S.NO	AUTHOR NAME	YEAR OF PUBICATIONS	ABSTRACT	CONCEPT\ ALGORITHM	FIND ING FOR EVALUATION	ADVANTAGES	DISADVANTAGES
1	Rohini.M Dr.D.Surendran	2019	Abstract Handwritten digit recognition has recently been of very interest among the researchers because of the evolution of various Machine Learning, Deep Learning and Computer Vision algorithms. In this report, We compare the results of some of the most widely used Machine Learning Algorithms like CNN-convolution neural networks and with Deep Learning algorithm like multilayer CNN using Keras with Theano and Tensorflow. MNIST is a dataset which is widely used for handwritten digit	HANDWRITTEN digit recognition is the ability of a computer system to recognize the handwritten inputs like digits, characters etc. from a wide variety of sources like emails, papers, images, letters etc. This has been a topic of research for decades. Some of the research areas include signature verification, bank check processing, postal address interpretation from envelopes et Here comes the use of Deep Learning. In the past decade, deep learning has become the hottool for Image Processing, object	95.72%	Handwriting recognition system is the most basic and an important step towards this huge and interesting area of Computer Vision. Deep Learning has emerged as a central tool for self-perception problems like understanding images, voice from humans, robots exploring the world Every tool has its own complexity and accuracy	Classification of images and patterns has been one of the major implementation of Machine Learning and Artificial Intelligence Can not understand

			recognition. The dataset consist of 60,000 training images and 10,000 test images.The artificial neural neworks can all most mimic the human brain and are a key ingredient in image processing field	detection, handwritten digit and character recognition etc. A lot of machine learning tools have been developed like scikit-learn, scipy-image etc. and pybrains, Keras, Thean			
2	S M Shamim, Mohammad Badrul Alam Miah, Abdullah	2018	Handwritten character recognition is one of the practically important issues in pattern recognition applications. The applications of digit recognition includes in postal mail sorting, bank check processing, form data entry, etc. The heart of the problem lies within the ability to develop an efficient algorithm that can	The main application of machine learning methods over the last decade has determined efficacious in conforming decisive systems which are competing to human performance and which accomplish far improved than manually written classical artificial intelligence systems used in the beginnings of optical	90.37%	In this paper used different machine learning algorithm for recognition of handwritten numerals The accuracy has been obtained for Multilayer Perceptron Handwritten digit dataset are vague in nature because there may not always be sharp and perfectly straight lines.	It is not remove the redundancy from the data and gain a more effective embodiment of the word image through a set of numerical attributes It is quiet exhausting that sometimes to identify hand written characters as it can be seen that most of the human beings can't even recognize their own written scripts not understanding

			recognize hand written digits and which is submitted by users by the way of a scanner, tablet, and other digital devices. This paper presents an approach to off-line handwritten digit recognition based on different machine learning technique. The main objective of this paper is to ensure effective and reliable approaches for recognition of handwritten digits. Several machines learning algorithm namely, Multilayer Perceptron, Support Vector Machine, Naïve Bayes, Bayes Net, Random Forest, J48 and Random	character recognition technology One of the challenges in handwritten characters recognition wholly lies in the variation and distortion of handwritten character set because distinct community may use diverse style of handwriting, and control to draw the similar pattern of the characters of their recognized script			

			Tree has been used for the recognition of digits using WEKA				
3	Remya Vinayakumar, Vince Pau	2016	Handwriting differs from person to person. Some may be legible while some others are difficult to read or understand. Hence this project aims at recognizing the handwritten text and understandin g what it is with the help of a neural network and fuzzy logic. It involves segmentation , feature extraction and classification. Here the method used is Canny Edge Detection Algorithm and the Histogram Of Gradients for the feature extraction. The neural network is trained on to a 50 set samples for	Artificial intelligence is one of the most interesting and fascinating area in the field of research. The word Intelligence is derived from the Latin word Intelligere which means to comprehend or perceive. Intelligence is the ability to perceive information and retain it as knowledge so as to apply towards the adaptive behavior within an environment. Generally we say that only human beings have the ability to think and understand. But it is also being observed in non-human	80%	It is mainly being applied in the field of robotics, pattern recognition etc. Handwriting can be defined as a person's writing using the pen or any possible instrument. Even identical twins have different styles of writing People may be able to copy it but can never write it in the same identical way. It can be performed in either offline or online.	It is only engrossing field of research. It is only offline handwritten character recognition, it focuses on documents that have been written on papers. It is produced time complexity

			each of the 26 alphabets and 10 numbers for recognition The fuzzification can be applied along with this inorder to get more accurate results by giving the questionnaires, ie, by giving the conditions to check if it satisfies a particular character which is to be determined	animals and in plants. Artificial intelligence is the intelligence associated with machines or software			
4	MALOTHU NAGU, N VIJAY SHANKAR, K.ANNAPURNA	2011	Character recognition plays an important role in the modern world. It can solve more complex problems and makes humans' job easier. An example is handwritten character recognition. This is a system widely used in the world to recognize zip code or postal code for mail	It helps humans ease their jobs and solve more complex problems This system is developed for zipcode or postal code recognition that can be employed in mail sorting. This can help humans to sort mails with postal codes that are difficult to identify. For more than thirty years,	99%	This accuracy rate is very high. Character recognition is becoming more and more important in the modern world It helps humans ease their jobs and solve more complex problems Handwriting recognition is not a new technology, but it has not gained public attention until	It gave different training and testing results every day for each numeral. The system was not stable Apart from the above problems and parts that need improvements, the overall recognition system was not successful.

			sorting. There are different techniques that can be used to recognize handwritten characters. Two techniques researched in this paper are Pattern Recognition and Artificial Neural Network (ANN). Neural Network is used to train and identify written digits	researchers have been working on handwriting recognition. Finally, Artificial Neural Networks, using back-Propagation method will be used to train and identify handwritten digits		recently.	
5	Akkireddy Challa	2019	The main purpose of this thesis is to build an automatic handwritten digit recognition method for the recognition of connected handwritten digit strings. To accomplish the recognition task, first, the digits were segmented into individual digits. Then, a digit recognition	This research will be carried out using two methods. The first research method is the ¨Literature Review¨ and the second ¨Experiment¨ . Initially, a literature review is conducted to get a clear knowledge on the algorithms and techniques which will be used to answer the	92%	This thesis is conducted by using Machine learning concepts n. At a high level, machine learning is the process of teaching a computer system on how to make accurate predictions when fed the data Among these, Deep Learning is considered to be the most popular sub-	very limited learning capability. Some of these tasks not identify It produced the unnecessary segmentation hypothesis.

			module is employed to classify each segmented digit completing the handwritten digit string recognition task. In this study, different machine learning methods, which are SVM, ANN and CNN architectures are used to achieve high performance on the digit string recognition problem	first research question i.e., to know which type of data is required for the machine learning methods and the data analysis is performed. Later on, with the knowledge of RQ1, Experimentation is conducted to answer the RQ2, RQ3, RQ4. Quantitative data is used to perform the experimentation because qualitative data which obtains from case-study and survey cannot be used for this experiment method as it contains non-numerical data		branch of Machine Learning.	
6	Priyank Patel, Roshan Shinde, Siddhesh Raut, Sheetal Mahadik	2021	The necessity for quick and precise content section on little handheld PCs has prompted	The new presentation of minimal effort compact pen-based PCs, (for example the "Personal	95%	The methods of exchanging ideas or information between computers and its users.	The digits Character system for English characters dependent on CNN

			a resurgence of interest in on-line word recognition utilizing counterfeit neural Networks. Old style strategies are consolidated and improved to give strong recognition of hand-printed English content. The focal idea of a neural net as a character classifier gives a legitimate base to are cognition framework; long-standing issues comparative with preparing, speculation, division, probabilistic formalisms, and so forth, need to settled, notwithstanding, to instigate astounding execution. assortment of developments in a manner to utilize a neural net as a classifier in	Digital Assistant" or PDA classification) has concentrated on viable enhancements in Handwritten Character Recognition (HRS). This moves towards computerized pointer for composing gives more data, similar to pen stroke, pressing factor and speed of composing. HRS has been read for almost forty years and there are numerous unprecedented proposed approaches. In coming days, character recognition framework may work a vital factor to make a paperless climate by digitizing and handling existing paper records		Handwriting recognition can be both offline and online We are hopeful for the upcoming future The decision making is done inside the order stage	Such as it is in noisly to hear Not always accurate Unique style of writing Poor image of text Different languages Modern handwritting Compared to historical

			a very word recognizer are introduced: negative preparing, stroke twisting, adjusting, standardized yield blunder, mistake accentuation, numerous portrayals, quantized loads, and incorporated word division all add to effective and hearty execution.				