Beans demonstration programs

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1 Introduction

File beans.zip contains programs we used in paper "Beans Quality Inspection Using Correlation-Based Granulometry". These programs are for the reviewers to certify that our method actually does what we claimed in the paper.

At this moment, we are not including the source programs. We may make them available for everybody after the acceptance and publication of the paper.

We beg pardon for some commands and messages in the programs are in Portuguese.

2 Installation

The programs require Windows XP, Vista or 7. Probably, they will run correctly also in Windows 8.

1) Uncompress beans.zip in a directory, say, **c:\beans**, keeping the subdirectory structure.

2) Edit "path" environment variable to append **c:\beans\bin**. In Windows7, you can do this:
MS-explorer → my computer → properties → advanced → environment variables
where you must edit path to *append* **c:\beans\bin**.

3 Content

The directory c:\beans\doc contains this readme.pdf file.

There are two main programs in c:\beans\bin

1) MGranul.exe: Programs to run multi-shape correlation-based granulometry.
2) Beans.exe: Programs especially designed to segment and classify beans.

There are some other auxiliary programs that ends up calling one of these two programs:

1) Colormap.exe
2) Segment.exe
3) Classify.bat

The directory c:\beans\sample contains sample images to:

1) Map pixel colors into foreground and background (zero*.ppm and one*.ppm).
2) Sample of the three beans varieties (Carioca ca*.png, Mulatto mu*.png and Black bl*.png).
3) Specification of the shapes to be used in correlation-based granulometry elipse.cfg

The directory c:\beans\images contains the test images img*.jpg.

4 Pixel color mapping

Go to c:\beans\images and run:

```
c:\beans\images>colormap
```

“Colormap.exe” calls the program “beans pixelmap” and uses the sample colors c:\beans\sample\one*.ppm and c:\beans\sample\zero*.ppm to generate img*.pgm with the pixels mapped into black or white.

5 Beans segmentation

After running pixel color mapping, go to c:\beans\images and run:

```
c:\beans\images>segment
```

“Segment.exe” calls the a sequence of subprograms in “mgranul” to segment the beans. It uses the shape specification in c:\sample\elipse.cfg. The output images are img*.png.

6 Beans classification

After running pixel color mapping and beans segmentation, go to c:\beans\images and run:

```
c:\beans\images>classify
```

“Classify.bat” calls the program “beans predict” that classifies the grains using the samples in c:\beans\sample. The output images are img*_c.png. The text file classify.txt contains the number of grains found in each image.