

## **21. Segmentation of outdoor scenes**

Outdoors displacement is among the navigation tasks of mobile autonomous devices. Such displacement may take place in particular environments, like rural roads, characterized by a restricted set of scene elements along the displacements. This project proposes to implement a road and background segmentation algorithm for that context.

### Work plan

- Understand the problem of autonomous displacement in mobile devices.
- Examine the proposed dataset to test the algorithm (see “Set of images”).
- Develop one texture descriptor according to the proposals of [1].
- Identify an appropriate color descriptor from [1].
- Combine the two previous algorithms results making use of a k-means approach to segment the scenes.
- Experimental validation.
- Evaluate by characterizing and comparing the best and the worst application conditions of the developed algorithm.

### Reference

- [1] Blas, M.R., Agrawal, M., Sundaresan, A., and Konolige, K. Fast color/texture segmentation for outdoor robots. IEEE/RSJ International Conference on Intelligent Robots and Systems, 2008, pp. 4078-4085.

### Set of images

<http://www.rural-roads.co.uk/essex/essex1.shtml>  
<http://www.rural-roads.co.uk/essex/essex5.shtml>  
<http://www.exploretheline.com/images/wolfrun.jpg>  
<http://www.exploretheline.com/images/turkeyrun.jpg>  
<http://www.exploretheline.com/images/md29.jpg>  
<http://www.exploretheline.com/images/md27.jpg>  
<http://www.exploretheline.com/images/plantzs.jpg>  
<http://www.exploretheline.com/images/gilmore.jpg>  
<http://www.exploretheline.com/images/renner.jpg>  
<http://www.exploretheline.com/images/brun08n.jpg>  
<http://www.exploretheline.com/images/brun07s.jpg>