INCORPORATING UNCERTAINTY INFORMATION INTO THE VISUAL ANALYSIS OF SELF-ORGANIZING MAPS

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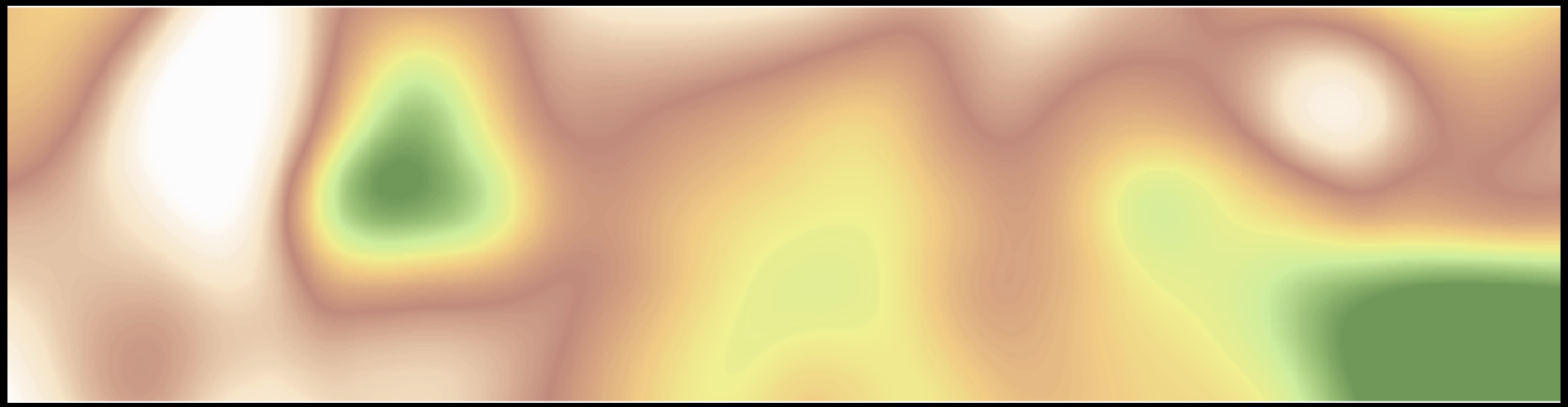
FUNCTION OF A SELF-ORGANIZING MAP

	Total population	Agricultural space in km²	Area in km²	GDP per capita in US $	Unemployment Rate	…
Hamburg	1,783,975	191.89	755	30,900	8.3	
Berlin	3,440,441	38.51	891.85	21,300	14.0	
London	7,556,900	?	1,572.1	38,900	7.6	
…						

An Information Space is mapped onto an Output Grid

Additional Visualization Techniques create Landscapes: Clusters in Information Space correspond to Valleys



PLACEMENT OF DATA ENTRIES

Name	Total population	Agricultural space in km²	Area in km²	GDP per capita in US $	Unemployment Rate	…
Hamburg	1,783,975	191.89	755	30,900	8.3	

Distinct Point Positions on the Output Grid
are assigned to a Data Entry

HANDLING OF UNCERTAIN INPUT

	Total population	Agricultural space in km²	Area in km²	GDP per capita in US $	Unemployment Rate	…
Hamburg – Lower Value Borders	1,725,000	185	755	30,500	7,5	
Hamburg –Estimated Values	1,783,975	191.89	755	30,900	8.3	
Hamburg – Upper Value Borders	1,790,000	195	755	33,000	9	

Uncertain Attribute Values of a Data Entry lead to an Uncertain Positioning on the Output Grid

HANDLING OF UNCERTAIN INPUT

- *Uncertain data is not described through a distinct point position, but by an area*
- *The larger the uncertainty, the larger the area occupied by the data entry*
- *The area is not necessarily contiguous*

PURPOSE

- *Propagation of Uncertainty*
- *Gradual Clustering*
- *Estimation of Missing Values*

STATE OF WORK

- *Placement of Data Entries* -> *Evaluation phase*
- *Construction of Uncertainty Area* -> *T.b.d.*
- *Propagation of Uncertainty* -> *T.b.d.*

Thank you for your Attention

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