Towards a Global Optimal Multi-Layer Stixel Representation of Dense 3D Data

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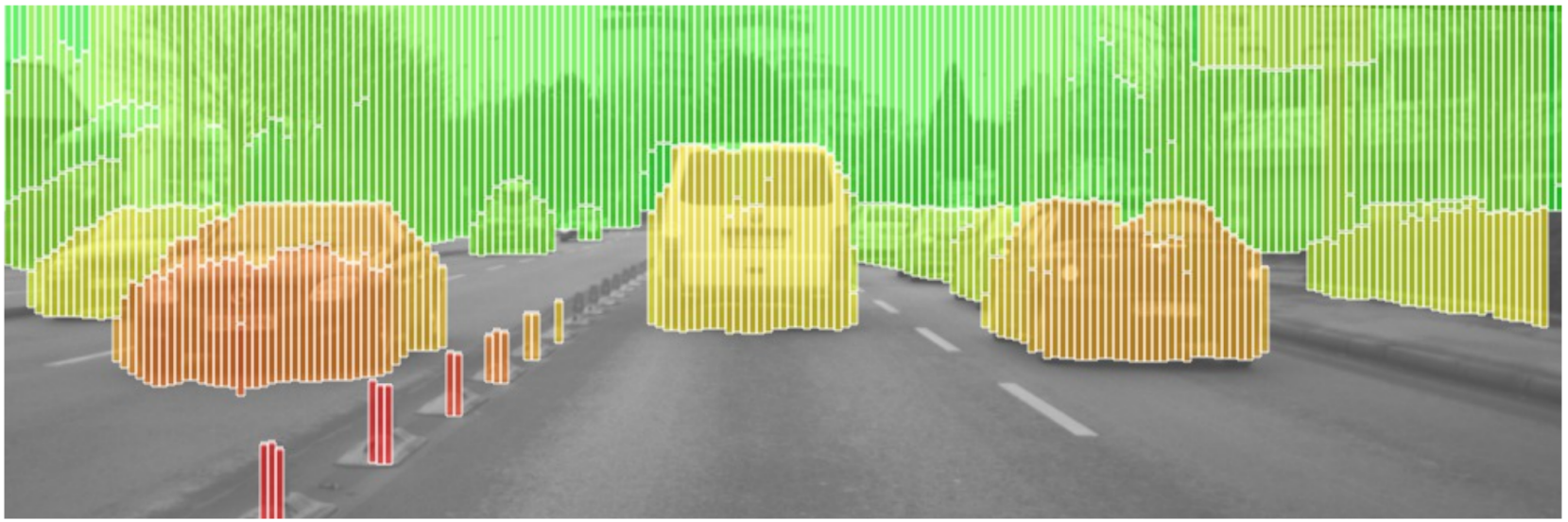

- Medium level representation: thin planar rectangles called Stixels
- Motivation:
  - Dominance of horizontal, vertical planar surfaces in man-made environments
  - Structured access to the scene data
  - Half a million disparity measurements to a few hundred Stixels only
- Difference to BadinoDAGM2009[1]:
  - A unified global optimal scheme
  - Objects at multiple depths in a column
- Dynamic programming to incorporate real-world constraints (gravity, ordering)
- An optimal segmentation with respect to free space and obstacle information
- Results for stereo vision and laser data, but applicable to 3D data from other sensors

[1] The stixel world - a compact medium level representation of the 3d-world. DAGM 2009