

Guidance Vision for Robots and Automated Visual Inspection

CIMR, University Politehnica of Bucharest



Tracking Scene in Motion

Motion Control using dynamic visual reaction

- Visual servoing
- Dynamic Look & Move
- Robot- scene and robot-object modelling
- Synchronize with motion material flow
- Projection of control conveyor applications



Intelligent Feeding

Intelligent Systems for feeding

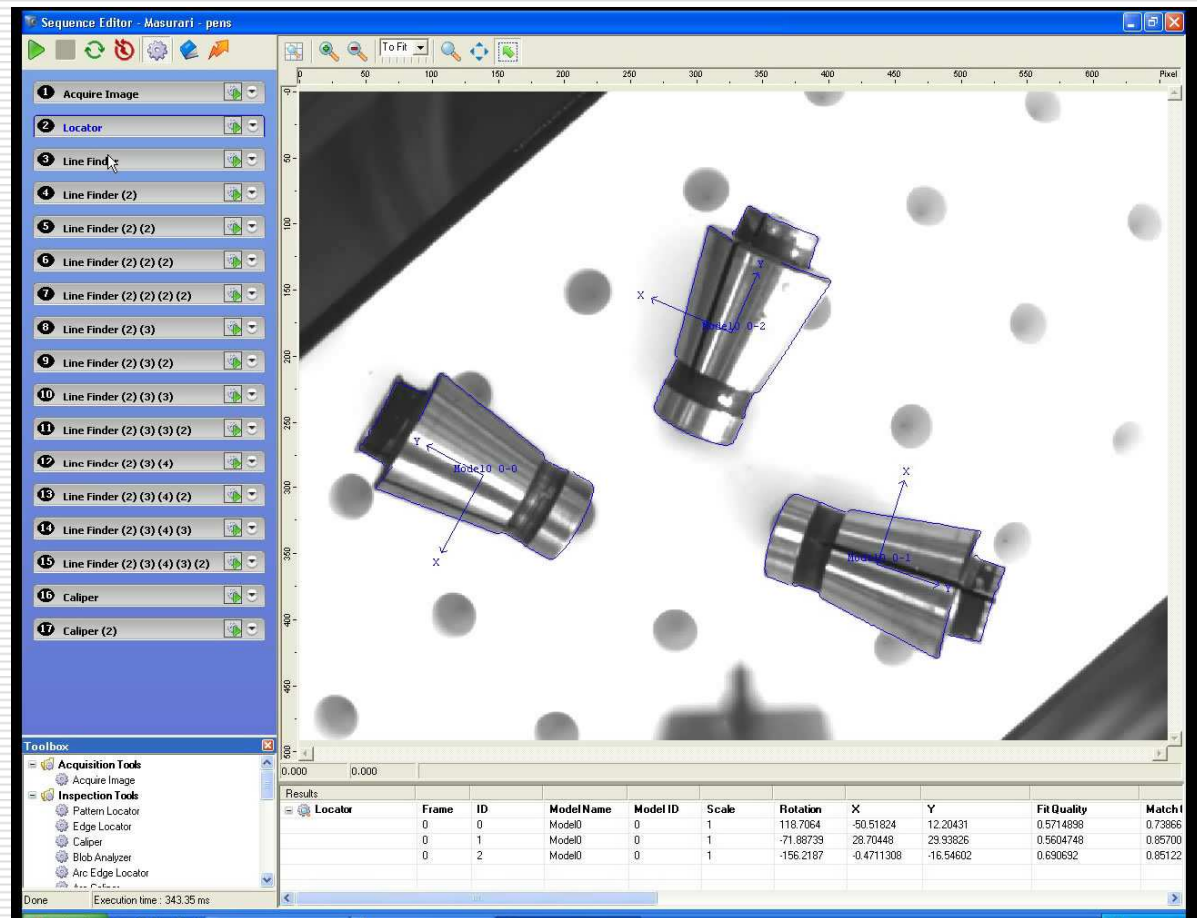
- ❑ Configuration modes of material presentation
- ❑ Dual, flexible systems
- ❑ Automated feeding
- ❑ Artificial Vision for component qualification
- ❑ Guidance for robots using artificial vision



Automated Inspection using AV

Automated Visual Inspection (1)

- Robust recognition
- Lighting systems
- Virtual cameras creation
- Software measurement instruments:
 - Detectors
 - Rulers
 - AOI
 - Caliper
- Quality control



Measurement demo (1)

Sequence Editor Masurari - pens

1 Acquire Image
2 Locator
3 Line Finder
4 Line Finder (2)
5 Line Finder (2) (2)
6 Line Finder (2) (2) (2)
7 Line Finder (2) (2) (2) (2)
8 Line Finder (2) (3)
9 Line Finder (2) (3) (2)
10 Line Finder (2) (3) (3)
11 Line Finder (2) (3) (3) (2)
12 Line Finder (2) (3) (4)
13 Line Finder (2) (3) (4) (2)
14 Line Finder (2) (3) (4) (3)
15 Line Finder (2) (3) (4) (3) (2)
16 Caliper
17 Caliper (2)

Toolbox
Acquisition Tools
Acquire Image
Inspection Tools
Pattern Locator
Edge Locator
Caliper
Blob Analyzer
Arc Edge Locator

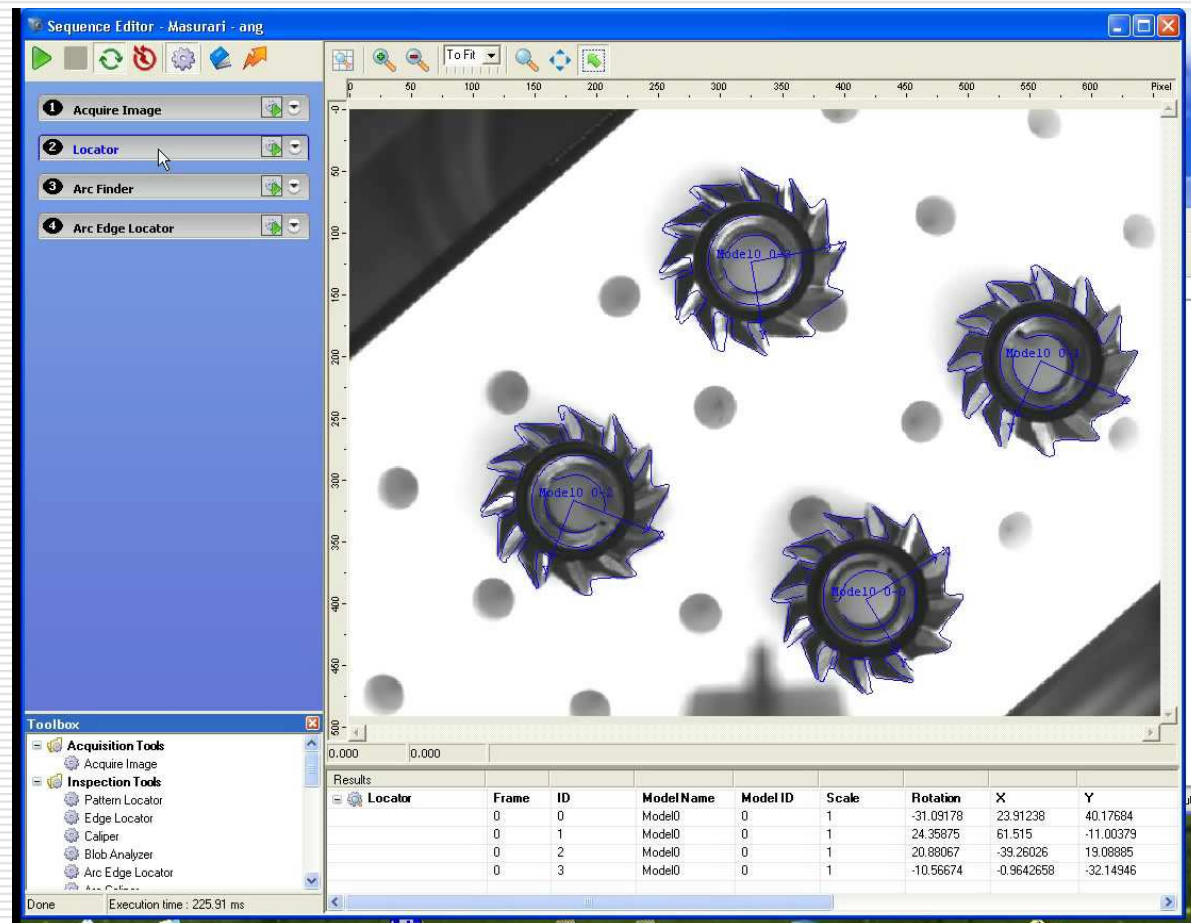
Locator	Frame	ID	ModelName	Model ID	Scale	Rotation	X	Y	Fit Quality	MatchI
	0	0	Model0	0	1	118.7064	-50.51824	12.20431	0.5714898	0.73866
	0	1	Model0	0	1	-71.88739	28.70448	29.93826	0.5604748	0.85700
	0	2	Model0	0	1	-156.2187	-0.4711308	-16.54602	0.690692	0.85122

Done Execution time : 343.35 ms

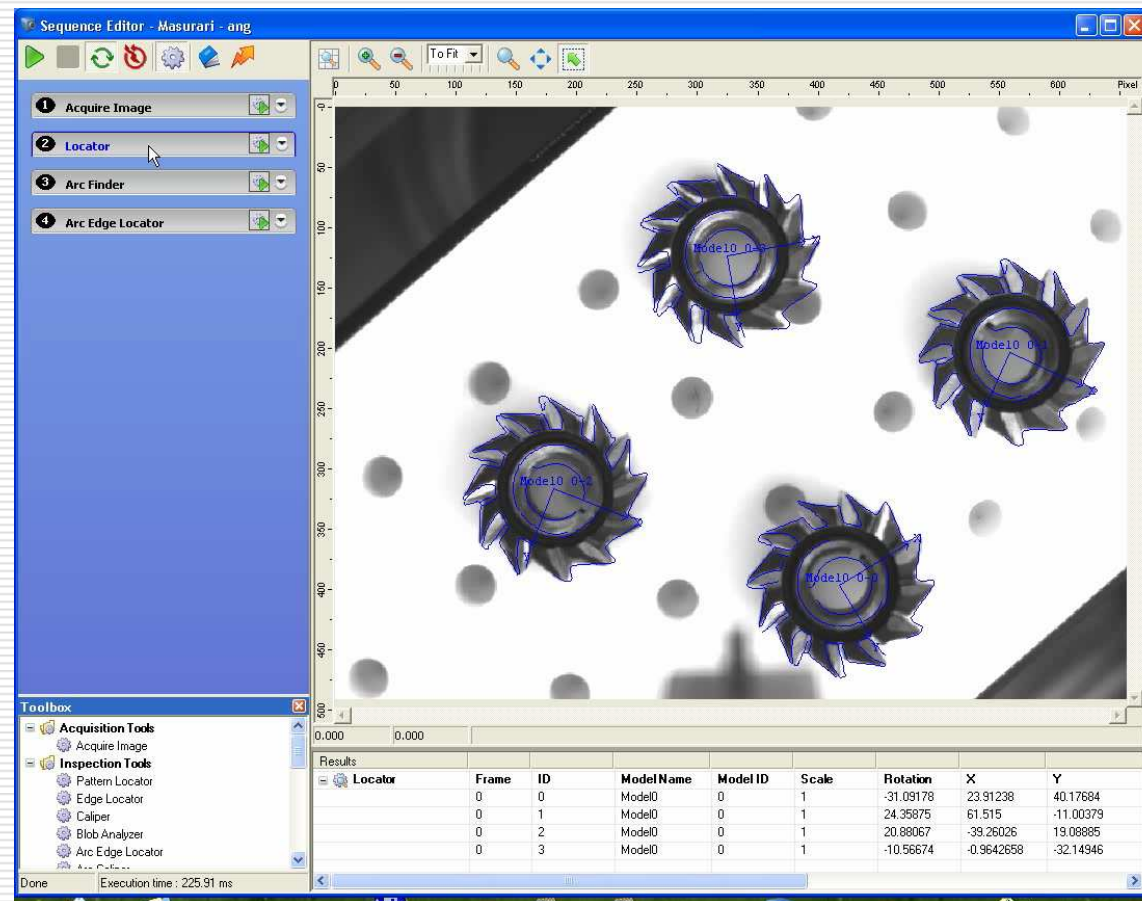
Automatic Inspection Using AV

Automated Visual Inspection (2)

- Visual measurements
- Shape descriptors
- Measurements based on anchor feature
- Signature analyse
- Flow sorting of components
- Structured control of scenes



AVI Using arc finder tools



Real-time part locating for correcting robot grasp

