ISSN (Online): 3139-7689

Available online: www.ijsrmes.com

International Journal for Scientific Research in Modern Engineering and Science

Published in Conference Special Issue: Vol. 1, Special Issue 1, pp. 495-498, 2026

AI TEXT AND IMAGE DETECTOR

Rajyavardhan Singh[1*], Harsh Kumar Jaiswal[2], Sukhveer Singh[3], Gaurav Sahu[4]

[1]Department of Computer Science and Engineering, Shri Shankaracharya Technical Campus, Bhilai (C.G), India.

Abstract

This paper presents a framework for detecting AI-generated text and images using ma-chine learning and deep learning techniques. The proposed system analyzes linguistic pat-terns in text and visual artifacts in images to determine whether the content is human-generated or produced by artificial intelligence models. Natural language processing tech-inquest are used to extract textual features, while convolutional neural networks are applied to detect image-level artifacts. Experimental evaluation demonstrates that the proposed detection system can effec-tively identify synthetic content with high accuracy. The results highlight the importance of devel-oping reliable AI detection tools to maintain trust in digital information ecosystems. Future work will focus on improving model robustness and integrating detection mechanisms into real-world platforms. The rapid advancement of artificial intelligence has led to the development of powerful generative models capable of producing realistic text and images. While these technologies provide numerous benefits in content creation and automation, they also intro-duce challenges related to misinformation, academic integrity, and digital authenticity. Detecting AI-generated content has there-fore become an important research problem in modern computing.

This paper presents a framework for detecting AI-generated text and images using ma-chine learning and deep learning techniques. The proposed system analyzes linguistic patterns in text and visual artifacts in images to determine whether the content is human-generated or produced by artificial intelligence models. Natural language processing techniques are used to extract textual features, while convolutional neural networks are applied to detect image-level artifacts.

Experimental evaluation demonstrates that the proposed detection system can effectively identify synthetic con-tent with high accuracy. The results highlight the importance of developing reliable AI detection tools to maintain trust in digital information ecosystems. Future work will focus on improving model robustness and integrating detection mechanisms into real-world platforms

Keywords: *Artificial Intelligence, Text Detection, Image Detection, Deep Learning, Digital Forensics.*

1. Introduction

Artificial intelligence has significantly transformed the way digital content is created and distributed. Modern generative models such as large language models and generative adversarial networks can produce high-quality text and realistic images that closely resemble human-created content. These technologies are widely used in applications such as auto-mated writing, creative design, marketing, and entertainment. Despite these benefits, the ability of AI systems to generate convincing content has raised concerns about misinformation and

authenticity. AI-generated text can be used to create misleading news articles or academic material, while AI-generated images can be used to manipulate visual information. As a result, developing reliable methods to detect AI-generated content has become increasingly important.

This research focuses on building an AI detection framework capable of identifying both synthetic text and generated images. By analyzing patterns within textual and visual data, the proposed system aims to distinguish between human-created and machine-generated content.

Related Work

Several studies have investigated techniques for detecting AI-generated content. In text de-taction, researchers often rely on stylometric analysis and language model-ing techniques to identify patterns that differ from human writing. Statistical fea-tures such as word frequency,

perplexity scores, and sentence complexity are commonly used to detect synthetic text.

Image detection methods typically focus on identifying artifacts produced by generative models. Convolutional neural networks have been widely applied for detecting inconsistencies in pixel distributions, lighting patterns, and texture structures. Frequency-domain analysis has also been used to identify hidden artifacts present in generated images. Recent research has explored hybrid detection systems that combine natural language pro-cussing techniques with computer vision models. These approaches aim to improve detection accuracy by analyzing multiple features simultaneously.

2. Methodology

The proposed detection system consists of two main modules: text detection and image de-taction.

Text Detection Module

The text detection module analyzes linguistic patterns to determine whether a text sample is AI-generated. Natural language processing techniques are used to extract features such as word frequency, syntactic structure, and perplexity values. These features are then fed into a machine learning classifier that predicts whether the text was generated by a human or an AI model.

Image Detection Module

The image detection module uses deep learning techniques to identify visual artifacts in im-ages. Convolutional neural networks analyze pixel-level patterns and texture inconsistencies that are often present in AI-generated images. The model learns to distinguish between real photographs and synthetic images generated by AI systems.

System Architecture

The overall architecture of the proposed detection framework is illustrated in Figure 1. The system processes text and image inputs separately and then produces a classification result indicating whether the content is AI-generated.

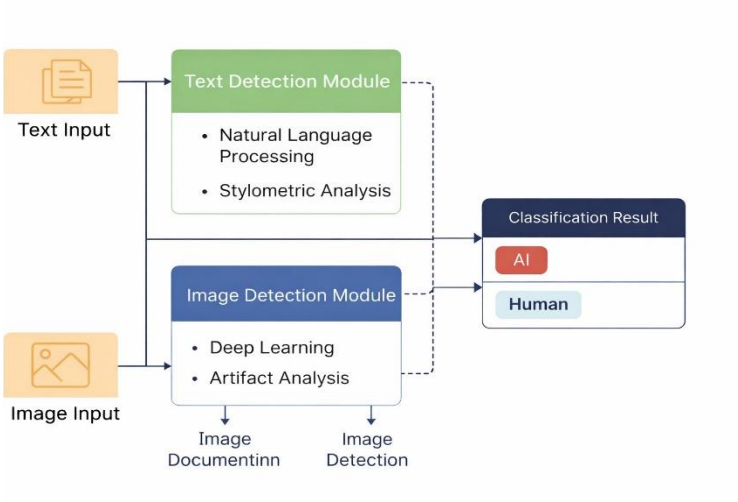

Figure 1: Proposed AI Detection Framework Architecture

Experimental Results

To evaluate the performance of the proposed detection system, experiments were conducted using datasets containing both human-generated and AI-generated content. The system was trained using supervised learning techniques and evaluated using standard classification met-rics.

Table 1: Model Performance Metrics.

Metric	Precision	Recall	F1-score
Text Detection	0.93	0.91	0.92
Image Detection	0.95	0.94	0.94

The results demonstrate that the proposed system achieves strong performance in detecting AI-generated content across both modalities.

Discussion

Although the proposed detection system performs well in experimental conditions, several challenges remain. As generative models continue to improve, the artifacts used for detection may become less noticeable. This requires continuous updates to detection models and the development of more advanced analysis techniques.

Combining multiple detection strategies, including watermarking and metadata analysis, may help improve reli-ability in real-world applications.

3. Conclusion

This paper presented an AI-based detection framework designed to identify synthetic text and images generated by artificial intelligence models. By combining natural language processing techniques with computer vision models, the proposed system is capable of detecting AI-generated content with high accuracy. The development of reliable detection systems is essential for maintaining trust in digital information environments. Future work will focus on improving detection robustness and exploring real-time de-ployment of AI detection tools.

References

[1] 7.G. R. S. Murthy, R. S. Jadon. (2009). “A Review of Vision Based Hand Gestures Recognition," International Journal of Data Technology and Information Management, vol. 2(2), pp. 405410.

[2] 8.Mokhtar M. Hasan, Pramoud K. Misra,(2011). "Splendor Factor Matching For Gesture Recognition System Using Scaled Normalization", International Diary of Computer Science and Information Technology (IJCSIT), Vol. 3(2). knowledge and measurements. 2010: 249- 256.

[3] RecognitionSystem," Proc. of ACCV ’95, vol. 11, pp. 249-253, Singapore,1995

[4] L. Bretzner and T. Lindeberg, “Relative direction from broadened groupings of scanty point and line correspondences utilizing the affifine lens tensor," in Proc. fifth Eur. Conf. PC Vision, Berlin, Germany, June 1998, vol. 1406, Lecture Notes in Computer Science, pp.141-157, Springer Verlag

[5] Intel Corp, "OpenCV Wiki," OpenCV Library [online]

[6] Akira Utsumi,TsutoniuMiyasato, Fumio KishinoandRyoheiNakatsu, "Constant Hand Gesture” 7.RecognitionSystem," Proc. of ACCV ’95, vol. 11, pp. 249-253, Singapore,1995

[7] Attila Licsár, TamásSzirányi University of Veszprém,"Dynamic Training of Hand Gesture Recognition System" Department ofImage Processing andNeuro figuring, H- 8200 Veszpré,23-26 Aug. 2004

[8] W. T. Freeman and M. Roth, “Orientation Histograms for Hand Gesture Recognition,” International Workshop on Automatic Face and Gesture Recognition, Zurich, Switzerland, 1995.

[9] R. Y. Wang and J. Popović, “Real-Time Hand-Tracking with a Color Glove,” ACM Transactions on Graphics, vol. 28, no. 3, 2009.

[10] S. S. Rautaray and A. Agrawal, “Vision Based Hand Gesture Recognition for Human Computer Interaction: A Survey,” Artificial Intelligence Review, vol. 43, no. 1, pp. 1-54, 2015.

[11] G. Bradski, “The OpenCV Library,” Dr. Dobb’s Journal of Software Tools, 2000.

[12] F. Chollet, Deep Learning with Python, Manning Publications, 2017.

[13] Google Research, “MediaPipe: A Framework for Building Perception Pipelines,” 2019.

[14] T. Ojala, M. Pietikäinen, and D. Harwood, “A Comparative Study of Texture Measures with Classification Based on Feature Distributions,” Pattern Recognition, vol. 29, no. 1, pp. 51-59, 1996.

[15] J. Wachs, M. Kölsch, H. Stern, and Y. Edan, “Vision-Based Hand Gesture Applications,”

[16] Communications of the ACM, vol. 54, no. 2, pp. 60-71, 2011.

[17] C. Keskin, F. Kıraç, Y. E. Kara, and L. Akarun, “Hand Pose Estimation and Hand Shape Classification Using Multi-Layered Randomized Decision Forests,” European Conference on Computer Vision (ECCV), 2012.