-sensitive model of atmospheric noise and its application to the analysis of HF receiving antennas. *Radio Science*, 37(3), 1-10.
2. Pederick, L. H., & Cervera, M. A. (2016). A directional HF noise model: Calibration and validation in the Australian region. *Radio Science*, 51(1), 25-39.
3. MASLIN, Nicholas. HF communications. Pitman, 1987.
4. Roshani, G. H., Fegghi, S. A. H., Shama, F., Salehizadeh, A., & Nazemi, E. (2014). Prediction of materials density according to number of scattered gamma photons using optimum artificial neural network. *Journal of Computational Methods in Physics*, 2014.
5. Adelabu, M. A., Imoize, A. L., & Ughegbe, G. U. (2021, October). Performance evaluation of radio frequency interference measurements from microwave links in dense urban cities. In *Telecom (Vol. 2, No. 4, pp. 328-368)*. MDPI.
6. Holma, H., Heikkinen, S., Lehtinen, O. A., & Toskala, A. (2000). Interference considerations for the time division duplex mode of the UMTS terrestrial radio access. *IEEE Journal on Selected Areas in communications*, 18(8), 1386-1393.
7. Dutono, T. (2021, September). Harmful Interference Mitigation in Sub-10 MHz Aeronautical Allocation Band. In *2021 International Electronics Symposium (IES) (pp. 1-4)*. IEEE.

8. Nouainia, A., Hajji, M., & Aguilu, T. (2018). Reduction of electromagnetic interference in HF circuits by improving the effectiveness of shielding structures. *Journal of Computational Electronics*, 17(4), 1709-1720.
9. Lutsenko, V. I., Lutsenko, I. V., Sobolyak, A. V., Popov, I. V., Ahn, N. X., & Luo, Y. (2020). Interference to active-passive radar systems created by emissions from HF and VHF broadcasting stations. *Telecommunications and Radio Engineering*, 79(10).
10. Koski, E., Chen, S., Pudlewski, S., & Melodia, T. (2012, May). Network simulation for advanced HF communications engineering. In 12th IET International Conference on Ionospheric Radio Systems and Techniques (IRST 2012) (pp. 1-5). IET.
11. Wicaksono, A., Mauludyanto, A., & Hendratoro, G. (2020, February). An HF digital communication system based on softwaredefined radio. In 2020 International Conference on Smart Technology and Applications (ICoSTA) (pp. 1-5). IEEE.
12. Suriano, D., & Prato, M. (2023). An Investigation on the Possible Application Areas of Low-Cost PM Sensors for Air Quality Monitoring. *Sensors*, 23(8), 3976.
13. MASLIN, Nicholas. HF communications. Pitman, 1987.
14. Roshani, G. H., Nazemi, E., Shama, F., Imani, M. A., & Mohammadi, S. (2018). Designing a simple radiometric system to predict void fraction percentage independent of flow pattern using radial basis function. *Metrology and Measurement Systems*, 25(2), 347-358.
15. Roshani, G. H., Eftekhari-Zadeh, E., Shama, F., & Salehizadeh, A. (2017). Combined application of neutron activation analysis using IECF device and neural network for prediction of cement elements. *Radiation Detection Technology and Methods*, 1, 1-7.
16. Johns, J. M., & Burkes, D. (2017). Development of multilayer perceptron networks for isothermal time temperature transformation prediction of U-Mo-X alloys. *Journal of Nuclear Materials*, 490, 155-166.
17. Prof, Dr. Mohammad Ekram YAWAR, Dr. Ramazan Ahmadi, Muaiyid Rasooli PhD, & Lec. Abdul Jamil Sharify. (2025). Examining the Competition between China and the United States in the Context of Technological Advancements during the Fourth Industrial Revolution. İçinde GRS Journal of Multidisciplinary Research and Studies (C. 2, Sayı 8, ss. 114-118). GRS Publisher. <https://doi.org/10.5281/zenodo.16903063>
18. Dr. Mehmet Uçkaç, PhD, & Prof, Dr. Mohammad Ekram YAWAR. (2025). Systematic Literature Review - Talent Management, Succession Planning and Organizational Sustainability. İçinde GRS Journal of Multidisciplinary Research and Studies (C. 2, Sayı 1, ss. 1-7). GRS Publisher. <https://doi.org/10.5281/zenodo.16886511>
19. Yawar, M. E., & Amany, S. (2025). The Use of Artificial Intelligence in Teaching History and its Effects on Community Leadership. *Akademik Tarih ve Düşünce Dergisi*, 12(1), 319-332. <https://doi.org/10.5281/zenodo.15618802>
20. Ekram Yawar, M., & Qurban Hakimi, M. (2025). Explaining the Digital Health Marketing Model in Gaining Health Welfare Support from Nonprofits. *Acta Globalis Humanitatis Et Linguarum*, 2(2), 4-28. <https://doi.org/10.69760/aghel.02500201>
21. Ekram Yawar, M., & Qurban Hakimi, M. (2025). The Impact of Artificial Intelligence Technology on Human Resources Performance in Organizations. *EuroGlobal Journal of Linguistics and Language Education*, 2(1), 96-108. <https://doi.org/10.69760/egille.2500013>
22. Ekram Yawar, M. (2025). The Impact of Artificial Intelligence on the International Human Rights System. *Acta Globalis Humanitatis Et Linguarum*, 2(2), 62-78. <https://doi.org/10.69760/aghel.02500206>
23. Ekram Yawar, M., & Jamil Sharify, A. (2025). Exploring Rational Reflections in Artificial Intelligence. *EuroGlobal Journal of Linguistics and Language Education*, 2(2), 4-31.
24. Ekram Yawar, M., & Qurban Hakimi, M. (2025). The Impact of Robots and Artificial Intelligence on Human Resources in the Future. *Global Spectrum of Research and Humanities*, 2(1), 87-97. <https://doi.org/10.69760/gsrh.010120250014>
25. Ekram Yawar, M., Abdul Sharify, J., & Abdullah Sadat, S. (2025). A Review of International Policymaking in the Field of Artificial Intelligence. *Global Spectrum of Research and Humanities*, 2(2), 30-39. <https://doi.org/10.69760/gsrh.010120250013>
26. Ekram Yawar, M., & Qurban Hakimi, M. (2025). Artificial Intelligence, Management and Organizations. *Global Spectrum of Research and Humanities*, 2(1), 98-108. <https://doi.org/10.69760/gsrh.010120250024>
27. Prof, Dr. Mohammad Ekram YAWAR, Dr. Ramazan Ahmadi, Muaiyid Rasooli PhD, & Lec. Abdul Jamil Sharify, Examining Diplomacy for Environmental Sustainability in Interaction with Artificial Intelligence (2025) GRS Journal of Multidisciplinary Research and Studies, Vol-2(Iss-8).88-92
28. Yawar, M. E., & Hakimi, M. Q. (2025). A Review of the Ethical and Legal Challenges of Using Artificial Intelligence in the Health System. *Akademik Tarih ve Düşünce Dergisi*, 12(1), 307-318. <https://doi.org/10.5281/zenodo.15618771>
29. Yawar, M. E., & Sadat, S. A. (2025). Problems of Using Artificial Intelligence as a Judge in Legal Proceedings. *Akademik Tarih ve Düşünce Dergisi*, 12(1), 403-420. <https://doi.org/10.5281/zenodo.15627539>
30. Rahmaniboukani, S., Qurban Hakimi, M., & Ekram Yawar, M. (2025). Medical Artificial Intelligence and the Need for Comprehensive Policymaking. *Global Spectrum of Research and Humanities*, 2(2), 60-70. <https://doi.org/10.69760/gsrh.010120250018>
31. Ekram Yawar, M., Abdul Sharify, J., & Abdullah Sadat, S. (2025). Artificial Intelligence and International Peace and Security. *Acta Globalis Humanitatis Et Linguarum*, 2(2), 49-61. <https://doi.org/10.69760/aghel.02500205>
32. Dr. Mehmet Uçkaç, PhD, & Prof, Dr. Mohammad Ekram YAWAR. (2025). Systematic Literature Review - Talent Management, Succession Planning and Organizational Sustainability. İçinde GRS Journal of Multidisciplinary Research and Studies (C. 2, Sayı 1, ss. 1-7). GRS Publisher. <https://doi.org/10.5281/zenodo.16886511>
33. Jamil Sharify, A., Amany, S., & Ekram Yawar, M. (2025). Knowledge Management Approach to Data Mining Process in Smart Business. *Global Spectrum of*

- Research and Humanities*, 2(2), 128-140. <https://doi.org/10.69760/gsrh.010120250041>
34. Dursun, E., Jamil Sharify, A. ., Abdullah Sadat, S., Qurban Hakimi, M., & Ekram Yawar, M. (2025). The Role of New Technologies in the Development of E-Learning (With a View to the Opportunities and Challenges Facing Universities and Higher Education Centers). *Global Spectrum of Research and Humanities*, 2(2), 99-112. <https://doi.org/10.69760/gsrh.010120250020>
  35. Ekram Yawar, M., Abdul Sharify, J., & Abdullah Sadat, S. (2025). A Review of International Policymaking in the Field of Artificial Intelligence. *Global Spectrum of Research and Humanities*, 2(2), 30-39. <https://doi.org/10.69760/gsrh.010120250013>
  36. Sharify, A. J., & Yawar, M. E. (2024). The Position and Influence of Transformational Leadership on Organizational Culture and Strategies. *Akademik Tarih ve Düşünce Dergisi*, 11(5), 3737-3748. <https://doi.org/10.46868/atdd.2024.842>
  37. Ekram Yawar, M., & Jamil Sharify, A. (2025). Exploring Rational Reflections in Artificial Intelligence. *EuroGlobal Journal of Linguistics and Language Education*, 2(2), 4-31. <https://doi.org/10.69760/egille.2500011>
  38. Ekram Yawar, M., Abdul Sharify, J., & Abdullah Sadat, S. (2025). Artificial Intelligence and International Peace and Security. *Acta Globalis Humanitatis Et Linguarum*, 2(2), 49-61. <https://doi.org/10.69760/aghel.02500205>
  39. Sharify, A. J. (2024). Positive and Negative Effects of Technology on Organization Culture. *Akademik Tarih ve Düşünce Dergisi*, 11(1), 137-147. <https://doi.org/10.46868/atdd.2024.653>
  40. Sharify, A. J., & Yawar, M. E. (2025). Examining the Impact of Transformational Leadership in the Development of Organizational Voice "An Analysis of the Mediating Impact of Information and Communication Technology". *Akademik Tarih ve Düşünce Dergisi*, 12(4), 215-231.
  41. Prof. Dr. M. Ekram. YAWAR, Dr. Muhammed. K., Examining the Legal Status of Clouds in International Law (2025) *GRS Journal of Multidisciplinary Research and Studies*, Vol-2(Iss-8).101-106 (PDF) *Examining the Legal Status of Clouds in International Law*. Available from: [https://www.researchgate.net/publication/394847292\\_Examining\\_the\\_Legal\\_Status\\_of\\_Clouds\\_in\\_International\\_Law](https://www.researchgate.net/publication/394847292_Examining_the_Legal_Status_of_Clouds_in_International_Law) [accessed Sep 11 2025].
  42. Ekram Yawar, M., & Jamil Sharify, A. (2025). Exploring Rational Reflections in Artificial Intelligence. *EuroGlobal Journal of Linguistics and Language Education*, 2(2), 4-31. <https://doi.org/10.69760/egille.2500011>
  43. Ekram Yawar, M., & Qurban Hakimi, M. (2025). The Impact of Robots and Artificial Intelligence on Human Resources in the Future. *Global Spectrum of Research and Humanities*, 2(1), 87-97. <https://doi.org/10.69760/gsrh.010120250014>
  44. Ekram Yawar, M., & Qurban Hakimi, M. (2025). The role and importance of ethics in the use of artificial intelligence in medical education and in the diagnosis of chronic diseases. *Acta Globalis Humanitatis Et Linguarum*, 2(1), 308-314. <https://doi.org/10.69760/aghel.02500139>
  45. Yawar, M. E., & Amany, S. (2025). Impact and Role of Information Technology Application on the Success of Leadership, Organization, Society and Individual. *Akademik Tarih ve Düşünce Dergisi*, 12(1), 352-364. <https://doi.org/10.5281/zenodo.15618840>
  46. Dursun, E., Jamil Sharify, A. ., Abdullah Sadat, S., Qurban Hakimi, M., & Ekram Yawar, M. (2025). The Role of New Technologies in the Development of E-Learning (With a View to the Opportunities and Challenges Facing Universities and Higher Education Centers). *Global Spectrum of Research and Humanities*, 2(2), 99-112. <https://doi.org/10.69760/gsrh.010120250020>
  47. Ekram Yawar, M., & Amani, A. (2025). Features of international trade contract. *Acta Globalis Humanitatis Et Linguarum*, 2(1), 276-296. <https://doi.org/10.69760/aghel.02500137>
  48. Ekram Yawar, M., Abdul Sharify, A., & Qasim Fetrat, M. (2025). Review and importance of China's New Silk Road Initiative and the European Union's strategy. *Journal of Azerbaijan Language and Education Studies*, 2(2), 3-27. <https://doi.org/10.69760/jales.2025001007>
  49. Ekram Yawar, M., & Amani, A. (2025). Review of the World Trade Organization General Agreement on Trade in Services and International Trade in Legal Services. *Acta Globalis Humanitatis Et Linguarum*, 2(1), 297-307. <https://doi.org/10.69760/aghel.02500138>
  50. Dursun, E., Ekram Yawar, M., & Amani, A. (2025). The Role and Importance of National Economic Law in The International Legal Order. *EuroGlobal Journal of Linguistics and Language Education*, 2(2), 46-74. <https://doi.org/10.69760/egille.2500082>
  51. Prof. Dr. Mohammad Ekram YAWAR, & Dr. Mehmet Uçkaç, PhD. (2025). Study of the Member States of the Economic Cooperation Organization in International Law Based on Trade. İçinde *GRS Journal of Arts and Educational Sciences* (C. 1, Sayı 2, ss. 75-79). GRS Publisher. <https://doi.org/10.5281/zenodo.16886030>
  52. Prof. Dr. Mohammad Ekram YAWAR, & Dr. Mehmet Uçkaç, PhD. (2025). A Review of the Economic Impact of the 2022 Russia-Ukraine War on the International Economy. İçinde *GRS Journal of Arts and Educational Sciences* (C. 1, Sayı 2, ss. 69-74). GRS Publisher. <https://doi.org/10.5281/zenodo.16886018>
  53. Dr. Mehmet Uçkaç, PhD, & Prof. Dr. Mohammad Ekram YAWAR. (2025). A Review of Understanding the International Economic Order and World Political Economy. İçinde *GRS Journal of Arts and Educational Sciences* (C. 1, Sayı 2, ss. 30-33). GRS Publisher. <https://doi.org/10.5281/zenodo.16875403>
  54. Ekram Yawar, M. (2025). Correspondence of Forms in Sales Contracts; Examination of Existing Theories in Legal Systems and Discussion of Their Application to the Contract for the International Sale of Goods. *Global Spectrum of Research and Humanities*, 2(1), 12-27. <https://doi.org/10.69760/gsrh.01012025002>
  55. Ekram Yawar, M., Dursun, E., Najafov, B., & Matin, A. (2025). The New Silk Road: Economic Importance,

- Investment, and the Shifting Global Balance of Power. *EuroGlobal Journal of Linguistics and Language Education*, 2(4), 44-70. <https://doi.org/10.69760/egille.2504004>
56. Ekram Yawar, M. ., Jamil Sharify, A., & Matin, A. (2025). An Overview of International Order and Its Impact on International Political Economy. *Luminis Applied Science and Engineering*, 2(3), 5-26. <https://doi.org/10.69760/lumin.2025003001>
57. Matin, A., & Ekram Yawar, M. (2025). Donald Trump: International Economics and Economic Globalization (Economic Policy) . *EuroGlobal Journal of Linguistics and Language Education*, 2(4), 4-16. <https://doi.org/10.69760/egille.2504001>
58. Matin, A., & Ekram Yawar, M. (2025). A Review of Neoclassical Economics and its Importance. *Porta Universorum*, 1(5), 24-46. <https://doi.org/10.69760/portuni.0105003>
59. Ekram Yawar, M., & Matin, A. (2025). A comprehensive overview of the international economy and its positive effects on the global economy. *Acta Globalis Humanitatis Et Linguarum*, 2(4), 82-104. <https://doi.org/10.69760/aghel.0250040004>
60. Ekram Yawar, M. ., Jamil Sharify, A. ., & Matin, A. . (2025). A Comprehensive Review of the International Political Economy System (From the Past to the Present). *Global Spectrum of Research and Humanities* , 2(4), 8-34. <https://doi.org/10.69760/gsrh.0250203001>
61. Amani, A., & Ekram Yawar, M. (2025). International Trade and Export. *Global Spectrum of Research and Humanities* , 2(2), 50-59. <https://doi.org/10.69760/gsrh.010120250186>
62. Ekram Yawar, M., & Amani, A. (2025). Incoterms in International Trade Law . *EuroGlobal Journal of Linguistics and Language Education*, 2(1), 109-122. <https://doi.org/10.69760/egille.2500014>
63. Dr. Mehmet Uçkaç, PhD, & Prof, Dr. Mohammad Ekram YAWAR. (2025). Studying the Position of International Trade in Exports. İçinde GRS Journal of Multidisciplinary Research and Studies (C. 2, Sayı 1, ss. 13-17). GRS Publisher. <https://doi.org/10.5281/zenodo.16886391>
64. Yawar, M. E., & Sharify, A. J. (2024). The Rights of the Financing Contract in the Field of International Trade with an Emphasis on The Agency Contract. *Akademik Tarih ve Düşünce Dergisi*, 11(5), 3225-3245. <https://doi.org/10.46868/atdd.2024.815>
65. Sharify, A. J. & Yawar, M. E. (2023). "Investigating The Impact of International Community Aid on Afghanistan's Economic Policies" *International Social Sciences Studies Journal*, (e-ISSN:2587- 1587) Vol:9, Issue:118; pp:9501-9518. DOI: <http://dx.doi.org/10.29228/sss.738>
66. Yawar, M. E., & Amany, S. (2025). Correspondence of Forms in Sales Contracts: Examination of Existing Theories in Legal Systems and Discussion of Their Application to the Contract for the International Sale of Goods. *Akademik Tarih ve Düşünce Dergisi*, 12(1), 197-217. <https://doi.org/10.5281/zenodo.15514383>
67. Prof, Dr. Mohammad Ekram YAWAR, Dr. Ramazan Ahmadi, Muaiyid Rasooli PhD, & Lec. Abdul Jamil Sharify. (2025). Examining Diplomacy for Environmental Sustainability in Interaction with Artificial Intelligence. İçinde GRS Journal of Multidisciplinary Research and Studies (C. 2, Sayı 8, ss. 88-92). GRS Publisher. <https://doi.org/10.5281/zenodo.16902942>
68. Yawar, M. E., & Sadat, S. A. (2025). Problems of Using Artificial Intelligence as a Judge in Legal Proceedings. *Akademik Tarih ve Düşünce Dergisi*, 12(1), 403-420. <https://doi.org/10.5281/zenodo.15627539>
69. Prof, Dr. Mohammad Ekram YAWAR, Dr. Ramazan Ahmadi, Muaiyid Rasooli PhD, & Lec. Abdul Jamil Sharify. (2025). In the National and International Policy-Making System: The Place of Environmental Protection. İçinde GRS Journal of Multidisciplinary Research and Studies (C. 2, Sayı 8, ss. 93-100). GRS Publisher. <https://doi.org/10.5281/zenodo.16902966>
70. Dr. Mehmet Uçkaç, PhD, & Dr. Mohammad Ekram YAWAR. (2025). Examining the Position and Role of Biotechnology in the Development of International Environmental Law. İçinde GRS Journal of Multidisciplinary Research and Studies (C. 2, Sayı 1, ss. 26-36). GRS Publisher. <https://doi.org/10.5281/zenodo.16886409>
71. Dr. Mehmet Uçkaç, PhD, & Prof, Dr. Mohammad Ekram YAWAR. (2025). Systematic Literature Review - Talent Management, Succession Planning and Organizational Sustainability. İçinde GRS Journal of Multidisciplinary Research and Studies (C. 2, Sayı 1, ss. 1-7). GRS Publisher. <https://doi.org/10.5281/zenodo.16886511>
72. Dr. Mehmet Uçkaç, PhD, & Prof, Dr. Mohammad Ekram YAWAR. (2025). International Law and Nuclear Right. İçinde GRS Journal of Multidisciplinary Research and Studies (C. 2, Sayı 1, ss. 8-12). GRS Publisher. <https://doi.org/10.5281/zenodo.16886386>
73. Dr. Mehmet Uçkaç, PhD, & Prof, Dr. Mohammad Ekram YAWAR. (2025). The Status and Provisional Implementation of International Treaties in International Organizations. İçinde GRS Journal of Multidisciplinary Research and Studies (C. 2, Sayı 1, ss. 18-25). GRS Publisher. <https://doi.org/10.5281/zenodo.16886404>
74. Ekram Yawar, M., Abdul Sharify, J., & Abdullah Sadat, S. (2025). Artificial Intelligence and International Peace and Security. *Acta Globalis Humanitatis Et Linguarum*, 2(2), 49-61. <https://doi.org/10.69760/aghel.02500205>
75. Ekram Yawar, M. (2025). Long-Term Change in International Relations. *Porta Universorum*, 1(2), 13-22. <https://doi.org/10.69760/portuni.010202>
76. Prof, Dr. Mohammad Ekram YAWAR, & Dr. Mehmet Uçkaç, PhD. (2025). A Review of International Relations and (Civilizational Theorizing). İçinde GRS Journal of Arts and Educational Sciences (C. 1, Sayı 2, ss. 44-52). GRS Publisher. <https://doi.org/10.5281/zenodo.16885973>
77. Prof, Dr. Mohammad Ekram YAWAR, & Dr. Mehmet Uçkaç, PhD. (2025). In the Theories of International Relations and Geopolitics: The Study of Location (The Concept of Conflict). İçinde GRS Journal of Arts and Educational Sciences (C. 1, Sayı 2, ss. 53-60). GRS Publisher. <https://doi.org/10.5281/zenodo.16885993>
78. Prof, Dr. Mohammad Ekram YAWAR, & Dr. Mehmet Uçkaç, PhD. (2025). In the International Foreign Policy of Countries: Soft War of Satellite Networks in Fluidity.

- İçinde GRS Journal of Arts and Educational Sciences (C. 1, Sayı 2, ss. 61-68). GRS Publisher. <https://doi.org/10.5281/zenodo.16886009>
78. Mohammad , E. Y. (2025). The Place of Culture in International Relations Theories. *EuroGlobal Journal of Linguistics and Language Education*, 2(2), 105-123. <https://doi.org/10.69760/egille.2500191>
79. Dr. Mehmet Uçkaç, PhD, & Dr. Mohammad Ekram YAWAR. (2025). Examining the Position and Role of Biotechnology in the Development of International Environmental Law. İçinde GRS Journal of Multidisciplinary Research and Studies (C. 2, Sayı 1, ss. 26-36). GRS Publisher. <https://doi.org/10.5281/zenodo.16886409>
80. Ekram Yawar, M. (2025). An Overview of Refugee Rights In International Documents. *Global Spectrum of Research and Humanities* , 2(1), 76-86. <https://doi.org/10.69760/gsrh.01012025010>
81. Dursun, E., Ekram Yawar, M., & Amani, A. (2025). The Role and Importance of National Economic Law in The International Legal Order. *EuroGlobal Journal of Linguistics and Language Education*, 2(2), 46-74. <https://doi.org/10.69760/egille.2500082>
82. Dursun, E., Amani, A., & Ekram Yawar, M. (2025). The Legal Framework of the World Trade Organization from the Perspective of Game Theory in International Law. *Global Spectrum of Research and Humanities* , 2(2), 71-98. <https://doi.org/10.69760/gsrh.010120250019>
83. Ekram Yawar, M. (2025). Space Grand Strategy in the Light of International Relations Theory. *EuroGlobal Journal of Linguistics and Language Education*, 2(4), 25-43. <https://doi.org/10.69760/egille.2504003>
84. Ekram Yawar, M. (2025). A Review of the Chinese School of International Relations: Moral Realism. *Acta Globalis Humanitatis Et Linguarum*, 2(4), 105-128. <https://doi.org/10.69760/aghel.0250040005>
85. Ekram Yawar, M., Abdul Sharify, A., & Qasim Fetrat, M. (2025). Review and importance of China's New Silk Road Initiative and the European Union's strategy. *Journal of Azerbaijan Language and Education Studies*, 2(2), 3-27. <https://doi.org/10.69760/jales.2025001007>
86. Ekram Yawar, M., Jamil Sharify , A., & Qasim Fetrat , M. (2025). Review and importance of the Silk Road Initiative; China's initiative for hegemony. *Journal of Azerbaijan Language and Education Studies*, 2(1), 49-63. <https://doi.org/10.69760/jales.2025001005>
87. Rasooli, M., Yawar, M. E., Sharfy, A. J., Haqyar, E. (2024). China-Afghanistan Relations: Change to the Path of Strategic Partnership. *Akademik Tarih ve Düşünce Dergisi*, 10(6), 2603-2627. <https://doi.org/10.46868/atdd.2023.606>