**SOM**

The "trainedSOM" file utilized the 64\*64 image size, a 15x15 grid dimension, and was trained over 400 iterations. The accuracy is 88.19% for the validation data.

For the picture of image1, the letters RLHEOD can be accurately recognized, and the letter W does not appear in image1.

However, due to the limitations of the algorithm, the letters need to be kept in the center with enough margin around them, otherwise the recognition accuracy will drop rapidly. For example, it cannot accurately identify the OO files in the Test folder.

I think maybe SOM is not a suitable training algorithm, SOM is usually used for feature extraction and visualization of data, rather than direct classification tasks. SOM maps the input high-dimensional data onto a usually two-dimensional grid. This process is mainly unsupervised learning and does not directly classify. The effect of CNN or KNN will be better. Our report can focus more on these effective algorithms. Therefore, I directly used the SOM algorithm program of the MATLAB toolbox without making further adjustments.

runSOM is the SOM training program, and runTest is the test program.

