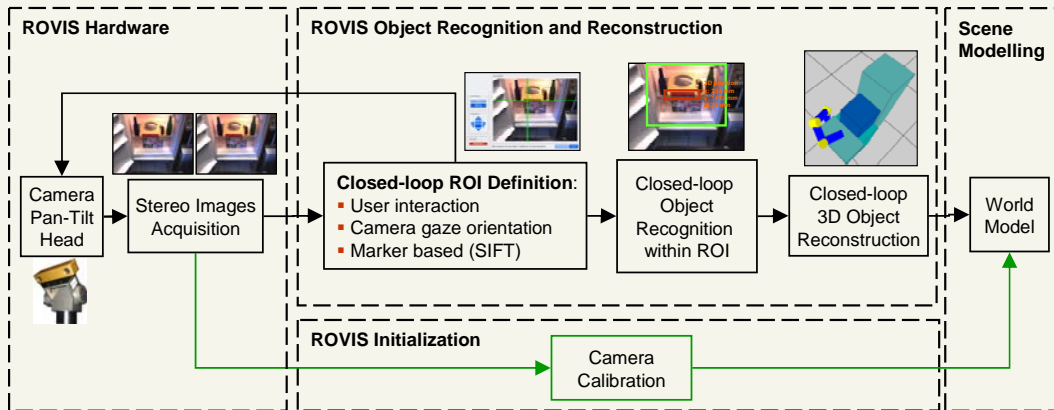


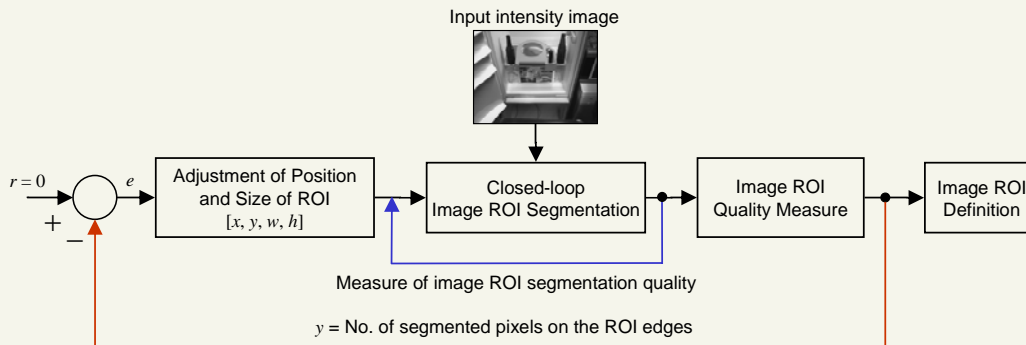
ROVIS: Robust Machine Vision for Service Robotics



Structure of the ROVIS architecture.

ROVIS information flow

- Input images are taken from a stereo camera system with closed-loop gaze control orientation.
- ROVIS Object Recognition and Reconstruction chain: Region of Interest (ROI) definition, object recognition and 3D reconstruction are performed in a closed-loop manner for robustness improvement.
- Processing results at different image processing levels, stored in the World Model, are further used for robotic object manipulation.



Closed-loop control of ROI definition in the ROVIS architecture.

Robust Machine Vision for improvement of the visual perceptual capabilities of the robotic system FRIEND

Aim

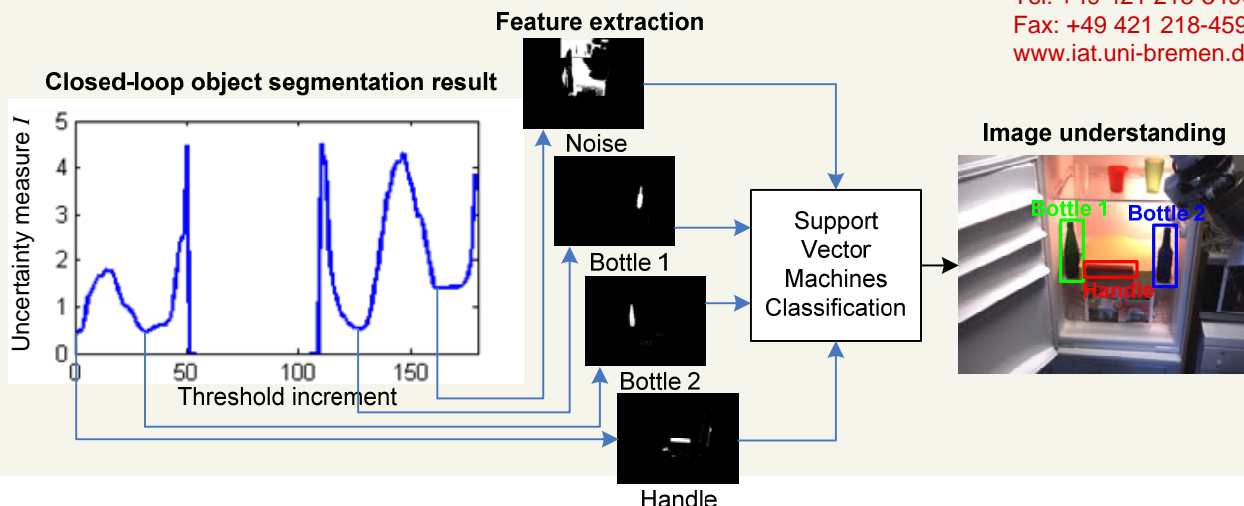
Development of vision algorithms that are able to provide reliable information on 3D location of objects to be manipulated independently of variable external influences.

Research areas

- General and application specific image processing algorithms.
- Inclusion of closed-loop control at different levels of image processing for improvement of its robustness with respect to external influences.
- Closed-loop control of stereo camera gaze orientation.
- Object recognition methods for colored and pattern objects.
- Robust classification methods of segmentation results.

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Closed-loop control of image segmentation and classification of segmentation results in the ROVIS architecture.