

A Method for Automatically Extracting Road Layers from Raster Maps

Yao-Yi Chiang and Craig A. Knoblock

Exploiting Road Layers in Raster Maps...





- Utilizing the road-intersection templates to extract roads from imagery Extracting road-intersection templates



- Fusing raster maps with imagery using the road layer

- Raster maps are available for areas around the globe
- Road layer is a common feature existing in many geospatial data

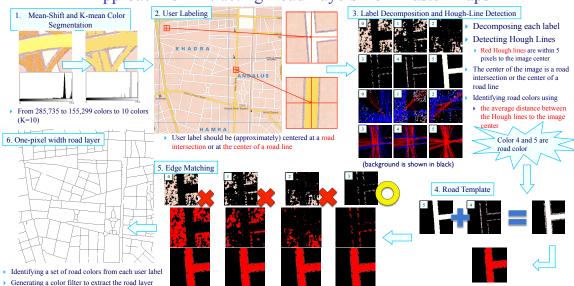
Difficulties for Extracting Road Layers from Raster Maps

> Maps are complex Poor image quality

Lack of metadata



Approach for Extracting Road Layers from Raster Maps



- Applying morphological operations to remove solid areas and reconnect lines
 - More than 50% of the red pixels in the test image have found a match identified as an image of road color

Experimental Results

- We successfully extracted the road layers from all 100 maps
- > The average computation time per map was below 5 seconds
- The three sets of scanned maps were cropped from three scanned maps (350dpi) from Gizi Maps, Gecko Maps, and International Travel Maps

	Map	Avg.	Avg.
Map Set	Count	User	Computation
		Labels	Time (s.)
1. USGS topo. maps	19	1.5	1.5
2. USGS topo. maps	5	1.6	1.2
3. USGS topo. maps	6	1.8	1.8
4. Scanned maps	12	2.7	2.7
Scanned maps	18	2.1	3.3
6. Scanned maps	30	2.6	4.2
7. Rand McNally maps	10	3.9	2.4

