Project - Phase 2

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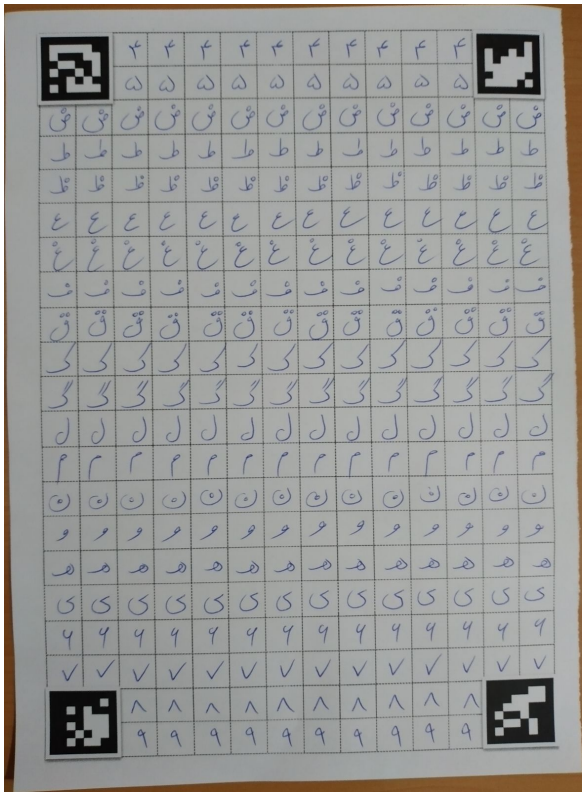
Overview

You are supposed to gather a dataset from handwritten characters and digits, then design a neural network and train it on the dataset to classify handwritten Persian letters and digits. Combined with the phase 1 of the project, you must build a fully-automatic visual form reader.

Project Description

PART I

Gather training data by extracting handwritten letters/digits from the data forms. This can be done using a similar algorithm as the first phase. Filled data forms look like this:



PART II

Implement two convolutional neural networks, one for classifying letters and one for digits. Split data into train, validation, and test sets. Train the neural network on the train set. Use the validation set to select the hyper-parameters and a good network structure. Evaluate the performance of the models on test data.

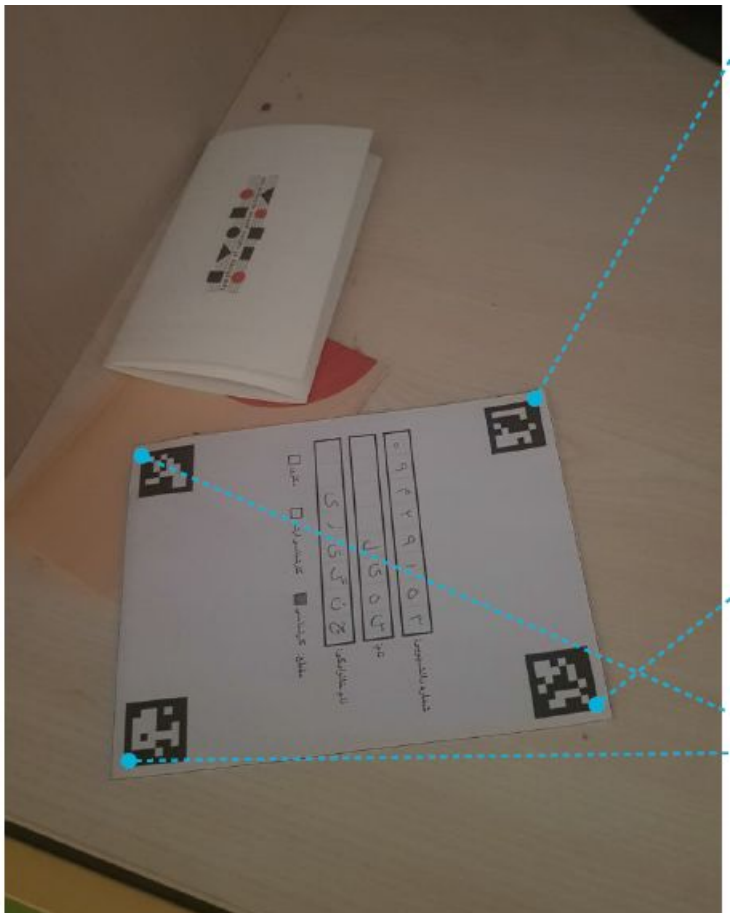
Tips:

- You may want to create more data, or obtain extra data from the internet to improve accuracy.
- Use data augmentation to generate more data.

PART III

Finally, you should implement a full pipeline to take an image as input, extract, and detect existing handwritten symbols and output all the words or numbers in it. You must combine all the steps you took in an end-to-end manner. Explain which neural network architecture you used and why. Here is an input-output example:

Input:



Output:

9429153

سهیل

چنگیزی

کارشناسی