DYNAMIC RECTIFICATION KNOWLEDGE DISTILLATION ON BANGLA OCR

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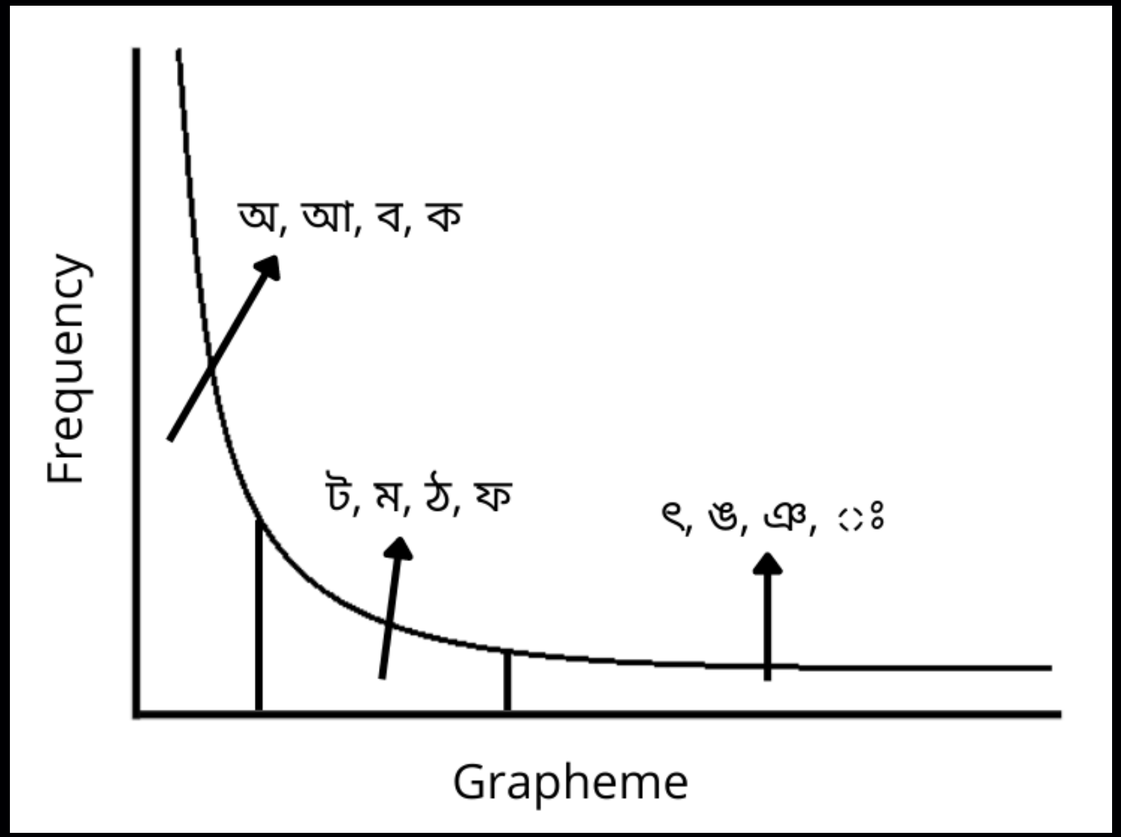
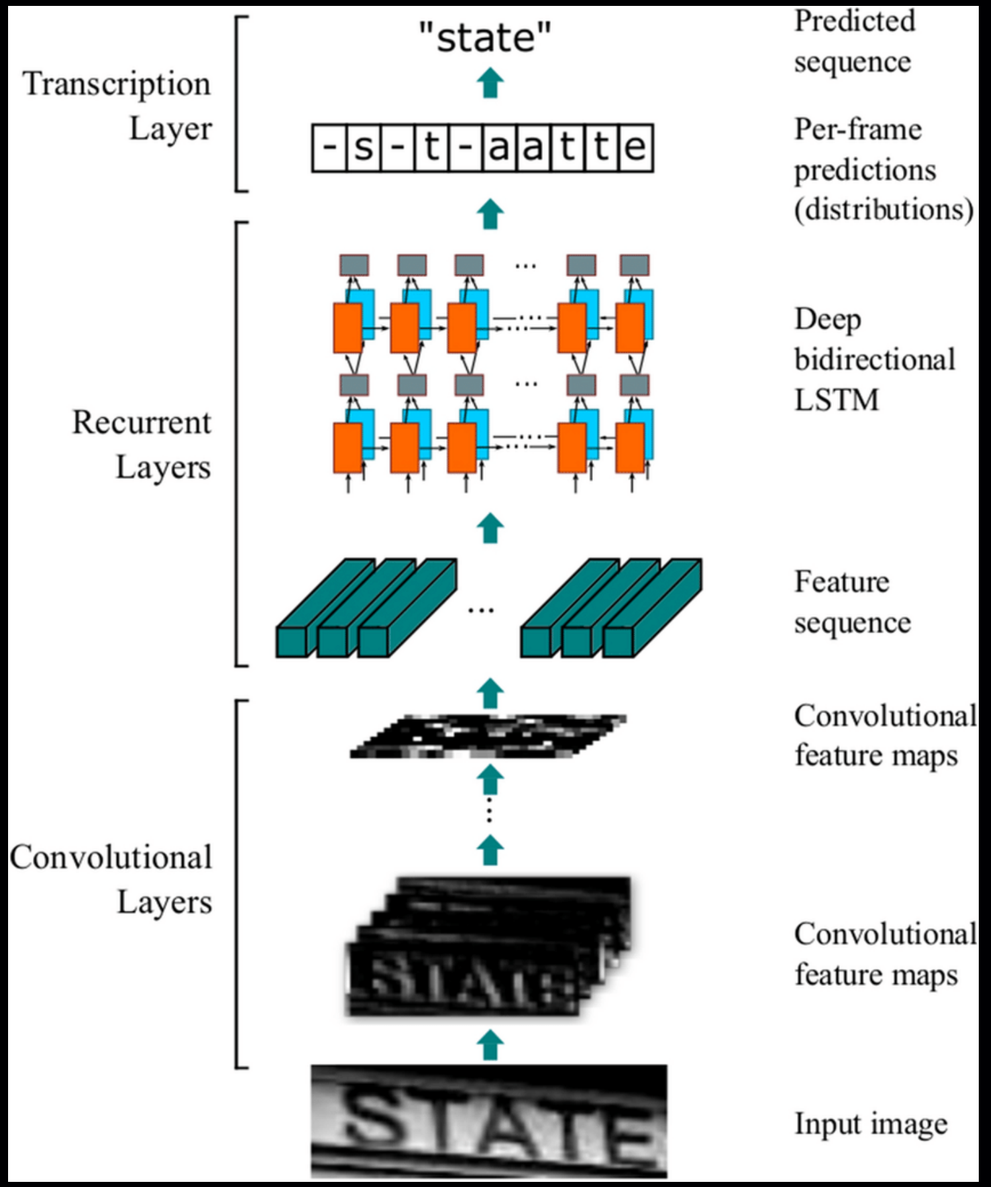
PROBLEM

- Imbalance nature in Bangla langauge
- OCR biased

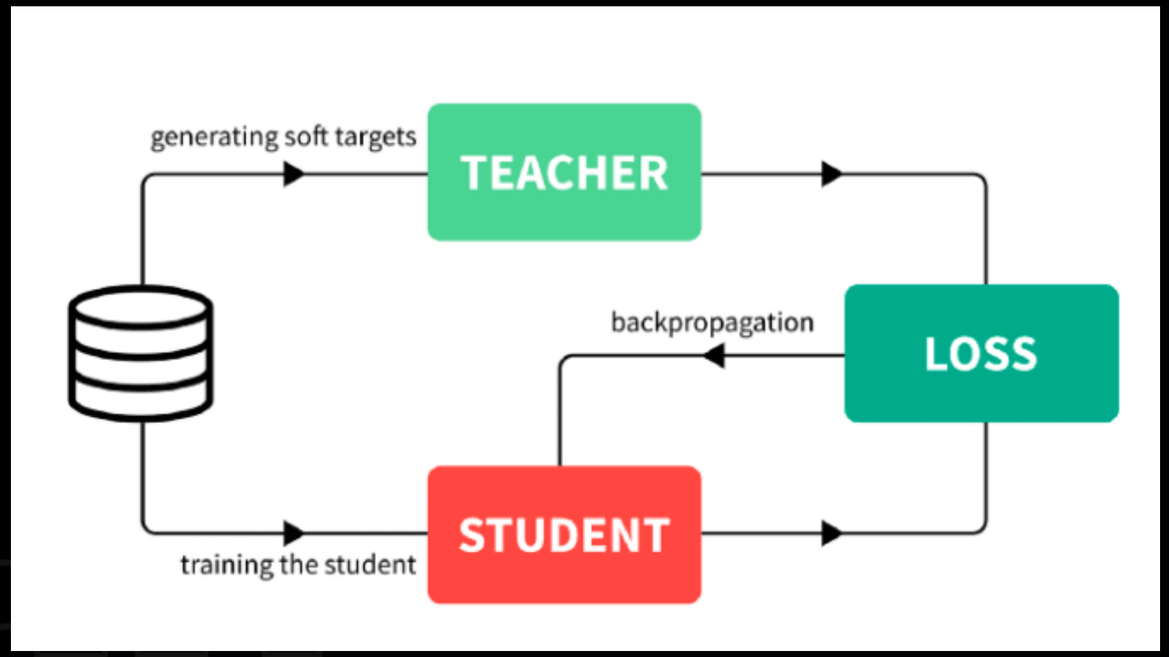


OCR

The Convolutional Recurrent Neural Networks is the combination of two of the most prominent neural networks. The CRNN (convolutional recurrent neural network) involves CNN(convolutional neural network) followed by the RNN(Recurrent neural networks).



KNOWLEDGE DISTILLATION



Teacher Model

An ensemble of separately trained models or a single very large model trained with a very strong regularizer such as dropout can be used to create a larger cumbersome model. The cumbersome model is the first to be trained.

Student Model

A smaller model that will rely on the Teacher Network's distilled knowledge. It employs a different type of training called "distillation" to transfer knowledge from the large model to the smaller Student model. It is more suitable for deployment

OUR APPROACH

01

Build an Bangla OCR

02

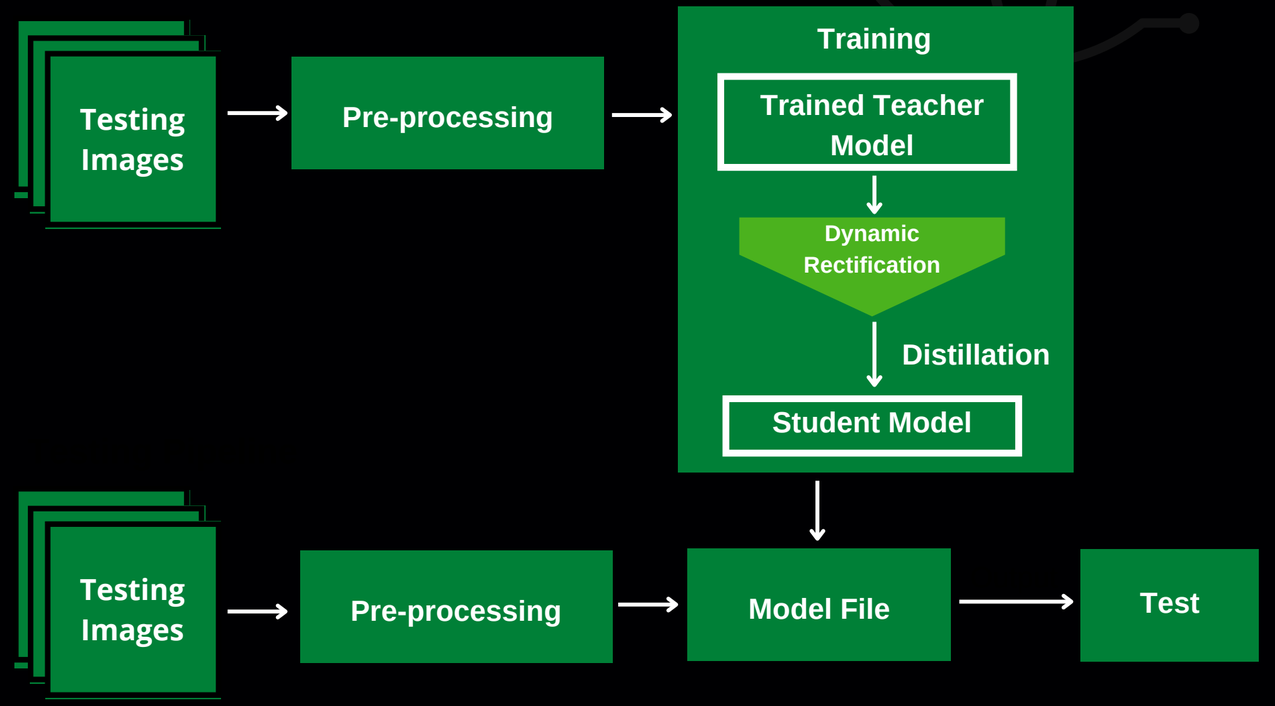
Train the OCR model (Teacher) using the bangla handwritten dataset

03

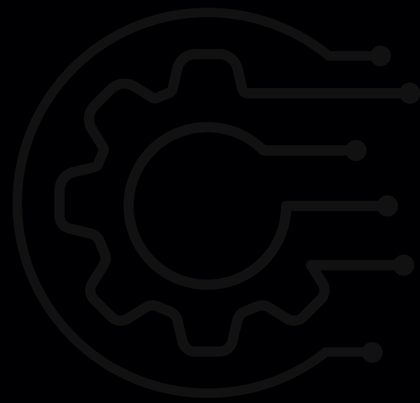
Rectify the incorrect prediction from teacher model using our proposed approach

04

Distill the rectified knowledge from the teacher model to the student model



DATASETS



01

BN-HTRD

The BNHTRD dataset, on the other hand, is made up of 100,000 images that have been labeled with the corresponding Bangla words.

02

BanglaWriting

BanglaWriting dataset contains 10,000 images, each labeled in Bangla.

RESULTS

Training	Model	CRR	WRR	Word Match
BN-HTRd	Teacher	0.8283	0.6044	12825
BN-HTRd	Student	0.8346	0.6105	12955
BN-HTRd	R.Student	0.8351	0.6093	12929
BanglaWriting	Teacher	0.7492	0.4797	51840
BanglaWriting	Student	0.7701	0.5148	55635
BanglaWriting	R.Student	0.7803	0.522	56407


THANK YOU