

MaZda 4.5
Report on software

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What's new

- New instructions
- Shape analysis
- Tutorials
- Other improvements

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New Instructions

For \$variable constant1 constant2 ...
– starts a loop for constants list,

For %variable expression_with_wildcards
– starts a loop for files matching the expression,

End
– ends a loop,

ChDir directory_name
– changes a current directory,

ForcePrefix prefix
– adds prefix to feature names on a following analyses,

FeatureSelection [arg = Fisher, Poecc, Mutual, Singles, Pairs, Triplets]
– starts feature selection procedure,

RenameRoi roi_index new_class_name
– assigns class name to a ROI of a given index

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New Instructions

Example1:

```
LoadOptions cheese.ini
ChDir .\cheese\old\
For $file ima1 ima2 ima3
LoadImage $file.raw
LoadROI $file.roi
RunAnalysis
SaveReport $file.par
End
ChDir ..\..\
```

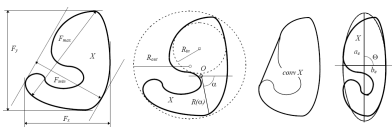
Example2:

```
For %file *.bmp
LoadImage %file
LoadROI two_regions.roi
RenameRoi 1 ClassB
RenameRoi 2 ClassA
RunAnalysis
End
FeatureSelection Mutual
SaveSelected Mutual.sel
Execute B11.exe Mutual.sel
```

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Shape analysis

Computation of shape or geometrical parameters of ROIs is implemented in MaZda 4.5. There are 73 geometrical parameters, which characterize region's: area, perimeter, Feret's and Martin's diameters, boundary properties, orientation, elongation, roundness, convexity, binary moments, topology, etc.

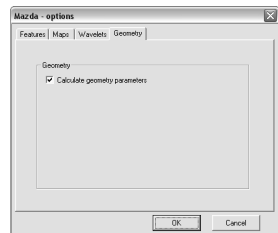


Examples of various geometrical parameters
after: V. Kindratenko, *Development and Application of Image Analysis Techniques...*
http://homepages.inf.ed.ac.uk/rob1/CVonline/LOCAL_COPIES/KINDRATENKO1/part2.pdf

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Shape analysis

To compute geometrical parameters of regions check the "Calculate geometry parameters" checkbox in MaZda Options dialog box.



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Shape analysis

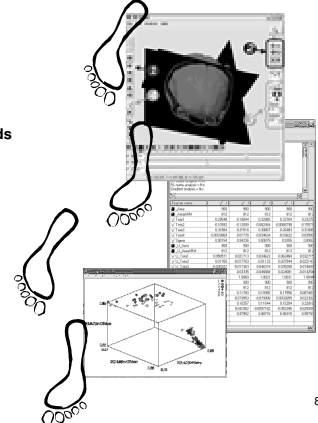
The parameters can be recognized by their names starting with "Geo"

Feature name	V_1	V_2	V_3	V_4	V_5	V_6	V_7
GeoC1	13.21	101.91	81.494	178.119	226.156	300.151	401.151
GeoC2	87.98	175.2	278.36	248.94	141.17	93.156	83.89
GeoC3	7.905	2489	2893	2698	2897	6546	6546
GeoC4	96.897	96.295	40.271	56.013	66.823	69.178	87.779
GeoC5	37.837	71.051	74.652	70.758	134.47	133.3	133.25
GeoC6	81.395	29.157	28.181	33.865	51.34	3.8713	3.5487
GeoC7	302.15	392.29	564.61	585.67	1085.7	900.89	937.07
GeoC8	490	207.24	208.53	189.89	325.16	318.64	308.64
GeoC9	172.36	37.08	74.652	70.758	134.46	133.3	133.24
GeoC10	110.01	38.157	45.505	45.363	46.844	62	65
GeoF1	178	70	65	51	107	62	65
GeoF2	123	70	64	66	118	133	125
GeoF3	12.99	16.888	31.262	17.296	16.827	30.185	30.014
GeoF4	18.619	38.862	38.028	36.462	62.001	69.233	69.066
GeoF5	62.521	29.572	30.194	28.424	46.238	46.636	45.029
GeoF6	11.828	3493	2923	2925	4906	6246	6044
GeoF7	1728.5	599.29	564.61	565.47	1184.1	902.89	864.54
GeoF8	27	6	7	18	15	27	27
GeoF9	0	0	0	0	0	0	0
GeoF10	305.38	177.82	139.12	153.97	815	297.32	288.12
GeoF11	118.01	38.157	45.505	45.363	46.844	62	65
GeoF12	172.07	37.029	46.848	44.133	73.617	133	129
GeoF13	20.895	2942.3	2047.4	3902	6016.4	6246	6045
GeoF14	46.921	17.823	21.788	19.667	19.474	38.932	39.861
GeoF15	90.989	39.462	37.443	35.704	67.424	66.727	64.034
GeoF16							68

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Tutorials

1. Introduction
2. MaZda Setup
3. Image Analysis
4. Texture analysis methods
5. Selection methods
6. Color image analysis
7. Feature maps
8. Clustering
9. Automation and plugins
10. 3D image analysis



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Other improvements

1. Window for feature selection results has been modified
 2. Now it is possible to define any three-letter prefixes for feature names
 3. Menu option for saving all maps has been added to image view window
 4. Elastic surface procedure has been modified
 5. Tests on running "third party" programs from MaZda were performed
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