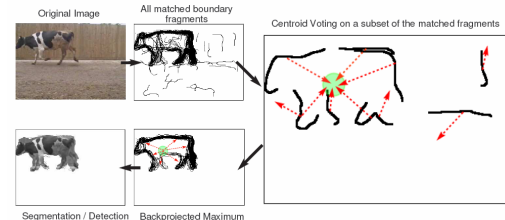
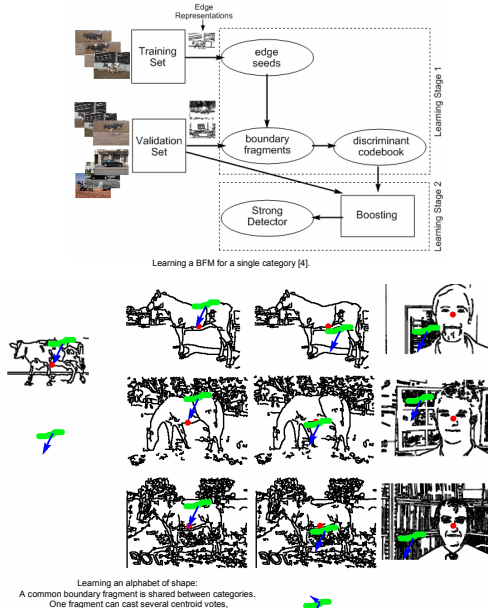


Abstract

The localization of objects in images is still a field of current categorization research. It would be desirable to obtain improved object segmentation for existing categorization approaches, in which category recognition and approximate object delineation may already be satisfying. We build on our previous results in category detection using a Boundary-Fragment-Model (BFM) [4, 5] and in segmentation and tracking of specific objects using shape priors in a level set framework [1, 2]. Our novel segmentation approach starts by training standard BFMs for a number of categories. In the recognition phase, these BFMs successfully localize instances of the learnt categories in test images. The result is a collection of boundary fragments that vote for an object centroid. In the final segmentation phase, we use these boundary fragments, smooth them, calculate a gradient vector flow field and use it as a **generic shape prior** for a level set based segmentation of the test image. First experiments [3] show very accurate segmentation results for bottles, cars side and cows side and further results on our multiclass dataset are presented in this poster. Potential future extensions include incremental, online learning of generic shape priors and handling of significant amount of occlusion.

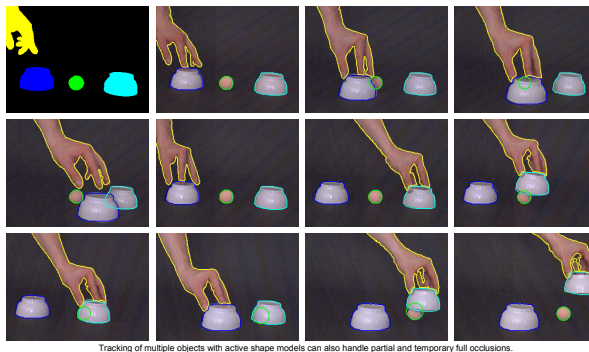
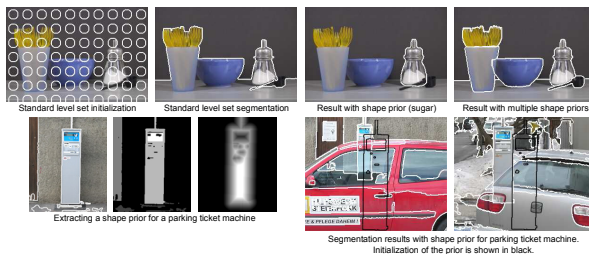
Category detection with a Boundary-Fragment-Model (BFM)

(joint work with A. Opelt and A. Zisserman [4], [5])



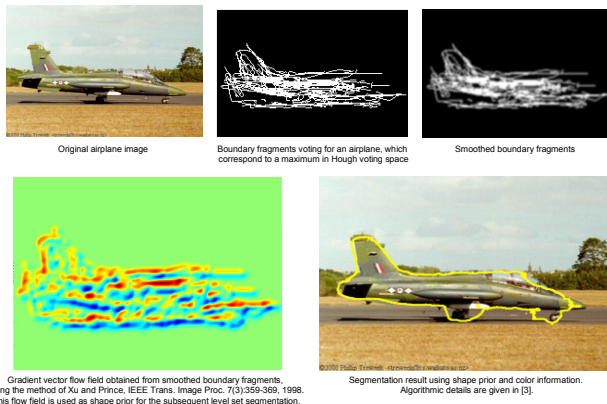
Level set segmentation with shape priors Active shape model (ASM)

(joint work with M. Fussenegger and R. Deriche [1], [2])

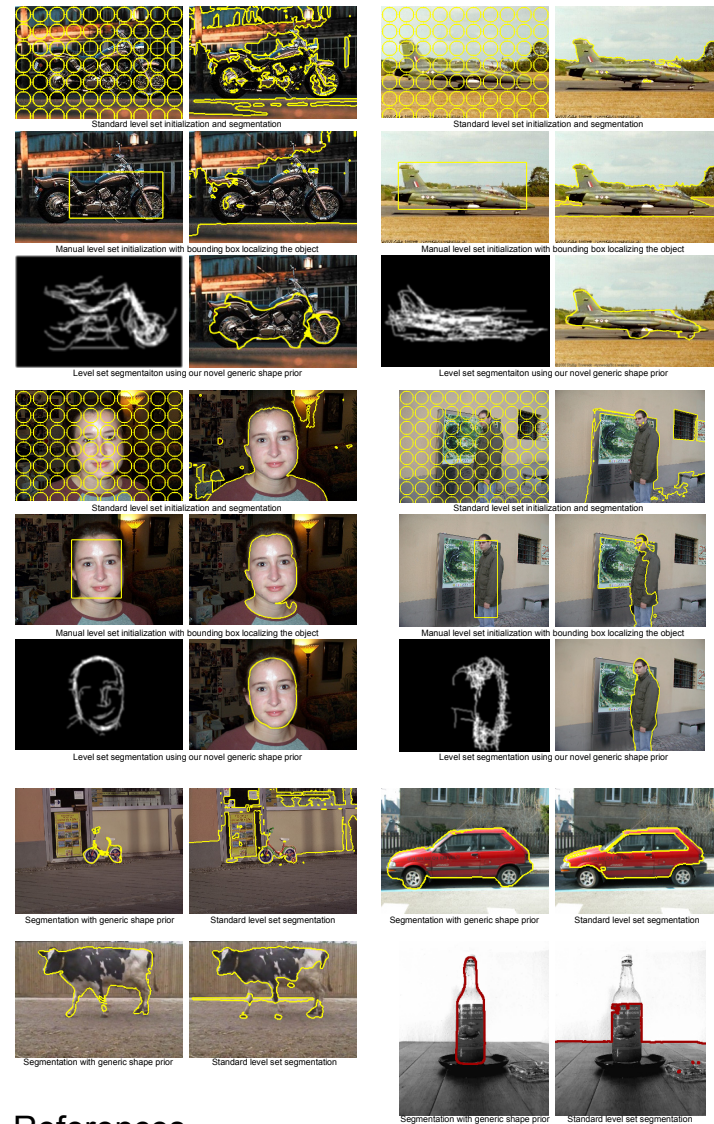


Key idea: Using BFMs as shape priors

(joint work with M. Fussenegger and A. Opelt [3])



Results



References

- [1] M. Fussenegger, R. Deriche, and A. Pinz. A multiphase level set based segmentation framework with pose invariant shape priors. Proc. ACCV, 2006.
- [2] M. Fussenegger, R. Deriche, and A. Pinz. Multiregion level set tracking with transformation invariant shape priors. Proc. ACCV, 2006.
- [3] M. Fussenegger, A. Opelt, and A. Pinz. Object localization/segmentation using generic shape priors. Proc. ICPR, 2006.
- [4] A. Opelt, A. Pinz, and A. Zisserman. A Boundary-Fragment-Model for object detection. Proc. ECCV, 2006.
- [5] A. Opelt, A. Pinz, and A. Zisserman. Incremental learning of object detectors using a visual shape alphabet. Proc. CVPR, 2006, Best paper prize – runner-up.