

Math Handwriting Conversion Using AI Approach: A Lighter Alternative to Scanning

This paper presents a lightweight AI-based approach for converting handwritten mathematical expressions, offering an efficient alternative to traditional scanning methods. Our model addresses the inherent challenges of math handwriting recognition, including the two-dimensional structure and symbol ambiguity, by leveraging deep learning techniques optimized for spatial representation. Trained on a diverse dataset, including samples from MathWriting, the system achieves an average recognition accuracy of 90%, significantly outperforming the 64% industry benchmark. Evaluation across four key mathematical terms—Function, Generality, Hyperbolic, and Derivative—demonstrates reliable character-level recognition and consistent differentiation of visually similar symbols. With processing times ranging from 1 to 2 seconds depending on input complexity, the model supports real-time application and user interaction. Implementation insights suggest the use of convolutional neural networks (CNNs) or similar architectures, with a processing pipeline optimized for both accuracy and speed. Future directions include expanding the dataset, enhancing symbol-specific accuracy, and integrating adaptive learning for personalized recognition. This work establishes a practical foundation for deploying AI-powered math handwriting recognition in educational and research environments, emphasizing usability, responsiveness, and improved performance over conventional methods.

Từ khóa

Math Handwriting Recognition, Artificial Intelligence, Word Recognition, Linear Regression, Machine Learning

Thông tin các tác giả

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