HANDWRITTEN CHARACTER RECOGNITION(HCR)

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ABSTRACT

The handwritten character recognition has been applied in a variety of applications like Banking sectors, Health care industries and many such organisations where handwritten documents are dealt with. Handwritten Character Recognition is the process of conversion of handwritten text into machine readable form. For handwritten characters there are difficulties like it differs from one writer to another, even when the same person writes the same character there is a difference in shape, size and position of character.

Keywords: Python, Machine Learning, Tensorflow, OpenCV

INTRODUCTION

Handwritten character recognition (HCR) is the process of conversion of handwritten text into machine readable form. The major problem in handwritten character recognition (HCR) system is the variation of the handwriting styles, which can be completely different for different writers. The objective of handwritten character recognition system is to implement user friendly computer assisted character representation that will allow successful extraction of characters from handwritten documents and to digitalize and translate the handwritten text into machine readable text.

OBJECTIVE

Our approach will include use of Python as our main programming language and it's libraries like Tensorflow(Keras) for Machine Learning, OpenCV for image capture.

METHODS AND MATERIALS

- Github
- Google Colab

RESOURCES

- Deep Learning Specialisation by Andrew NG on Coursera/YouTube(Coursera-https://www.coursera.org/specializations/deep-learning, YouTube-https://www.youtube.com/playlist?list=PLkDaE6sCZn6Ec-XTbcX1uRg2_u4xOEky0)
- Deep Learning Crash Course by Simplilearn-(https://www.youtube.com/watch?v=NOJOYcmyDhM)
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- Neural Networks by 3Blue1Brown-https://www.youtube.com/playlist?list=PLZHQObOWTQDNU6R1_67000Dx_ZCJB-3pi
- Tensorflow by freeCodeCamp.org- https://youtu.be/tPYj3fFJGjk
- OpenCV by freeCodeCamp.org- https://youtu.be/oXlwWbU8l2o
- Streamlit tutorial- https://www.youtube.com/watch?v=43RJ3JByygE

Dataset

https://www.kaggle.com/datasets/sankalpsrivastava26/capital-alphabets-28x28

GOALS

- Introduction to the world of Machine Learning
- Exposure technologies like Github, Colab and Python libraries like Tensorflow, NumPy, Pandas, OpenCV, Scikit-learn
- Learning how to use Streamlit for deploying our ML model to a website using Streamlit

TIMELINE

Briefly write how your project is divided into phases.

Phase	**Time**	**Milestone**
Phase 1	Feb 1 - March 1	Learning Phase for ML and Tensorflow
	March 1- March 8	Learning Phase for OpenCV
Phase 2	March 8- March 23	Working on the project using the technologies learned
	March 23- April 1	Deploying the model using Streamlit

REFERENCES

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- https://nanonets.com/blog/handwritten-character-recognition/