Interim Report

Paper 1 Name: Cursive Handwritten Text Recognition using Bi-Directional LSTMs: A case study on Urdu Handwriting

Paper 1 Authors: Hassan, S., Irfan, A., Mirza, A., & Siddiqi, I.

Paper 1 Year: 2019

Methodology: Methodology Approach was quantitative; data was gathered by testing a system and them compare the recognition rates with other systems` recognition rate.

Objective: The objective of this research is to create a better cursive handwritten text recognition system by using a technique called Urdu.

Implication: The authors implicates that with Urdu a system can recognize cursive letter easily and with precision since deep learning is used where transcription and text line imaged will be used by the system to easily learn character shapes and segmentation points to recognize text faster.

Findings: Cursive language is very complicated and its very difficult to recognize, systems that recognize small set of test line already exists with high recognition rate (with LSTM recognition rate is of 92%), however when presented with 6000 unique text lines the recognition rate is a lower with an 83% which is still high when you take in consideration that all texts are unique

Conclusion: They concluded that the experiments were successful since 6000 unique texts were inputted to the system to be recognized and 83% of the characters were recognized, however in the future it might be better to reduce the number of character classes by separating recognition of the dots and body ligatures is cursive language.

Paper 2 Name: ICFHR2016 Competition on Local Attribute Detection for Handwriting Recognition

Paper 2 Authors: Murdock, M., Reese, J., & Reid, S.

Paper 2 Year: 2016

Methodology: A quantitative approach was used to compare each system scores, for this research it was mandatory to use a quantitative approach since, a human element is not needed to test a system performance.

Objective: The objective of this paper is to find the best recognition system in a competition by evaluating each system using test partitions saved in a database.

Implication: Systems will find it easy to recognize documents that are written in a recognizable format, however in formats were there are different writing styles and local ink attributes, systems will find it harder to recognize.

Findings: The results showed that the a2ia-s2 system had the best recognition rate, however it struggled when recognizing strike through, machine printed and annotation marker texts whilst other systems performed better.

Conclusion: Recognition systems are becoming very accurate and reliable, all the snippets that were used for testing were of different sizes, color, and other attribute however the systems still managed to get a very high recognition rate. There are still things that can be done since there is not system that has a perfect recognition rate but with the help of neural networks results are getting closer.

Paper 3 Name: Handwritten Alphabets Recognition Using Twelve Directional Feature Extraction and Self Organizing Maps

Paper 3 Authors: Supardi, J., Hapsari, I. A., & Siraj, M. M.

Paper 3 Year: 2014

Methodology: A quantitative approach was used to test the system by inputting pictures of several written letter and then record the recognition rate, for this research it was mandatory to use a quantitative approach since, a human element is not needed to test a system performance.

Objective: The objective of this paper is to create an of text recognition system that recognize types of alphabet by using twelve directional feature extraction and SOM (Self Organizing Maps)

Implication: This research is aimed to resolve the abstract recognizing patter of handwriting issue which the main challenged are dynamically handwriting with different form of alphabet.

Findings: The results showed that the system had a recognition rate of 90% accuracy when using secondary data and 87.69% accuracy when using primary data.

Conclusion: With these results the system can be used as an alternative solution for handwritten alphabet recognition.

Paper 4 Name: Research on Handwritten Alphabet Recognition System Based on Extreme Learning Machine

Paper 4 Authors: Song, J., Liu, Q., Tian, S., Wei, Y., Jin, F., Mo, W., & Dong, K

Paper 4 Year: 2018

Methodology: A quantitative approach was used to test the system by inputting pictures of several written letter and then record the recognition rate, for this research it was mandatory to use a quantitative approach since, a human element is not needed to test a system performance.

Objective: Implementing a system that uses MATLAB and visual Studio to achieve real time recognition of handwritten letters, by training the system with pictures using the extreme learning algorithm.

Implication: This research is aimed to resolve the issues of low efficiency and slow recognition while maintaining a degree of automation.

Findings: First the recognition of the letter a was tested, 80 training samples were used, samples include 80 different ways to write the letter a, the training took only 0.0607 seconds and the recognition test only took 0.0402 seconds which makes this system very rapid. During training the system had 99.25% correct recognition rate, during the test the system had 97.06% correct recognition rate.

Conclusion: The system has shorter training and test time while still having relatively high accuracy and also has machine automation with no need of human interaction after the training phase which means that extreme learning is an effective algorithm to improve a handwritten text recognition system.

Paper 5 Name: E-learning for facilitating learning

Paper 5 Authors: Jusuf, H., Azimah, A., & Firdaus, R.

Paper 5 Year: 2016

Methodology: Both Qualitative and quantitative were used in this research, 2 classes one with blended teaching and other with the conventional teaching were being compared, qualitative data like what students think about blended learning was being gathered and then with the use of quantitative data the researcher compared the exam results to demonstrate which is the better teaching method

Objective: To compare blended learning with conventional learning.

Implication: This research is aimed to demonstrate how motivation is useful when learning when using e-learning

Findings: 27% of the student found that this method is more fun then the conventional method while only 4 percent did dislike this method

Conclusion: Blended learning is better than conventional learning since students are more motivated to attend lectures since they find the experience more enjoyable and interesting.

Paper 6 Name: In the paper Assessing the Usability of a Tangible Educational Game for Children

Paper 6 Authors: Sarah AlDakhil, Ebtehal Al Taleb, Munirah Al Ghamlas, Shiroq Al-Megren

Paper 6 Year: 2019

Methodology: Both Qualitative and quantitative were used in this research, children had time where they can play the game, qualitative data was gathered by interviewing the children on what they liked and disliked about the game. Quantitative data was also gathered by using a questionnaire aimed to children like instead of numbers in an answer scale smiley faces t were used

Objective: Evaluate children using educational games with tangible materials

Implication: To Assess the overall effectiveness and usability of a game that uses tangible materials as interactable objects.

Findings: All the children thought that the game was enjoyable. However, 42% of the children found difficulties when playing using tangible pieces since most of the participants never played games that had tangible elements.

Conclusion: In conclusion when comparing these results with results of other games, educational digital games that promote usability are more enjoyed by the children while still providing the same material, this ensured that the children will have fun while learning and therefore it will motivate them to play the game and learn.

Paper 7 Name: The Implementation of User Experience Model in Applications Early Childhood Education Using Hierarchical Task Analysis Method (Case Study: Introduction Learning to Read)

Paper 7 Authors: Mira Kania Sabariah, Veronikha Effendy, Avian Rinandhi

Paper 7 Year: 2015

Methodology: Hierarchical task analysis was used to measure the user experience of the application; this uses quantitative data gathering and analyze data regarding the user experience of an application.

Objective: Creating an interactive application that focus on user experience for the introduction to reading process

Implication: The writer wants to demonstrate that children can learn better while having fun and learning scientifically with the use of technology.

Findings: The results show that the application had a high level of understanding with an average percentage of 86%, all the QUIM (quality in use integrated measurement) aspects which are, Efficiency, Productivity, Satisfaction Learnability and Accessibility, were increased dramatically from before the research

Conclusion: The approach used by (Mira Kania Sabariah, 2015) can provide a better user experience were the usability of the game is the prime focus while also maintaining the learning aspect.

# Bibliography

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