Journal of Artificial Intelligence and Emerging Technologies
Volume 3, Issue 4, pp 17-23, April 2026
ISSN (online): 3049-1967
DOI: https://doi.org/10.47001/JAIET/2026.304003
Available Online at https://www.jaiet.com

Identifying Fake Profiles across Online Social Networks Using Neural Networks

[1]Y Mohan Das, [2]D Reethika, [3]G Mounika, [4]M Sana Arshiya, [5]S Shoyab Raza, [6]S Shaikshavali

[1,2,3,4,5,6]Department of Computer Science Engineering (Data Science), GATES Institute of Technology, Gooty, Andhra Pradesh, India
E-mail: [1]mohandassonu@gmail.com, [2]reethikadevireddy03@gmail.com, [3]mounikachowdhary8@gmail.com, [4]sanaarshiya13@gmail.com, [5]razashoyabraza@gmail.com, [6]sha32650@gmail.com

Abstract: The rapid growth of online social networks has increased communication and information sharing among users. However, it has also led to the creation of many fake profiles used for spam, fraud, and spreading misinformation. Detecting these fake accounts is important to maintain the security and reliability of social networking platforms. This project proposes a neural network-based approach to identify fake profiles across online social networks. The system analyzes various user profile features such as account activity, number of friends, posting behavior, and profile information. These features are given as input to a neural network model that learns patterns to distinguish between genuine and fake profiles. The trained model can automatically classify new profiles with good accuracy. The proposed method helps improve the detection of fake accounts and supports social networking platforms in enhancing user security and trust.

Keywords: Fake Profile Detection, Online Social Networks, Neural Networks, Machine Learning, Social Media Security.

I. INTRODUCTION

Online social networks such as Facebook, Twitter, and Instagram are widely used for communication, information sharing, and social interaction. However, the rapid growth of these platforms has also increased the number of fake profiles, which are often created for activities such as spam, fraud, and spreading misinformation. These fake accounts can negatively affect the trust and security of social networking platforms.

To address this problem, techniques from Machine Learning and Artificial Intelligence are used to automatically detect suspicious accounts. In this project, a model based on Neural Networks is used to analyze user profile features such as account activity, number of friends, and posting behavior. The system learns patterns from the data and classifies profiles as genuine or fake, helping to improve the safety of online social networks.

The proposed approach focuses on analyzing different profile attributes and behavioral patterns of users. By training the neural network with labeled datasets, the system can accurately identify suspicious profiles. This automated detection method reduces manual effort and improves the efficiency of fake profile identification. The overall goal of the project is to enhance security and maintain trust within online social networking platforms.

Another important aspect of fake profile detection is analyzing the behavioral patterns of users within social networks. Genuine users usually show consistent activities such as regular interactions, meaningful posts, and stable friend connections, whereas fake profiles often display abnormal behaviors like sending excessive friend requests, posting spam content, or having incomplete profile information. By studying these patterns and applying neural network models, the system can effectively learn the differences between real and fake accounts and improve the accuracy of detection.

II. PROBLEM STATEMENT

The rapid growth of online social networking platforms such as Facebook, Twitter, and Instagram has led to an increase in the number of fake profiles. These fake accounts are often created to spread spam, perform fraudulent activities, distribute misleading information, or collect personal data from genuine users. Such activities can reduce the trust, security, and reliability of online social

Journal of Artificial Intelligence and Emerging Technologies
Volume 3, Issue 4, pp 17-23, April 2026
ISSN (online): 3049-1967
DOI: https://doi.org/10.47001/JAIET/2026.304003
Available Online at https://www.jaiet.com

networks.

Traditional methods of detecting fake profiles mainly rely on manual monitoring or simple rule-based systems, which are often ineffective in identifying large numbers of fake accounts. As social networks continue to grow rapidly, it becomes difficult to detect suspicious profiles using these traditional approaches. Therefore, there is a need for an automated and intelligent system that can accurately detect fake profiles. The problem addressed in this project is to develop a neural network-based model that can analyze user profile features and behavioral patterns to effectively identify and classify fake accounts in online social networks. This system aims to improve detection accuracy and enhance the security of social media platforms.

III. RELATED WORK

Several studies have been conducted to detect fake profiles in online social networks using machine learning techniques. Researchers have used algorithms such as Support Vector Machine (SVM), Naïve Bayes, and Decision Trees to classify user accounts based on profile information and activity patterns. These methods analyze features like number of friends, posting behavior, and account activity to identify suspicious accounts.

Recently, deep learning techniques such as Artificial Neural Networks (ANN) have been used for fake profile detection because they can learn complex patterns from large datasets. Neural network models analyze multiple user profile features and provide better accuracy in distinguishing between genuine and fake profiles.

These studies show that machine learning and neural network approaches are effective in improving the detection of fake accounts in online social networks.

IV. LITERATURE REVIEW

The detection of fake profiles in online social networks has become an important research area due to the rapid growth of social media platforms such as Facebook and Twitter. Many researchers have proposed different techniques to identify fake accounts and improve the security of online platforms.

Earlier studies mainly focused on traditional methods from Machine Learning such as Support Vector Machine (SVM), Decision Trees, and Naïve Bayes for fake profile detection. These methods analyze user profile attributes like number of friends, posting frequency, and account activity to classify profiles as genuine or fake. Although these approaches showed good performance, they have limitations when handling large and complex datasets.

Recent research has introduced deep learning techniques such as Artificial Neural Networks to improve detection accuracy. Neural network models can automatically learn complex patterns from user behavior and profile features. These models are capable of identifying hidden relationships in data and provide better performance compared to traditional methods.

Therefore, many modern fake profile detection systems use neural network-based approaches to analyze user data and improve the reliability and security of online social networks.

V. PROPOSED SYSTEM

The proposed system focuses on detecting fake profiles in online social networks using a Neural Network-based model. The system collects various user profile features such as number of friends, account activity, posting behavior, profile information, and interaction patterns. These features are used as input data for training the model.

In this system, the collected dataset is first preprocessed to remove unnecessary or missing data. After preprocessing, the important features are selected and given to a Neural Network classifier for training. The model learns patterns from both genuine and fake profiles present in the dataset. Once the training process is completed, the trained model can classify new user profiles as real or fake.

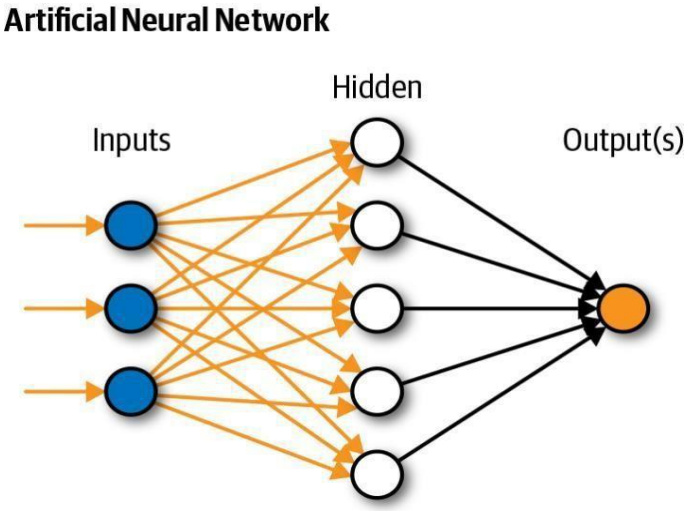
Journal of Artificial Intelligence and Emerging Technologies
Volume 3, Issue 4, pp 17-23, April 2026
ISSN (online): 3049-1967
DOI: https://doi.org/10.47001/JAIET/2026.304003
Available Online at https://www.jaiet.com

The proposed system includes several stages such as data collection, data preprocessing, feature extraction, model training, and classification. Feature extraction helps in identifying the most relevant attributes that influence fake profile detection. The neural network processes these features through multiple layers to learn complex relationships within the data.

After training, the model is tested with unseen data to evaluate its performance and accuracy. The system can automatically detect suspicious profiles and assist social networking platforms in reducing spam, fraud, and other malicious activities. By using neural network techniques, the proposed system improves efficiency, scalability, and reliability in fake profile detection.

VI. MODELS USED

In this project, a Neural Network model is used to identify fake profiles in online social networks. Neural networks are a part of Deep Learning and are widely used for classification and pattern recognition tasks. The model is trained using profile features such as number of friends, posting behavior, account activity, and profile information to distinguish between real and fake accounts.



The main model used in this project is the Artificial Neural Network (ANN). ANN consists of multiple layers including the input layer, hidden layers, and output layer. The input layer receives user profile features, the hidden layers process the data by learning patterns, and the output layer produces the final classification result as either genuine or fake profile. The neural network model is

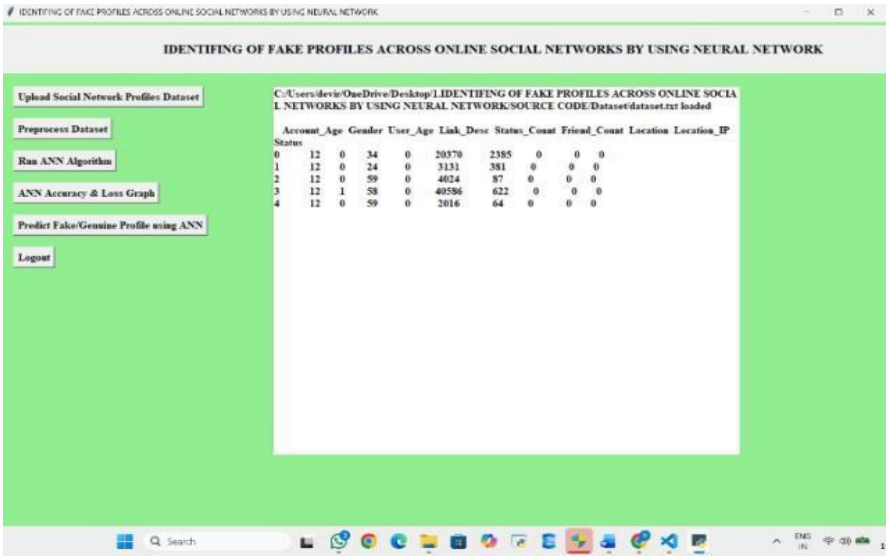
Journal of Artificial Intelligence and Emerging Technologies
Volume 3, Issue 4, pp 17-23, April 2026
ISSN (online): 3049-1967
DOI: https://doi.org/10.47001/JAIET/2026.304003
Available Online at https://www.jaiet.com

trained on a labeled dataset containing both real and fake profiles. During training, the model adjusts its weights to improve prediction accuracy. After training, the model can analyze new user profiles and classify them based on the learned patterns. This approach helps in improving the efficiency and accuracy of fake profile detection in online social networks.

VII. RESULTS

The proposed system successfully detects fake profiles in online social networks using an Artificial Neural Network (ANN) model. The model analyzes various user profile features and accurately classifies profiles as genuine or fake. Experimental results show that the system effectively learns patterns from the dataset and improves the detection of suspicious accounts.

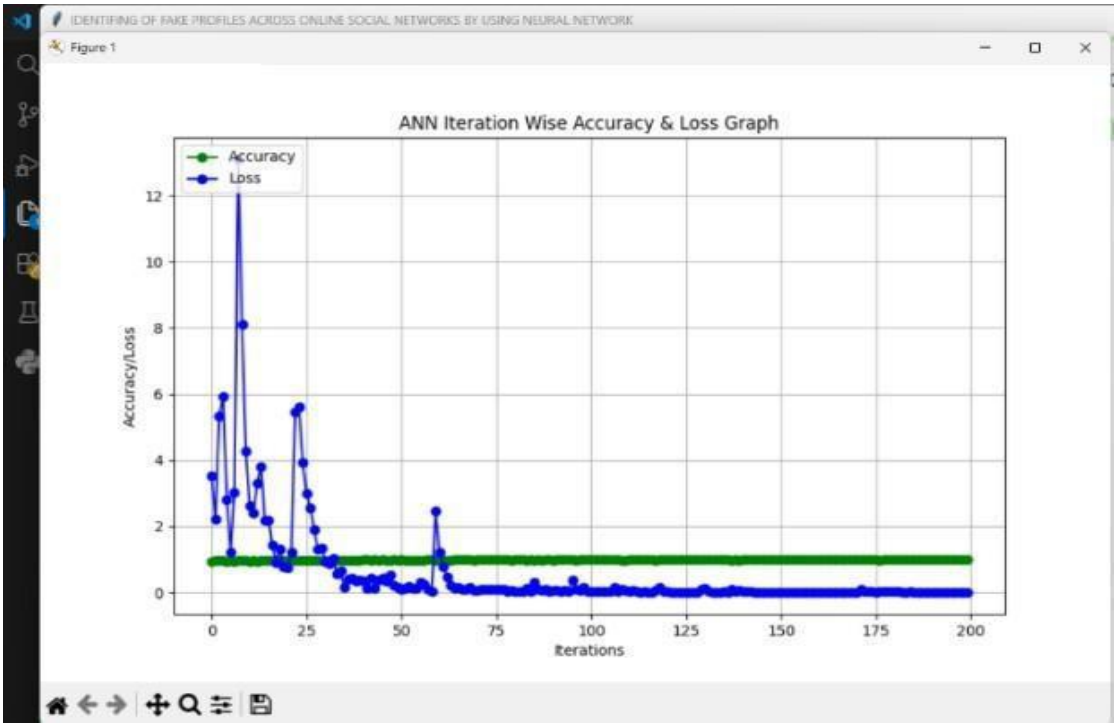
This shows the main interface of the fake profile detection system. It provides different options such as uploading the dataset, preprocessing data, running the ANN algorithm, and predicting fake or genuine profiles. This interface allows the user to control and execute the entire fake profile detection process.



This shows the dataset upload process of the social network profiles. The system successfully loads the dataset and displays the profile records with different attributes such as age, gender, friend count, and status count. This data is used as input for training the neural network model to detect fake profiles.

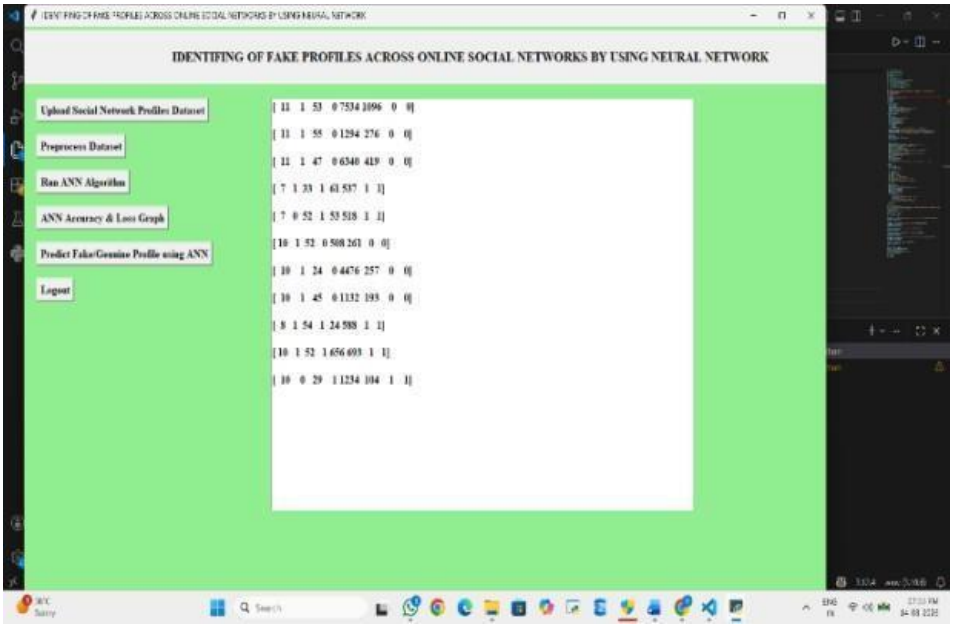
Journal of Artificial Intelligence and Emerging Technologies
Volume 3, Issue 4, pp 17-23, April 2026
ISSN (online): 3049-1967
DOI: https://doi.org/10.47001/JAIET/2026.304003
Available Online at https://www.jaiet.com

This shows the dataset preprocessing stage of the system. In this step, the uploaded dataset is divided into training and testing datasets for model development. This process prepares the data for training the Artificial Neural Network (ANN) model and evaluating its performance.



This shows the ANN accuracy and loss graph generated during the model training process. The graph illustrates how the model's accuracy improves while the loss value decreases across training iterations. This indicates that the neural network is learning patterns effectively from the dataset.

Journal of Artificial Intelligence and Emerging Technologies
Volume 3, Issue 4, pp 17-23, April 2026
ISSN (online): 3049-1967
DOI: https://doi.org/10.47001/JAIET/2026.304003
Available Online at https://www.jaiet.com



This shows the prediction results of the Artificial Neural Network (ANN) model. The trained model analyzes the profile data and classifies each account as either a fake profile or a genuine profile. This result demonstrates the system's ability to automatically detect suspicious accounts in online social networks.

VIII. CONCLUSION

In this project, a neural network-based system was developed to identify fake profiles in online social networks. The system analyzes various user profile features such as account activity, number of friends, and profile information to detect suspicious accounts. An Artificial Neural Network (ANN) model was used to learn patterns from the dataset and classify profiles as genuine or fake. The experimental results show that the proposed can effectively detect fake profiles with good accuracy. This approach helps improve the security and reliability of social networking platforms. Overall, the system provides an efficient solution for identifying malicious accounts and maintaining a safer online environment.

REFERENCES

1. S. Ramdas and N. N. T. Agnes, "Leveraging Machine Learning for Fraudulent Social Media Profile Detection," Cybernetics and Information Technologies, vol. 24, no. 1, pp. 1–15, 2024.

2. A. Nayak and D. K. Singh, "Fake Profile Detection Using Machine Learning Algorithms," Journal of Computational Analysis and Applications, vol. 33, no. 5, pp. 2812–2828, 2024.

3. R. Anbazhagan, B. Jayakrishna, S. Arun Kumar, and L. Geetha, "Unmasking Deceit: Fake Profile Detection Using Machine Learning," International Journal of Engineering Research & Technology (IJERT), vol. 13, no. 6, 2024.

4. Lokesh M., Karthik S. B., Pavan Patil, and Jay Kumar Jha, "Fake Profile Social Media Detection Using ANN Model," Recent Trends in Artificial Intelligence & Its Applications, vol. 3, no. 3, 2024.

5. V. Mahesh, K. Tharun, P. Rushikesh, and D. Saidulu, "Machine Learning-Based Fake Profile Detection on Social Networking Websites," International Journal of Scientific Research in Computer Science, Engineering and Information Technology, 2023.

6. Ajaykumar Dharmireddy and Monika Devi Gottipalli, "Social Networking Sites Fake Profiles Detection Using Machine Learning

Journal of Artificial Intelligence and Emerging Technologies
Volume 3, Issue 4, pp 17-23, April 2026
ISSN (online): 3049-1967
DOI: https://doi.org/10.47001/JAIET/2026.304003
Available Online at https://www.jaiet.com

Techniques," Asian Journal for Convergence in Technology, vol. 9, no. 3, 2023.

7. J. Joseph, A. Raju, A. Santhosh, A. Jenish, and M. K. S., "Survey on Fake Profile Detection in Social Media," International Journal on Emerging Research Areas, vol. 3, no. 1, pp. 191–193, 2023.

8. A. Kuruvilla, R. Daley, and R. Kumar, "Spotting Fake Profiles in Social Networks via Keystroke Dynamics," arXiv Preprint, 2023.

9. L. Chen, X. Wang, and Y. Liu, "Machine Learning Approaches for Social Media Fraud Detection," IEEE Transactions on Information Forensics and Security, 2022.

****