Tradutor de imagem Braille para texto

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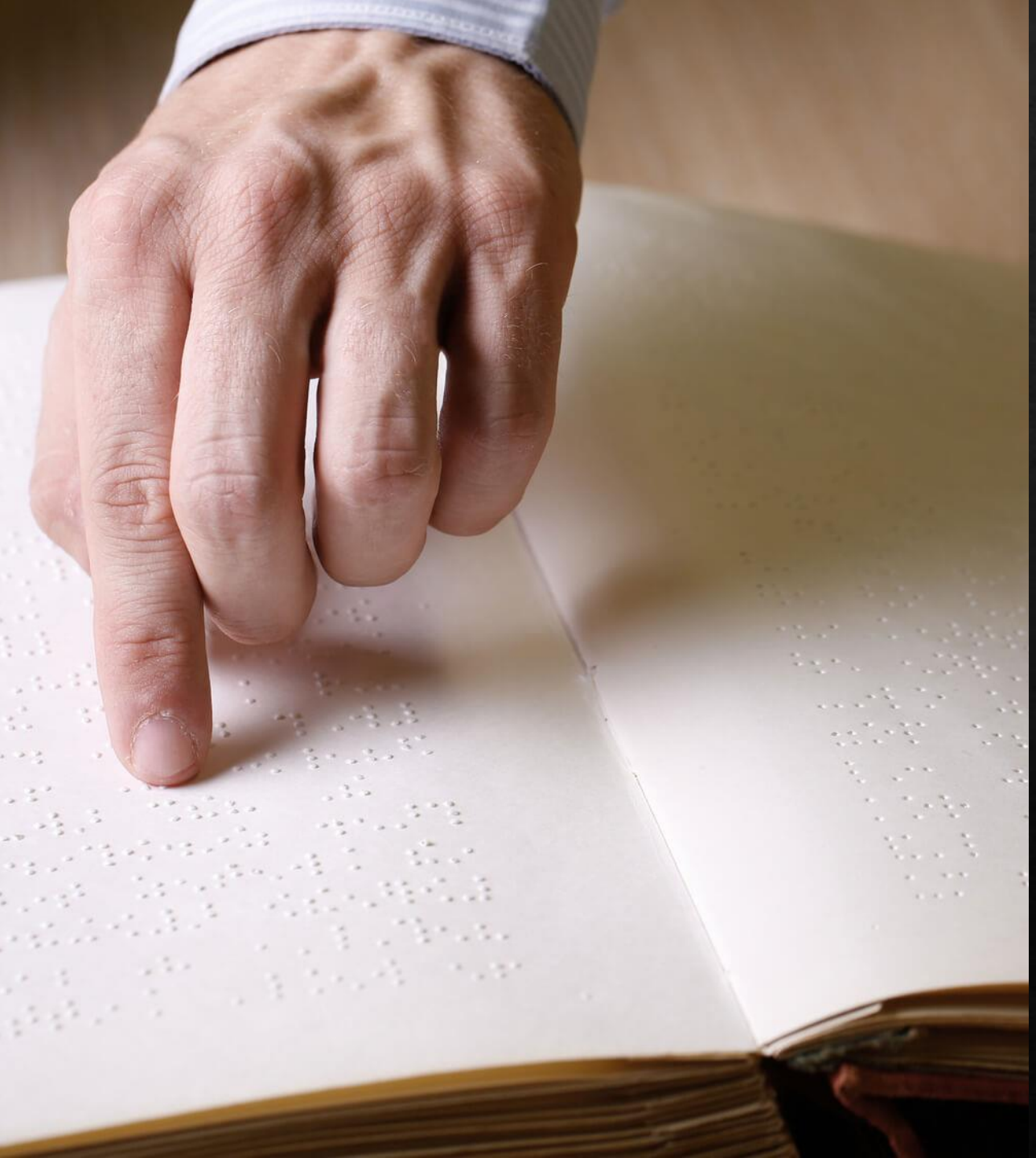

Processos do Algoritmo

Inserir imagem;

Filtros;

Histograma acumulativo;

Correção de erros;

Contador de pontos;

Tradução.

Fotografia

```
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                    A: Process de image
                    B: Take the picture and process
                    Q: Exit

                    Please enter your choice: B
```

```python
def capturePhoto():
    # Tirar foto com camara

    cap = cv2.VideoCapture(0)
    i=1

    while(cv2.waitKey(5)-27 and i==1):
        _, fr=cap.read()
        fr=cv2.resize(fr,(600,300),interpolation=cv2.INTER_AREA)
        if mouse.is_pressed(button="right"):
            cv2.imwrite("Frame.jpg", fr)
            i=0
            print("Tirou foto")
        cv2.imshow("Janela A", fr)

    cap.release()
    cv2.destroyAllWindows()
```

Inserir imagem

```
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                    Q: Exit

                    Please enter your choice: A
Put the name of file:bomdia.jpg
```
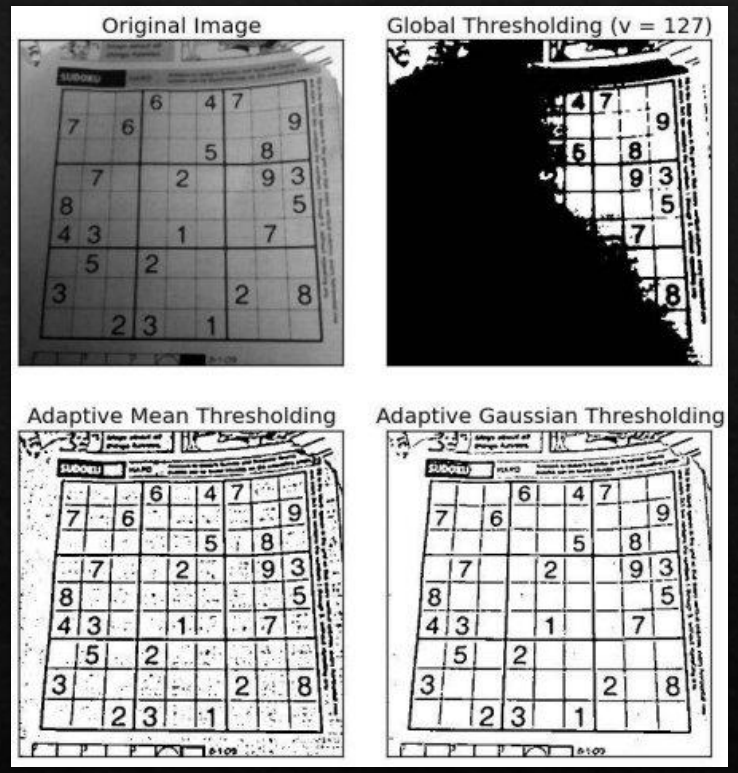
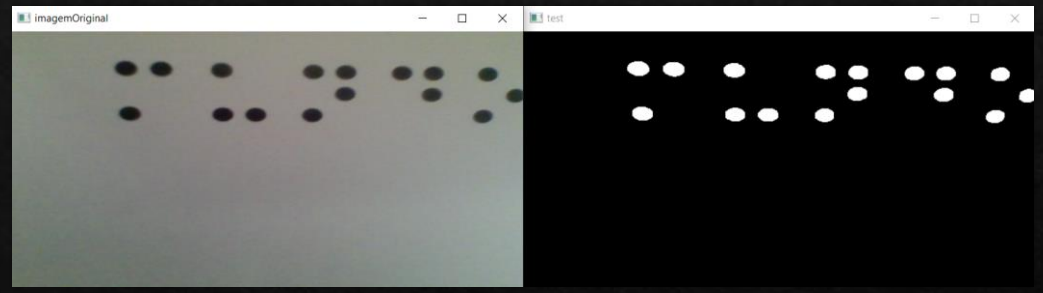

Filtros

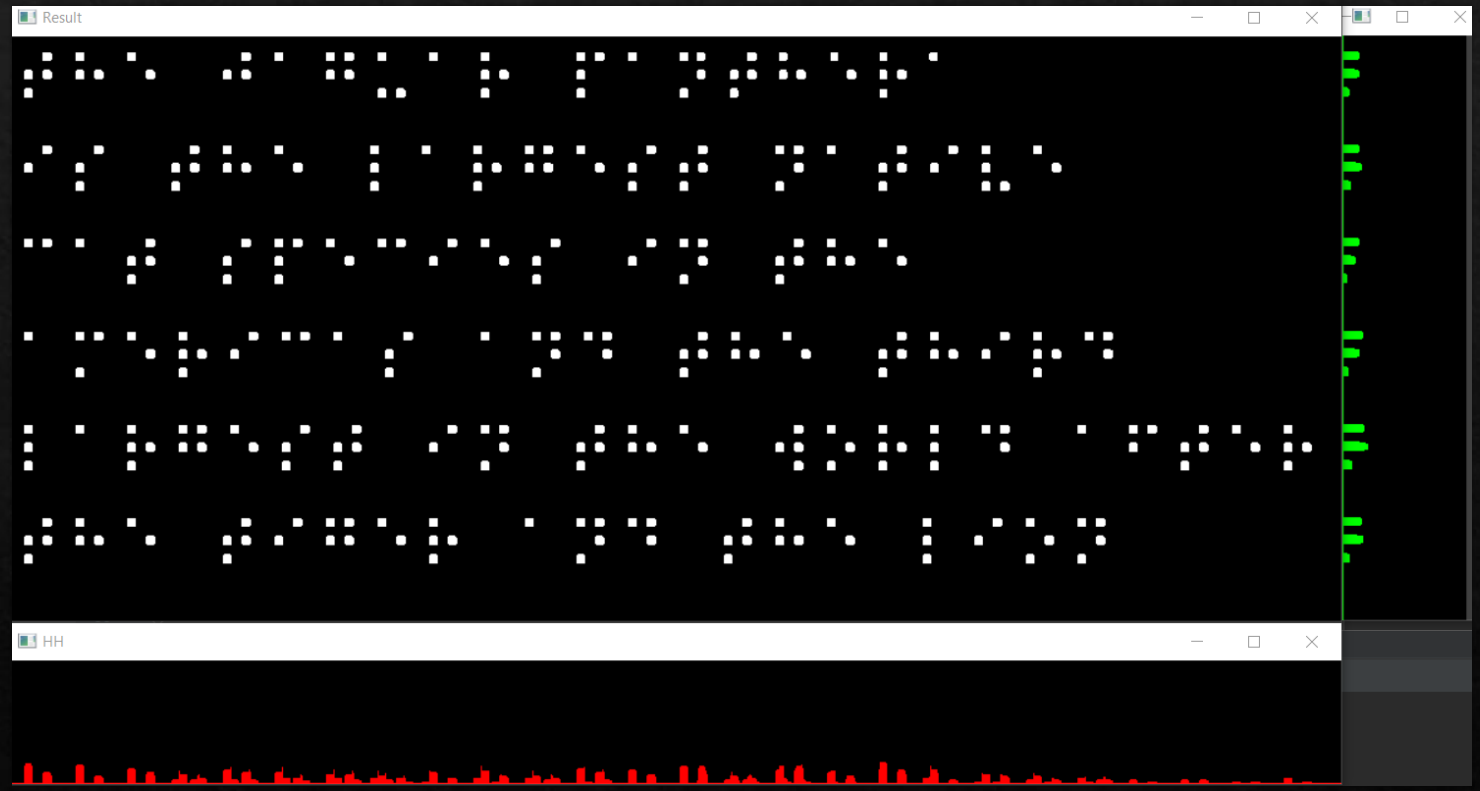
```
def filtrar_imagem(file):
    imageBraille = cv2.imread(file)
    ans = imageBraille.copy()
    gray = cv2.cvtColor(imageBraille, cv2.COLOR_BGR2GRAY)
    kernel = np.ones((5, 5), np.uint8)
    img = cv2.medianBlur(gray, 5)
    cv2.threshold(img, 127, 255, cv2.THRESH_BINARY)
    cv2.adaptiveThreshold(img, 255, cv2.ADAPTIVE_THRESH_MEAN_C, cv2.THRESH_BINARY_INV, 19, 2)
    test = cv2.adaptiveThreshold(img, 255, cv2.ADAPTIVE_THRESH_GAUSSIAN_C, cv2.THRESH_BINARY_INV, 19, 2)
    test = cv2.erode(test, kernel)
    test = cv2.dilate(test, kernel)

    cv2.imshow("imagemOriginal", ans)
    cv2.imshow("Result", test)
    return test
```

Filtros

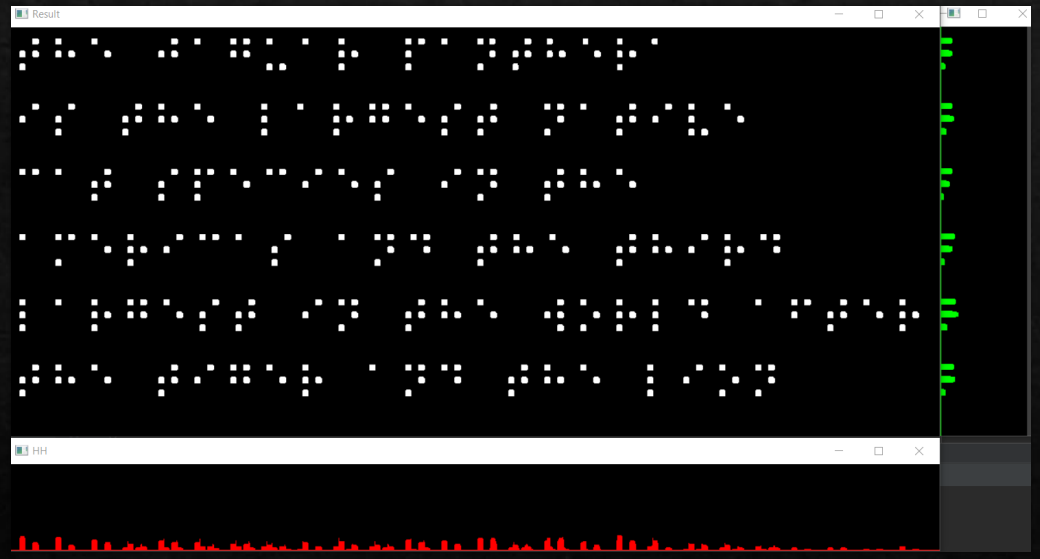

Original Image
Global Thresholding (v = 127)
Adaptive Mean Thresholding
Adaptive Gaussian Thresholding


imagemOriginal
test

Histograma acumulativo

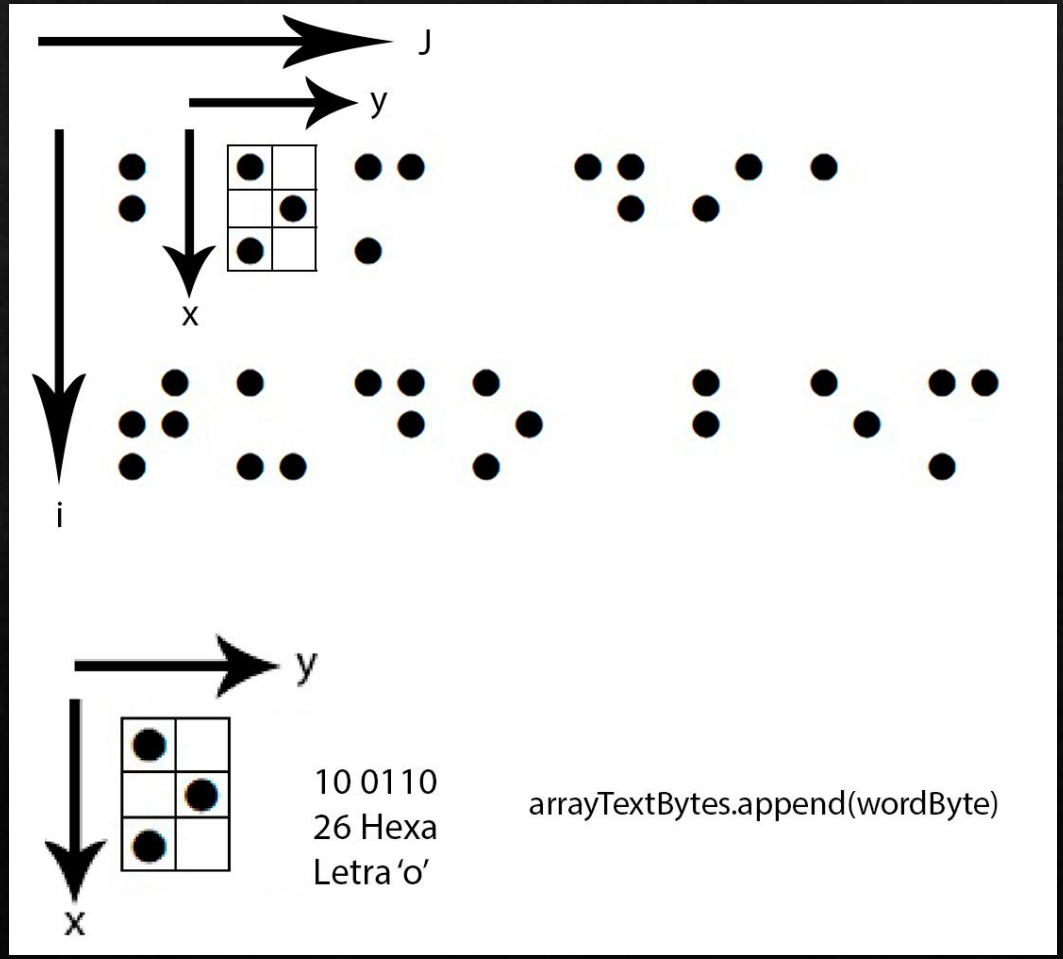


Correção de erros

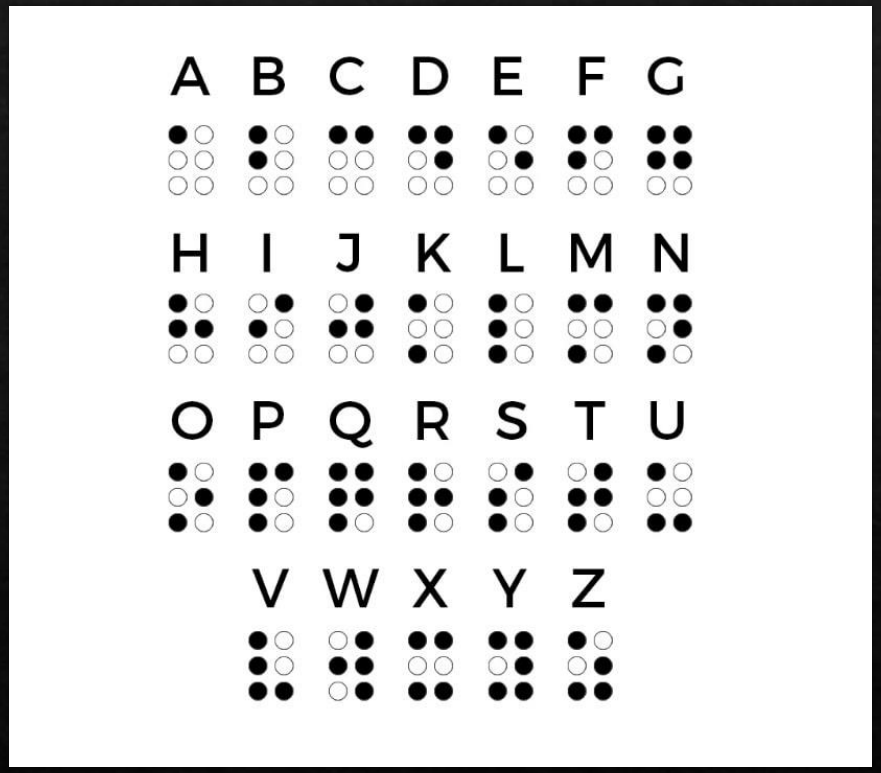



```
# Caso falte algum ponto nas colunas
differenceWidth = []
if (len(sizeWidth) % 2) != 0:

    for i in range(0, len(sizeWidth) - 1):
        x1 = sizeWidth[i]
        x2 = sizeWidth[i + 1]
        x3 = x2 - x1
        differenceWidth.append(x3)
    #print("Diferença Altura:", differenceWidth)

#insere a posicao no qual falta o ponto no vetor do histograma
if (len(differenceWidth) != 0):
    for y in range(0, len(sizeWidth)):
        if ((sizeWidth[y + 1] - sizeWidth[y]) + 10 > max(differenceWidth)):
            sizeWidth.insert(y+1, sizeWidth[y] + min(differenceWidth))
```

Contador de pontos

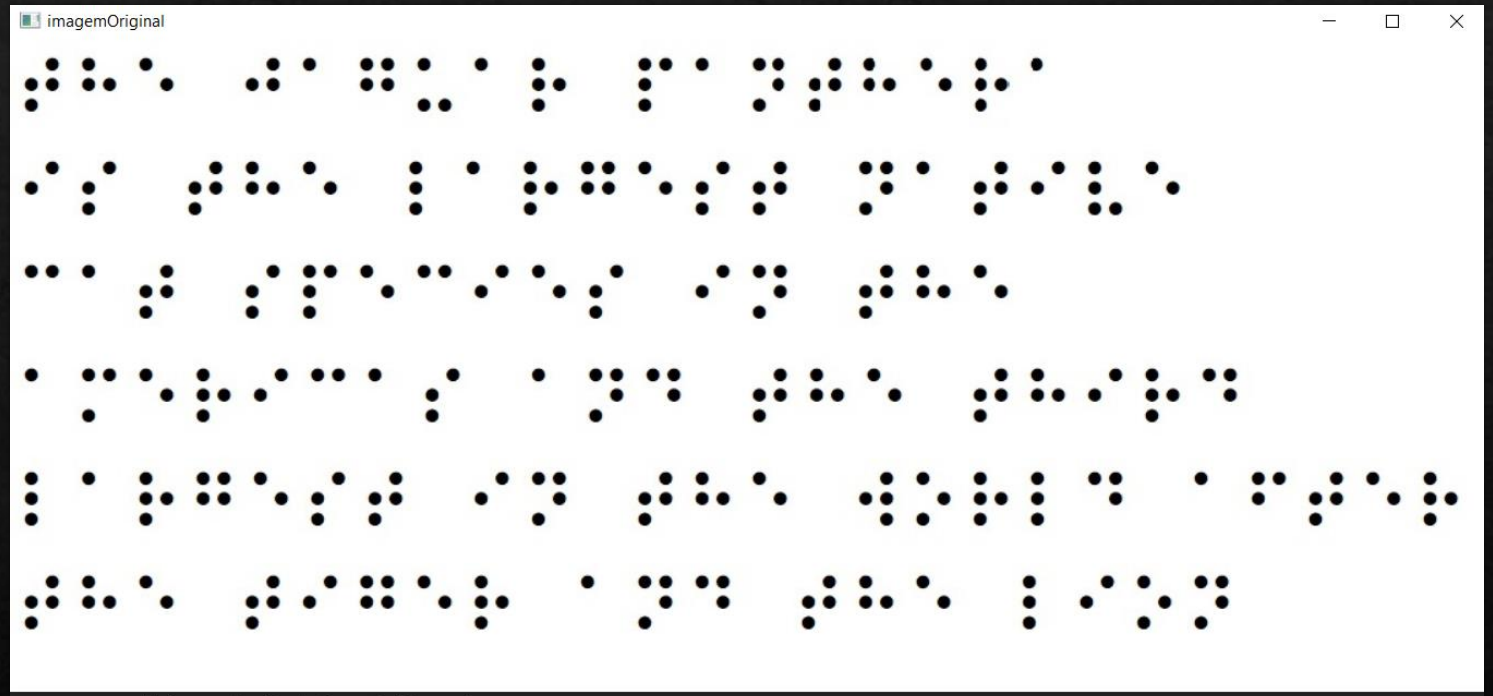


Tradução




```
# Dicionario
dictionaryByte = [0x20, 0x28, 0x30, 0x34, 0x24, 0x38, 0x3c, 0x2c, 0x18, 0x1c,
                  0x22, 0x2a, 0x32, 0x36, 0x26, 0x3a,
            0x7e, 0x2e, 0x1a, 0x1e, 0x23, 0x2b, 0x1d, 0x33, 0x37, 0x27]

wordASCI = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j', 'k', 'l', 'm', 'n', 'o', 'p', 'q', 'r', 's', 't', 'u',
        'v', 'w', 'x', 'y', 'z']

arrayTextTranslate = []

#Traduzir as palavras
for i in range(len(arrayTextBytes)):
    for j in range(len(dictionaryByte)):
        if arrayTextBytes[i] == dictionaryByte[j]:
            arrayTextTranslate.append(wordASCI[j])
        elif arrayTextBytes[i] == 0:
            arrayTextTranslate.append(" ")

#Transformar em string e tirar os espacos a mais
stringText = ''.join(arrayTextTranslate)
stringText = " ".join(stringText.split())

print(stringText)
```

Resultado




```
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                    A: Process de image
                    B: Take the picture and process
                    Q: Exit

                    Please enter your choice: a
Put the name of file:text.jpg
the jaguar panthera is the largest native cat species in the america and the third largest in the world after the tiger and the lion
```