|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S.NO | TITLE | YEAR | AUTHOR | JOURNAL NAME | METHODOLOGY | LIMITATIONS |
| 1 | Comparative Study on Handwritten Digit Recognition Classifier Using CNN and Machine Learning Algorithms | 2022 | [Tanuja Kumari](https://ieeexplore.ieee.org/author/37088892023),  [Yatharth Vardan](https://ieeexplore.ieee.org/author/37089356196), [Prashant Giridhar Shambharkar](https://ieeexplore.ieee.org/author/37089356687),  [Yash Gandhi](https://ieeexplore.ieee.org/author/37088425886) | [International Conference on Computing Methodologies and Communication (ICCMC)](https://ieeexplore.ieee.org/xpl/conhome/9752772/proceeding) | Convolutional Neural Networks (CNN),  K-Nearest Neighbor, and Support Vector Machine | New algorithms  can Be used for increase efficiency |
| 2 | Handwritten numeral recognition through superimposition onto printed form | 2022 | M.I.R.ShuvoaM.A.H.AkhandaNazmul  Siddiqueb | Journal of King  Saud University - Computer and Information Sciences | CNN(Convolution neural  Network) | Not able to detect  due to higher distortion and ambiguity  of the input |
| 3 | Application of Multicategory Handwritten Letters, Numbers and Symbols Recognition Based on Convolutional Neural Networks | 2022 | Ke Hong,  Sizhe Li, Yajing Wang, Xuan  Zhang | International Conference on Big Data, Information and Computer Network  (BDICN) | convolutional neural networks (CNN) | Do not support  High Resolution |
| 4 | Recognition of Handwritten Digits Based on Images Spectrum Decomposition | 2021 | [Zufar Kayumov](https://ieeexplore.ieee.org/author/37088524869),  [Dmitrii Tumakov](https://ieeexplore.ieee.org/author/37373455500), | [International Conference on Digital Signal Processing and its Applications (DSPA)](https://ieeexplore.ieee.org/xpl/conhome/9535669/proceeding) | CNN(Convolution neural network) | The recognition ability of adhesive handwritten numeral images in different backgrounds. |
| 5 | Real Time Handwritten Digits Recognition Using Convolutional Neural Network | 2021 | Kaveti Upender, Venkata Siva  Kumar Pasupuleti | International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE) | OpenCV python library,  Machine learning, Deep  Learning. | Improving the  Model Accuracy |
| 6 | Classification of printed text and handwritten characters with neural networks. | 2020 | K. Bramara Neelima, Dr.S. Arulselvi | Journal of critical reviews | ANN,AVM, OCR, KNN | Graphics and fonts are not handled in this paper. |
| 7 | Classification of Text regions in  a Document  Image by Analyzing the properties of Connected Components | 2020 | Showmik Bhowmik;Ram Sarkar | International journal of pure and applied mathematics | Text region classification, Connected Component Analysis,  Document Layout Analysis,  RDCL 7BINYAS. | Issue of non-horizontally aligned text. complex semantic classification of regions like abstract, paragraph-heading, figure and table caption etc. |
| 8 | Automatic Deep Understanding  of Tables in Technical Documents | 2020 | Michail S. Alexiou; Nikolaos Bourbakis | International Journal of Engineering & Technology | Convolutional Neural Network(CNN) model,Optical character recognition (OCR) | This can not be applicable for mixed tables and no-line tables. Applicable only7for simple, multidimensional and extended tables. |
| 9 | Quality-related English Text Classification Based on  Recurrent  Neural Network | 2019 | Cheng Liu, Xiaofang Wang | Elsevier journal | KNN, naive Bayes, RNN, KNN, SVM | When English is mixed with other language,it is difficult to identify |
| 10 | Steps involved  in text  recognition and research in OCR | 2019 | K.Karthick, K.B.Ravindrakumar, R.Francis, S.Ilankannan | International journal of recent technology and engineering | Optical character recognition (OCR) | Multilingual character segmentation and recognition also possible |
| 11 | A Streamlined OCR System for Handwritten Marathi Text Document Classification and Recognition | 2018 | Surendra Pandurang Ramteke, Ajay Anil Gurjar, Dhiraj Sheshrao Deshmukh | International Journal of Intelligent Engineering and systems | OCR, PCA, SVM, ANN | Other clustering or classification systems like fuzzy neural network and genetic algorithm |
| 12 | An Efficient Character Recognition Technique  Using K-  Nearest  Neighbor  Classifier | 2018 | Nawaf Hazim Barnouti, Mohammed Abomaali, Mohanad Hazim Nsaif Al-Mayyahi | International Journal of Engineering & Technology | OCR,KNN | Small number of dataset is used. |
| 13 | Document Classification using Various Classification Algorithms | 2018 | Bipanjyot Kaur , Gourav Bathla | International Journal on Future Revolution in Computer Science & Communication Engineering | Decision tree, SVM, Naive Bayes,ANN | Need to analyse text classification with maximum metrices |
| 14 | Table detection using Deep Learning | 2017 | Azka Gilani; Shah Rukh Qasim; Imran Malik; Faisal Shafait | International journal on document analysis and recognition | OCR | Fails to localize table regions if it is spanned across multiple columns |
| 15 | Segmentation and recognition of text from image using SVM classifier | 2017 | N.Anandhi , R. Avudaiammal | International journal of pure and applied mathematics | OCR,SVM | Text is not directly extracted from image |