

Automating Image Classification: a Geometry-led Data Structure

By:

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Image Classification

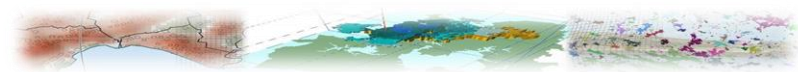


Image classification is a process during which pixels in an image are categorized into several classes of ground cover based on the application of statistical decision rules in the multispectral domain or logical decision rules in the spatial domain (Gao, 2009).

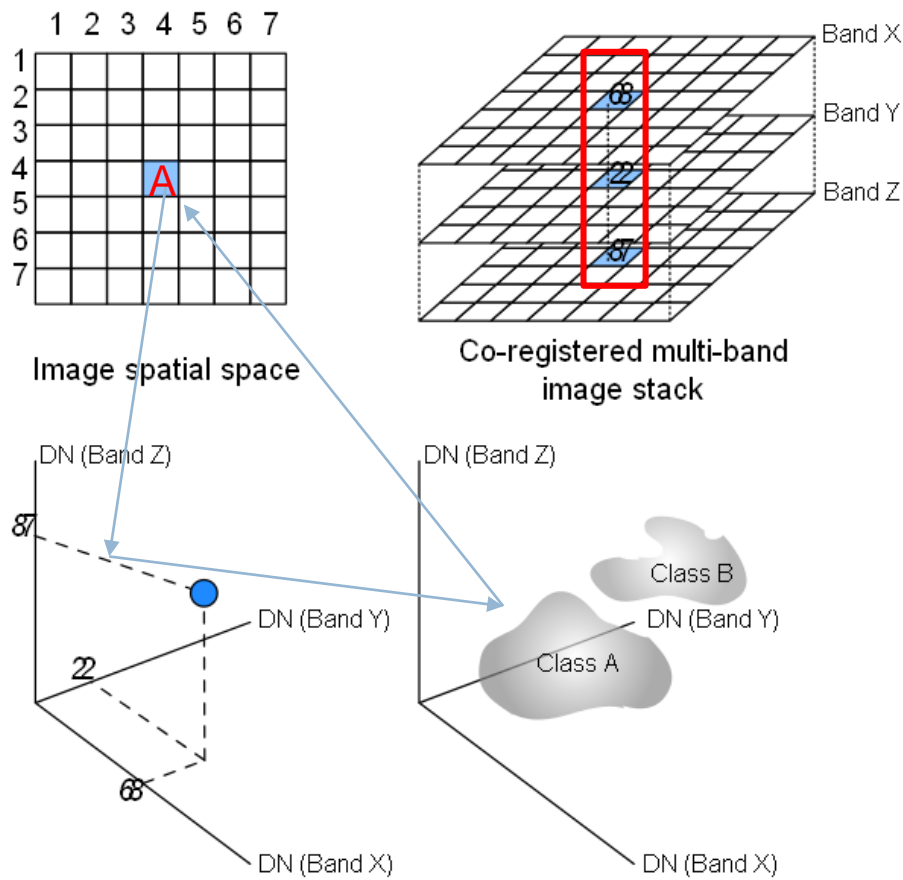


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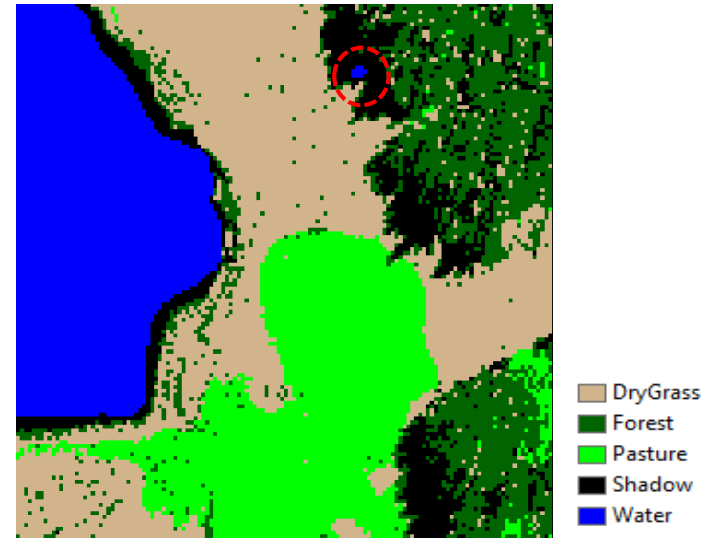
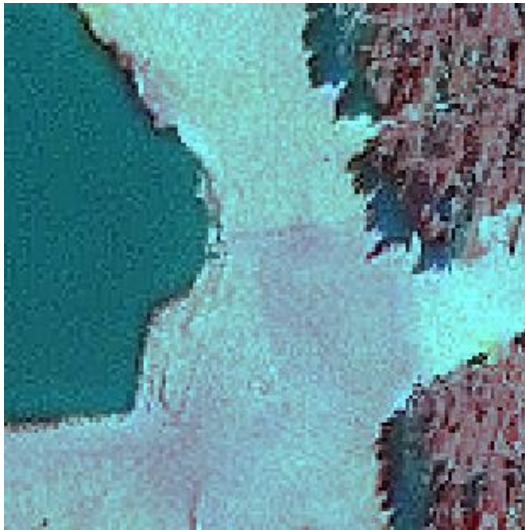


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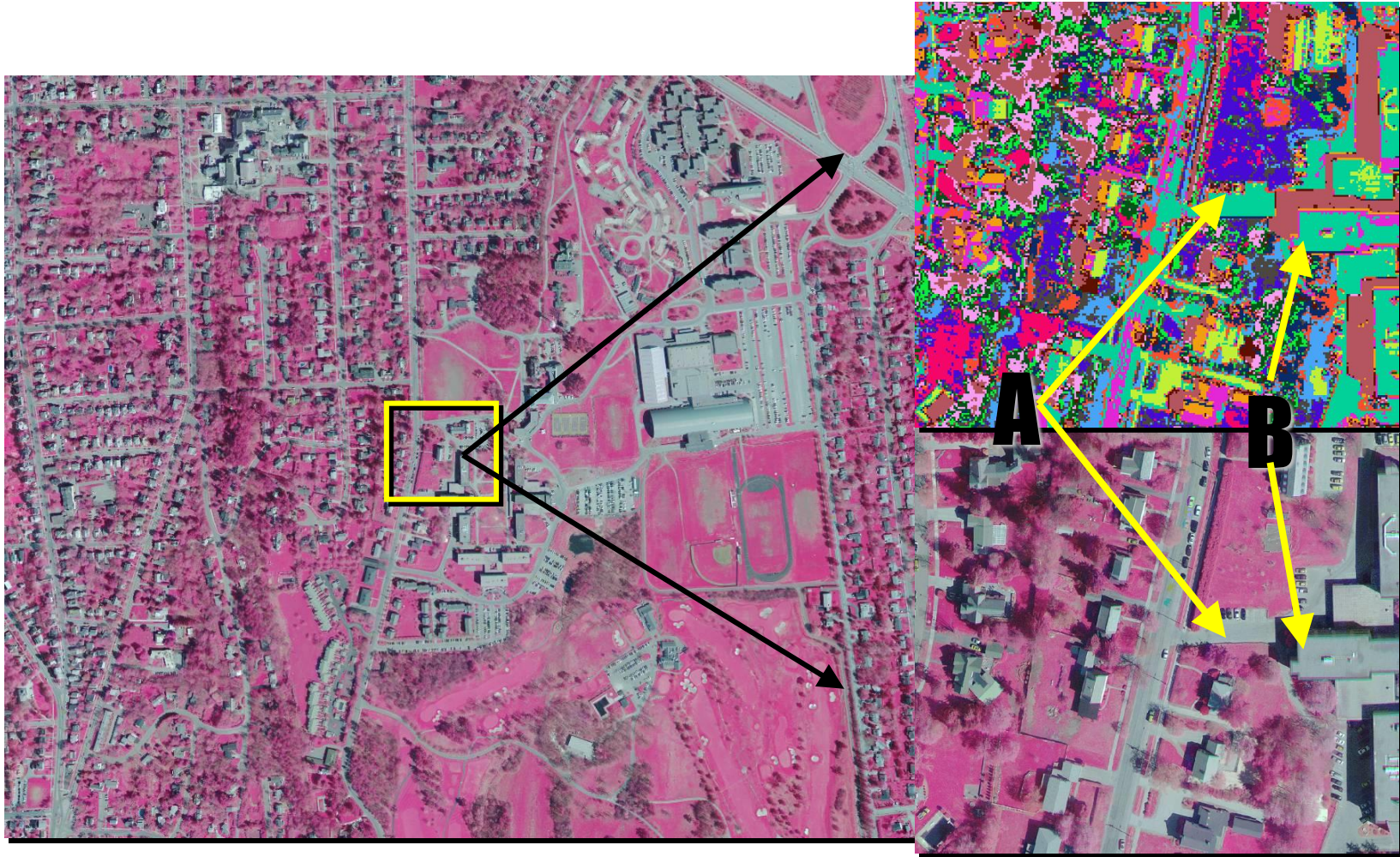


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	Object B	Object C
Mean Band 1	147	146
Mean Band 2	168	166
Mean Band 3	171	168

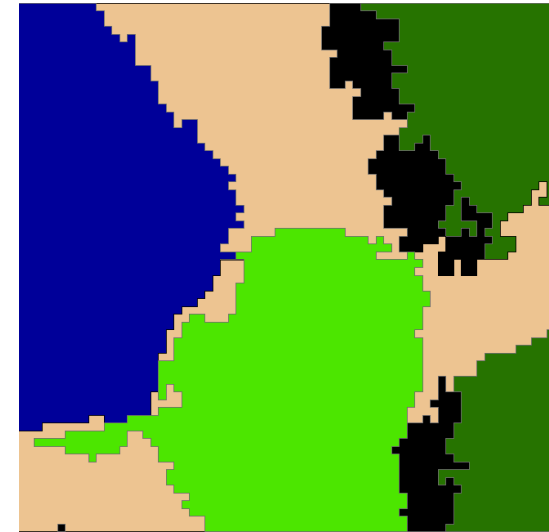
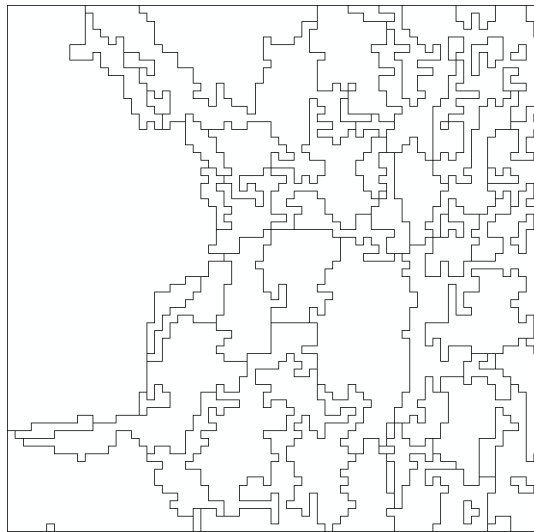
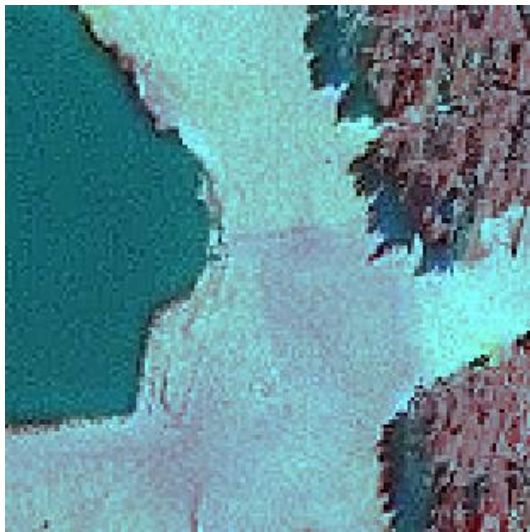
Geometric information

	Object B	Object C
Area	672	4212
Length	50	335
Compactness	1.2	15.9

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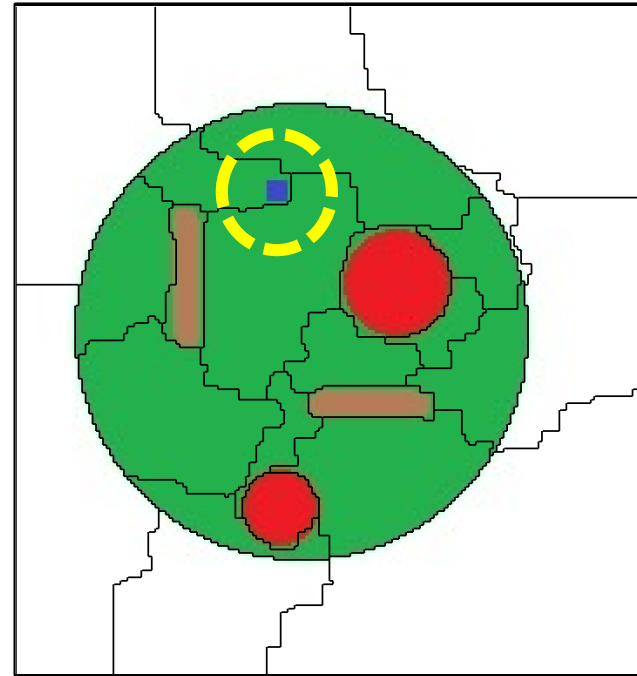
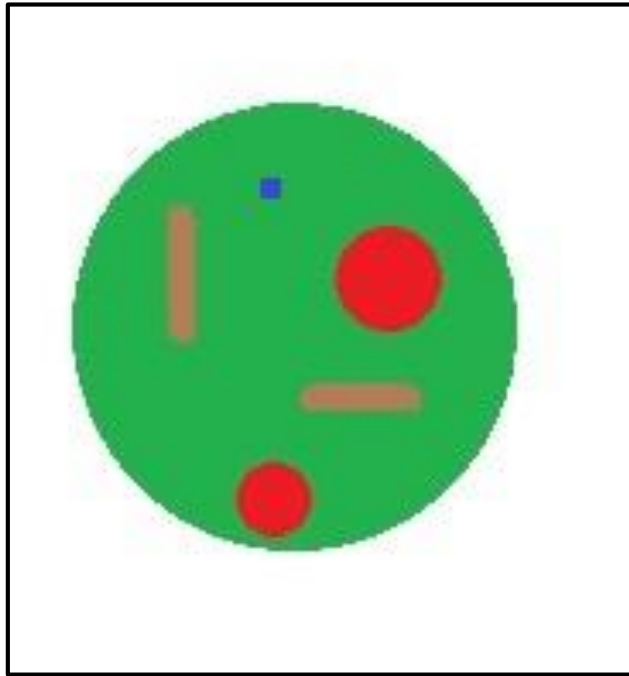
- DryGrass
- Forest
- Pasture
- Shadow
- Water



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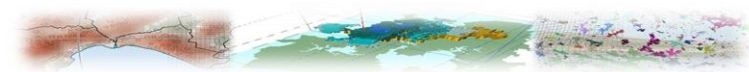
Proposed Method

If geo-objects are key to the OBIA approaches (Blaschke et al. 2014; Castilla and Hay, 2008), **then why is there a bigger focus on image objects, rather than on geo-objects?**

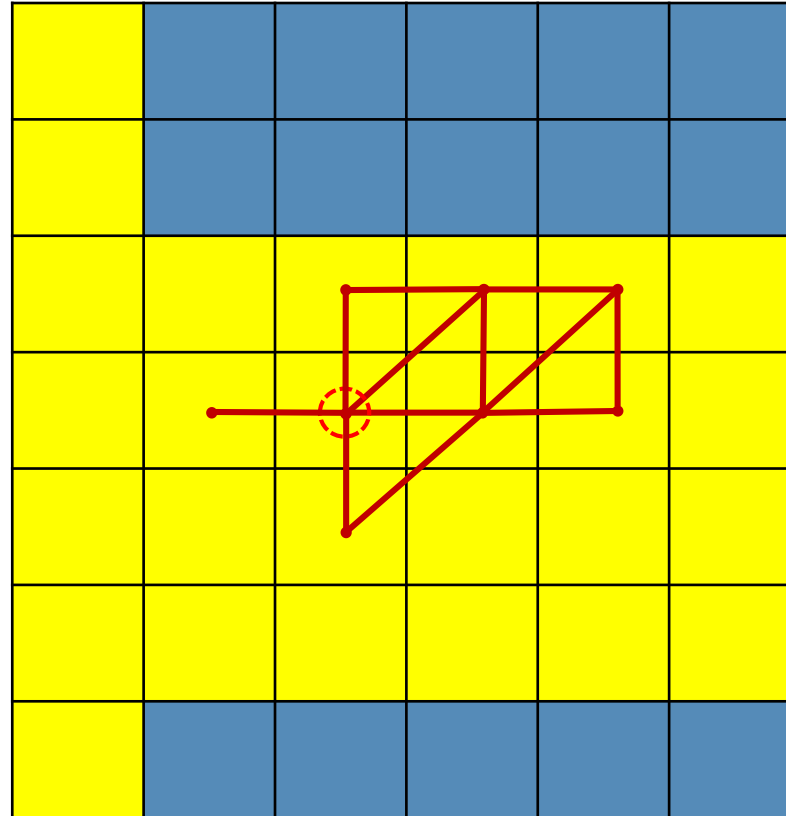


<https://fabulesslyfrugal.com/deals/kids-painting-writing-water-doodle-toy-mat/>

Construction of the Unified Geometry



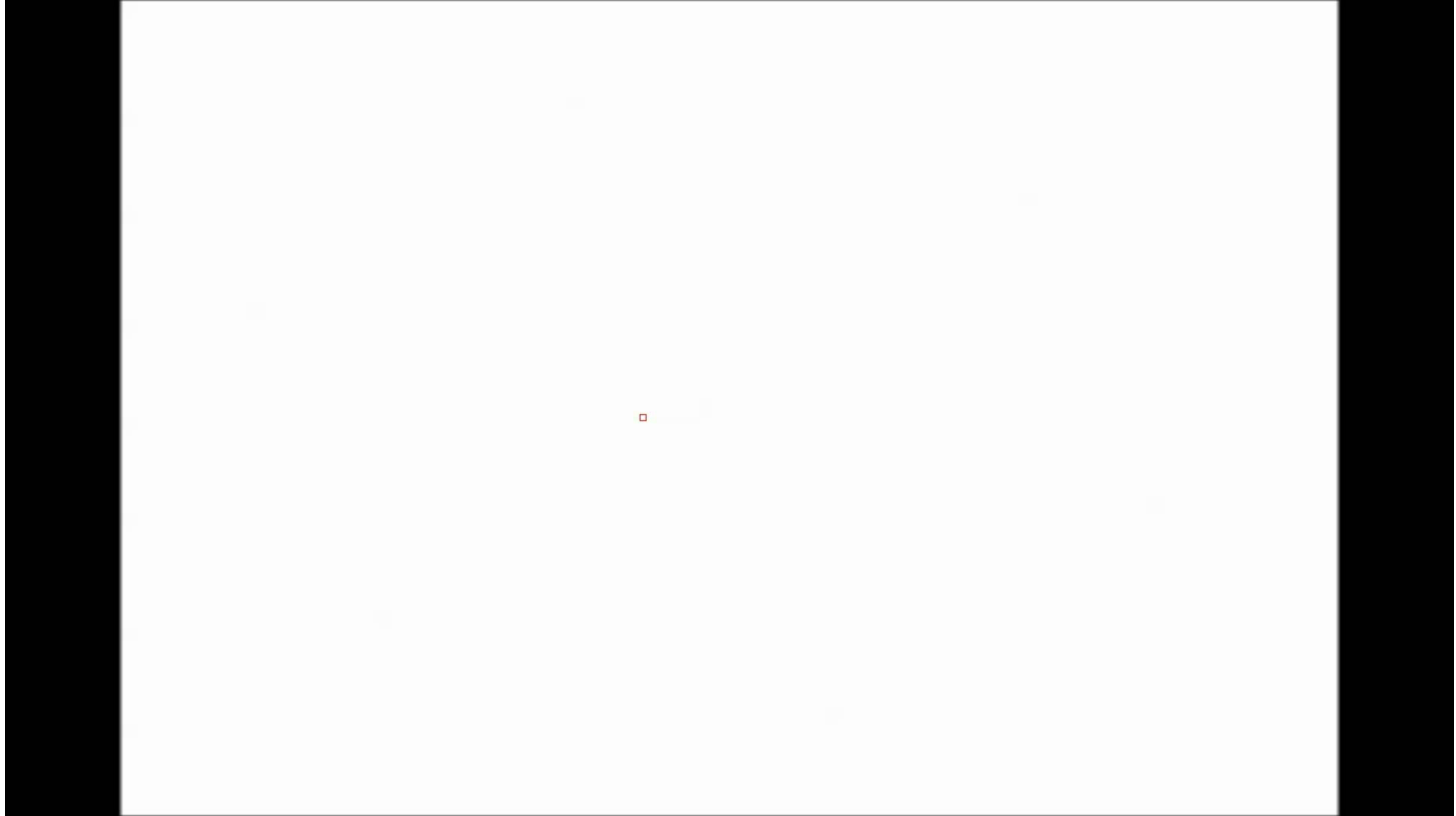
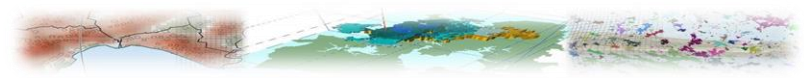
The geometry is defined and formulated in terms of Vector Agents.



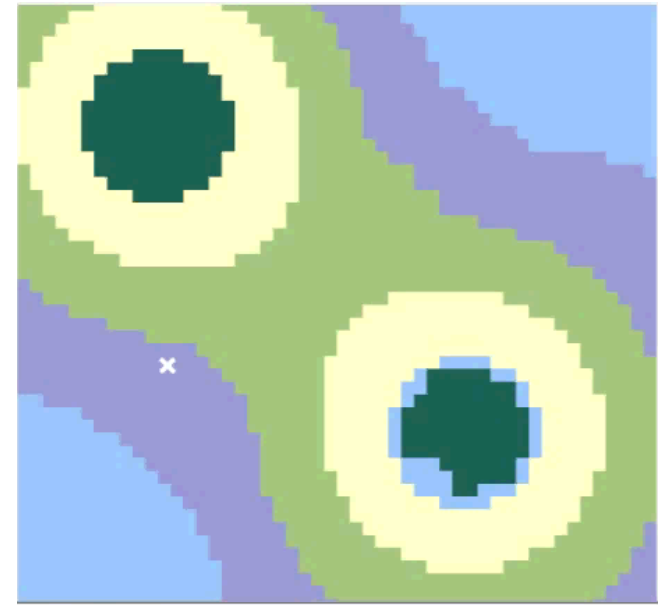
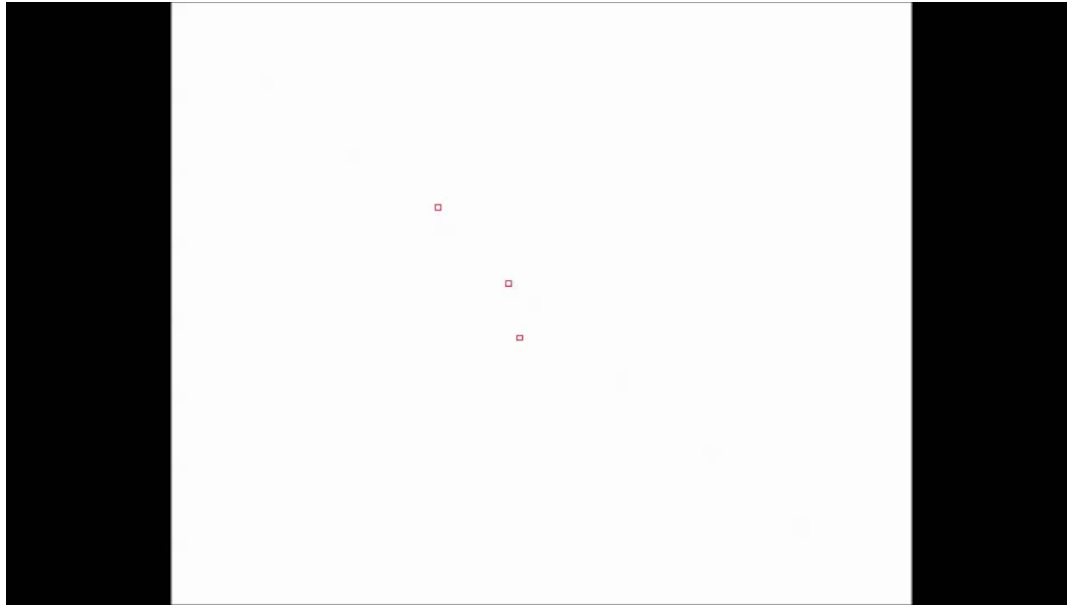
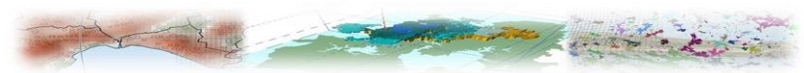
Rule removal as an edge if the inside a polygon center.



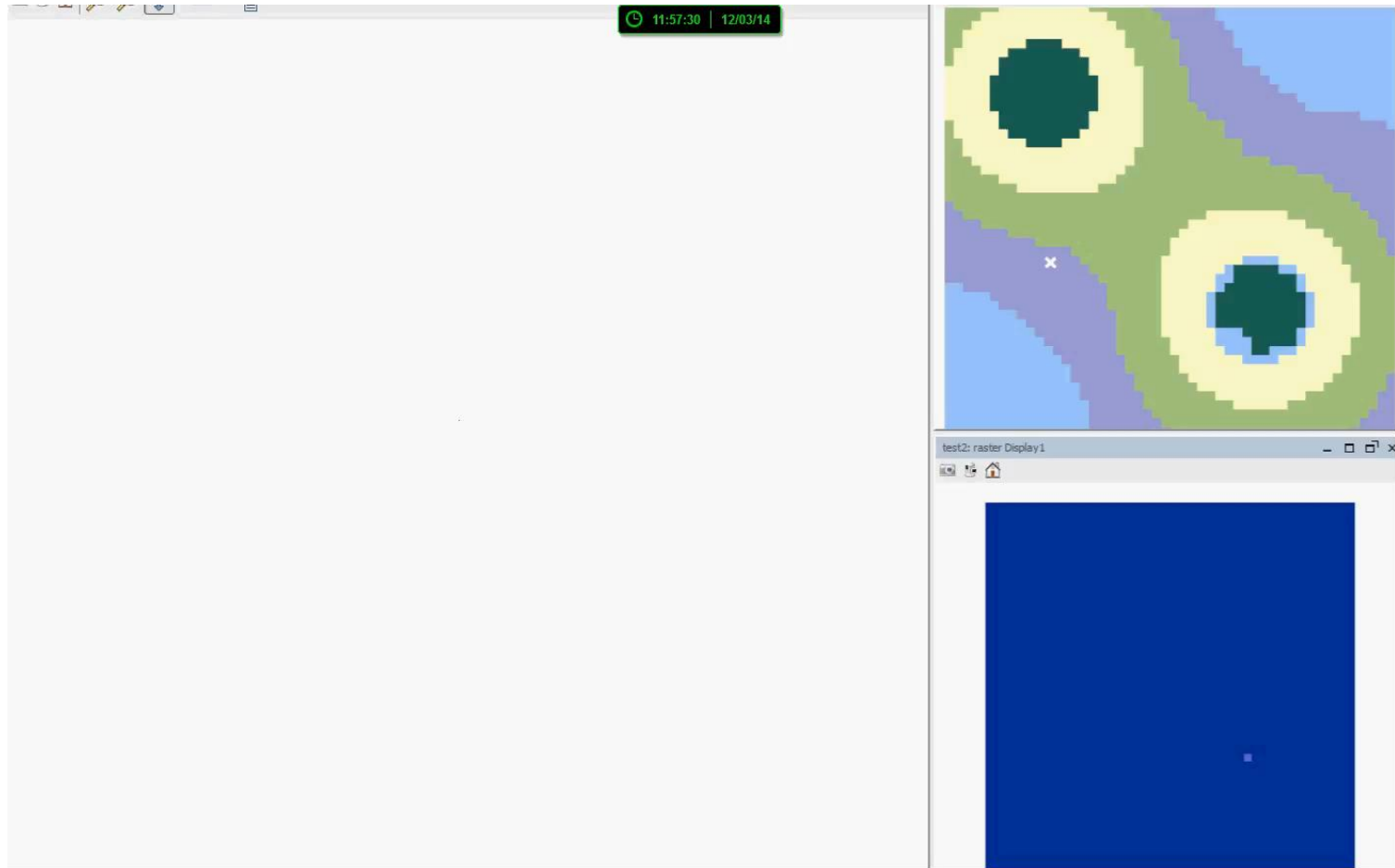
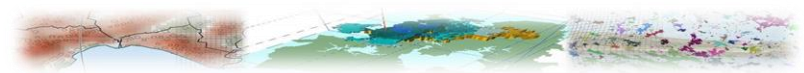
Creation of the Dynamic Geometry



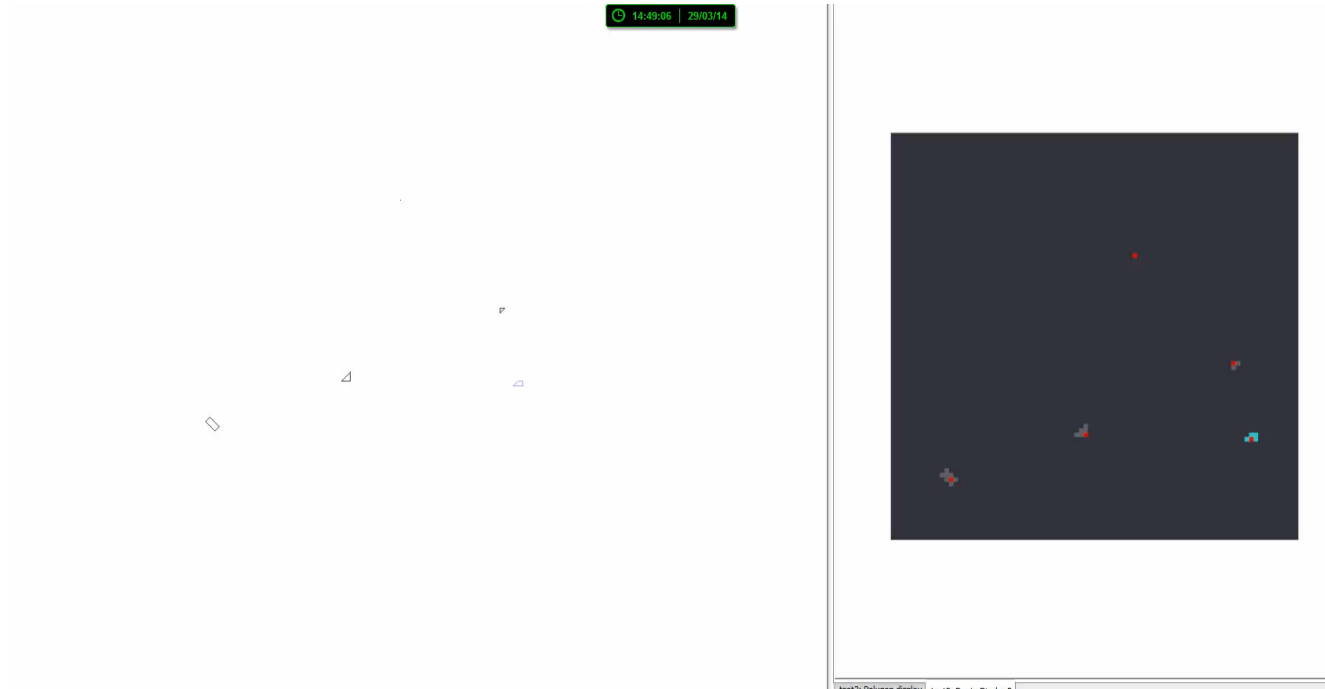
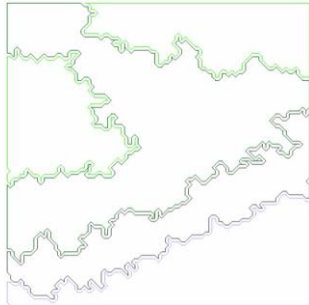
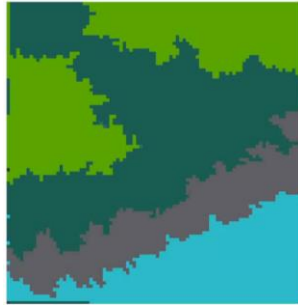
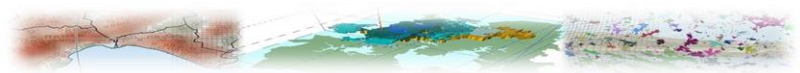
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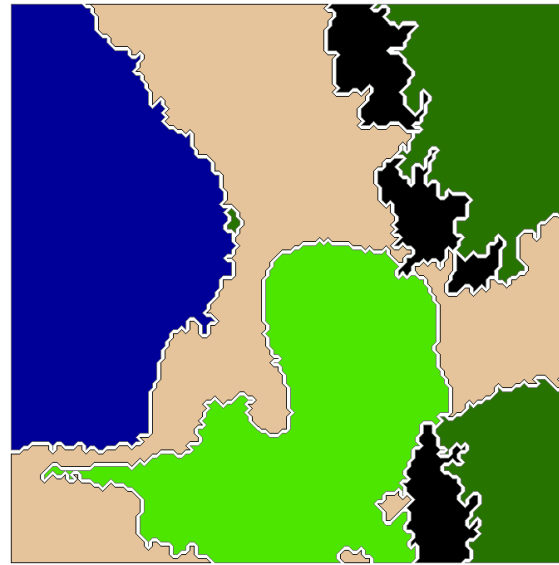
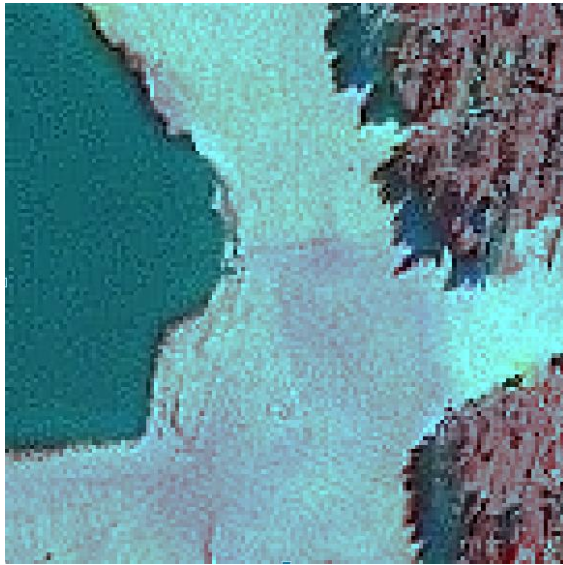
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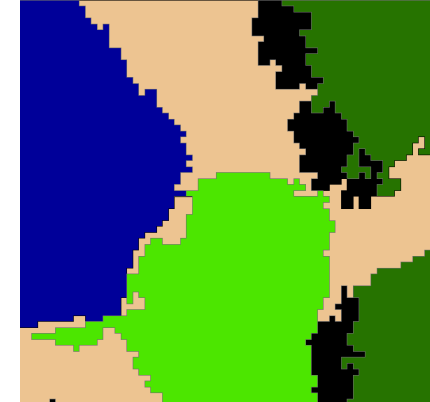
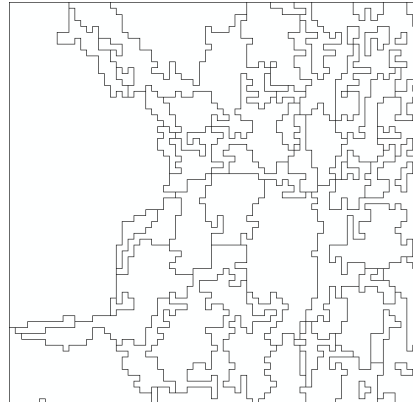
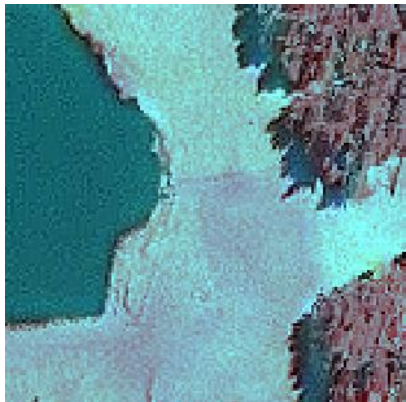
Creation of the Dynamic Geometry



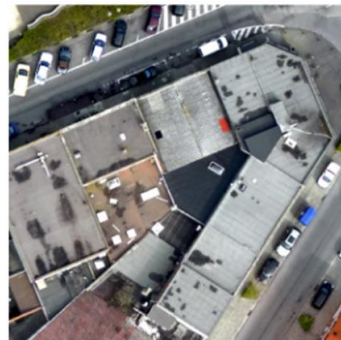
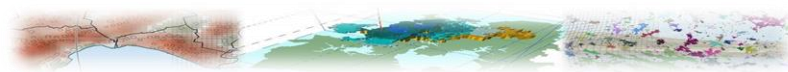
Implementation



■ DryGrass ■ Forest ■ Pasture ■ Shadow ■ Water



Conclusion



“If modelled phenomena are an abstraction of real-world phenomena, why should modelled objects differ from their counterparts in the real world”

(Benenson and Torrens, 2004)





Thank you