Meshed Geovisualization Patterns for Geo-Spatial Data

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The idea behind interface design patterns is to provide a library of solutions for recurrent design problems. The subject has been widely explored in what concerns visual interfaces and information architecture of websites. The recent boom of geo-mapping technologies typified by Google Maps, however, propose design questions whose answers are still unclear or not popularized. Designers and developers usually lack basic cartographic knowledge regarding, for example, generalization, character encoding and legend design.

For this reason maps are embedded in applications based only on what the technology facilitates, leading to serious usability problems. Furthermore, the formal quality of these maps often do not correspond to users' expectations, who slowly start to develop a critical eye on them. This practice not only causes users a map fatigue, but also contributes to the consolidation of a mistaken notion of cartographic principles. In this sense knowing best practices would lead to more effective map interfaces, to the universalization of adequate geovisualization conventions, besides speeding up design and development processes.

Having this in mind, the Easy2Use project focused its efforts on producing a comprehensive library of design patterns for geo-visualization. The library comprises patterns for interaction principles, interfaces and visualizations that facilitate the development of ergonomic and attractive media for both individual applications and across application families, beyond single devices.

The Easy2Use GeoViz library not only enhance the work of designers, urban planners, architects and geographers, but it also serves as a common language for these different fields. Geographers use terms and understand subjects in a different way than architects, for example, and though different points of view may sometimes conflict, their approaches are likely to complement each other. Believing that the creation of a language is a collective process, we designed a browser where users can access, discuss and create patterns.

In the pattern browser the search for patterns typically starts with a design question. By designing a system that shows disastrous floods around the world, one could ask, for example, how to represent areas usually covered by water and compare them with the areas extraordinary flooded. This question would then be translated into layout questions: should I use colour to differentiate/relate areas on the map? in which value? etc. With these questions in mind, the designer goes to the pattern browser and filters the collection of patterns by selecting the attribute "colour" under the facet "layout properties".

He or she would then select one colour pattern and access its detailed description including the problem it aims at, the solution it offers, and the rationale - the reason for this solution to correspond to the described problem. She would also be able to interfere in this description by criticizing the pattern in the "discussion area". In this case the author of the visited pattern would reason the critic and eventually do the suggested adjustments. All registered members are able to create patterns. With this approach, the browser aims to be a platform where this common language will evolve, be divulged, and consolidate in a democratic way.