CHOOSING TOOLS FOR IMPLEMENTING TEXT RECOGNITION SOFTWARE

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Abstract: *The topic involves the process of selecting and identifying the best tools, libraries, technologies, and methods to use in creating software capable of recognizing and analyzing textual data.*

Key words : *Tool selection, implementation, application, text recognition, technologies, machine learning models, training data, infrastructure, optimization, scaling, integration, evaluation of results.*

INTRODUCTION:

To develop any program, you must first choose the programming language in which it will be written.

There are many programming languages and you can write an equivalent program in each. The difference between equivalent programs is the structure of writing the code and the tools used to obtain the desired result. The main programming languages used to solve problems related to neural networks:

- ✓ Python;
- ✓ Java;
- ✓ C++;
- ✓ Matlab .

The Python language was chosen because him another programming from their languages separate standing one series advantages has :

- ✓ Quick development ;

✓ Learning easy

✓ A lot numerous libraries ;

✓ Har how on the platform support ;

✓ And one series another advantages .

This of the tongue fast development of the tongue complicated structures own into can't get simple syntax is also set functions written code the amount reducing many the team by created libraries help will give .

In Python written programs many works on modern operating systems, which allows the application to be used on different devices without making global changes to the code.

Another doubt advantage is that in Python written programs high to speed have Of this the reason Python's main libraries in C++ written and tasks take less time to complete than other high-level languages.

Having decided on a programming language, you can start thinking about what libraries to use in development.

Since the program works with images, it is necessary to connect a library containing the basic functions for working with them. The most popular libraries that support the Python programming language for working with images:

✓ OrenCV ;

✓ NumRy ;

✓ Tensorflow ;

✓ Keras ;

Ore n CV (Oren Source C o m r u t husband V - io n) - the most important library with open and the like code about m V about la s ti computer to see SHE IS No contains only a group algorithms and for l and And processing images , But also includes classic algorithms car nn wow About Buchen and me And Algorithm libraries side - side About Buchen and me . These are Algorithms car Oh Buchen and I play Klyuchev u role V for dacha x computer imaginations , t akih k a k class and fiction images , discovery c oil, observing life c oil, also optical detection and the race of knowledge with symbols .

Keras models with works - information distribution and change schemes.

Machine learning is essentially data processing with the help of a programmed network, where certain conclusions are drawn based on certain data. The structure of the network is called a model. It is often presented in the form of a graph, chart or table.

Deep learning is a machine learning technique that allows you to predict an output from a set of input data, such as object recognition. Usually, multilayer neural networks are used.

A neural network is a software model based on the structure of the human nervous system. Elements called neurons are connected to each other using algorithms, pass

information to each other, and change based on what they receive as input. As a result, the data is interpreted in one way or another.

TensorFlow is it different different problems solution to do A machine learning library, a group of technologies that enable the training of artificial intelligence for . Library initially For Python work developed and with him often is used .

The library itself contains many tools for different areas of ML, but is mostly used for working with neural networks. These are structures inspired by networks of neurons in the human nervous system. Neural networks consist of programming elements called "neurons" and connections between them, and such a device allows them to learn. TensorFlow each different kind of with regular and deep neural networks works : iterative , convolutional , etc. It is also used for machine and deep learning .

NumPy is a Python library is , which is used for mathematical calculations ranging from basic functions to linear algebra. of the library complete name Numerical Python extensions or "Python numeric extensions ".

OrenCV and NumPy libraries was chosen because together they perform all the necessary functions for the implementation of the project, in particular:
- ✓ Convert the image to grayscale;
- ✓ Convert the image to black and white;
- ✓ Identifying contours in an image.

It is also necessary to create a neural network to recognize the letters shown in the picture. Of this for i Tensorflow from the library and his suffix - from Keras I used it . Using this combination, you can create and train a neural network. Keras built-in functions allow you to perform all the necessary actions to create the desired neural network model .
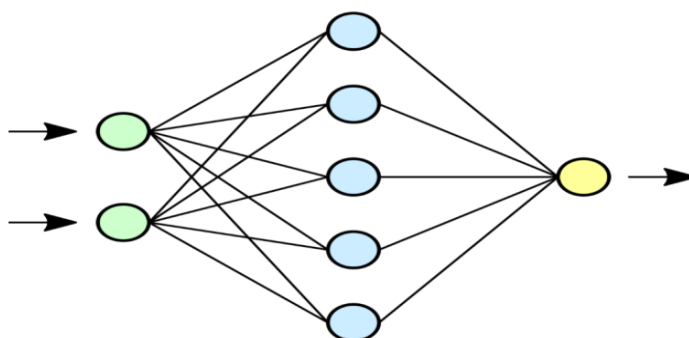
drawing 1.1 - Schematic image

BASIC I'm right about being lazy application Nearby recognize him I am the solution to the following donkey :
- ➤ Class and fiction - by information dissemination parameters ;
- ➤ Predictability - Predictability is next w ag;
- ➤ Recognition - chance enabled basis position need to know pixels or another picture in the picture and in the photo ..

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