Gici Gstat Manual

(version 2.1)

GICI group

Department of Information and Communications Engineering

Universitat Autònoma Barcelona

http://www.gici.uab.es - http://gici.uab.cat/GiciWebPage/downloads.php

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1 Description

This software is an implementation of common statistics for 2D images and 3D images. The following statistics are included:

- Minimum and maximum values.
- Average.
- Center of image range.
- Number of pixels for specific values in total and percent.
- Energy of the image / energy of each component.
- Variance of the image / variance of each component.
- Entropy of the image / entropy of each component.
- Moran's I measure of each component / average Moran's I measure.

2 Requirements

This software is programmed in Java, so you might need a JAVA Runtime Environment(JRE) to run this application. We have used SUN JAVA 1.5.

JAI The Java Advanced Imaging (JAI) library is used to load and save images in formats other than raw or pgm. The JAI library can be freely downloaded from *http://java.sun.com*. **Note:** You don't need to have this library installed in order to compile the source code.

3 Usage

The application is provided in a single file, a jar file (*dist/Gstat.jar*), that contains the application. Along with the application, the source code is also provided. If you need to rebuild the jar file, you can use the `ant` command.

To launch the application you can use the following command:

```
$ java -Xmx1200m -jar dist/Gstat.jar --help
```

In a GNU/Linux environment you can also use the shell script `Gstat` situated at the root of the Gstat directory.

```
$ ./Gstat --help
```

Two examples of usage are provided below:

- Calculate all the statistics for a 3D image and produce a summarized output.

```
$ ./Gstat -i "$INFILE-16bpppb-bigendian.raw" -ig $Z $Y $X 3 0 -f 1
```

- Calculate the minimum and maximum values for a 2D image.

```
$ ./Gstat -i "$INFILE-16bpppb-bigendian.raw" -ig 1 $Y $X 3 0 -s 2
```

4 Notes

More information about Moran's I measure can be found in `http://en.wikipedia.org/wiki/Moran%27s_I`. The following local neighbour matrix is used:

$$\begin{pmatrix} 1 & 1 & 1 \\ 1 & 0 & 1 \\ 1 & 1 & 1 \end{pmatrix}$$

If you need further assistance, you might want to contact us directly.