

A novel technique on Revolutionizing E-Learning with Region-Based Convolutional Neural Networks

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5
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Abstract

Document Sections

» INTRODUCTION

» LITERATURE REVIEW

» PROPOSED METHOD

» RESULT AND DISCUSSION

» CONCLUSION

Authors

Figures

References

Keywords

Metrics

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Abstract:

E-learning has become an integral part of modern education, providing flexible and accessible learning opportunities. However, traditional e-learning systems often struggle with limitations in personalized content delivery, adaptive assessments, and real-time feedback. This paper proposes a novel technique that leverages Region-Based Convolutional Neural Networks (R-CNNs) to enhance e-learning by improving content classification, student engagement analysis, and adaptive learning pathways. The proposed approach utilizes R-CNNs for real-time student behavior analysis, automated content recommendation, and intelligent assessment grading, thereby optimizing the learning experience. By integrating deep learning-based feature extraction and object detection, the system dynamically adapts educational content to individual learners based on their engagement levels and learning patterns. Experimental results demonstrate that the R-CNN-based model significantly enhances content accuracy, improves response time in adaptive learning, and increases overall student engagement compared to traditional e-learning frameworks. This research highlights the potential of deep learning-driven e-learning platforms in creating a more interactive, intelligent, and personalized educational environment.

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