Dissecting Geo-Infographics:
A Study on Visualizing Geographic Data

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Abstract

In this study, we conducted a comprehensive analysis of diverse geo-infographics available on the internet, closely examining the specifics of their visual elements. As a result, we formulated a design space that incorporates five key design dimensions: basic map representations, map projections, visual encoding channels, highlighting techniques, and label placement. Through the systematic review and exploration of a multitude of visual design strategies, we aim to provide an overview of visual elements that can be used for crafting compelling geo-infographics. Moreover, this work serves as a stepping stone towards the development of an intelligently assisted generation system tailored for the creation of sophisticated geo-infographics.

Introduction

Using infographics strategically effectively enhances visual appeal and aids data comprehension. These graphics representation at improving data's logical structure and visualizing summarized and categorized information.[1]. The main purpose of this work is to establish an extensive design space tailored to geo-infographics, with the intention of providing designers with an effective and multifaceted tool for reference.

Design Space

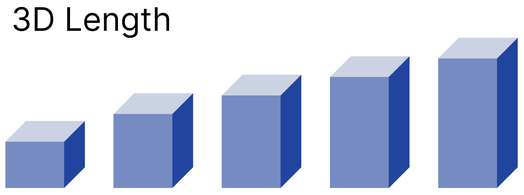
We collected and analyzed a total of 102 geo-infographics. This corpus allowed us to dissect prevalent design techniques. From this rich dataset, we derived a design space of geo-infographics, incorporating the following five key elements: basic map representations, map projections, encoding channels, highlights, and label positions.

Encoding Channels

Color(Luminance)

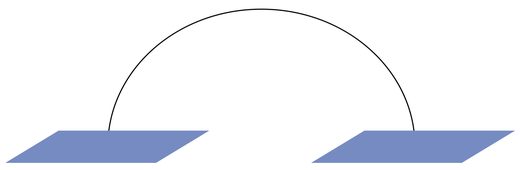
Color(Hue)

3D Length

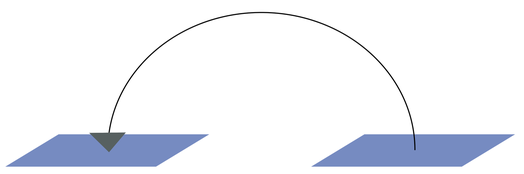


Glyph

Link(Line)

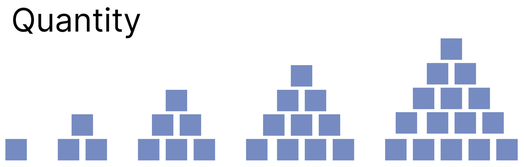


Link(Arrow)



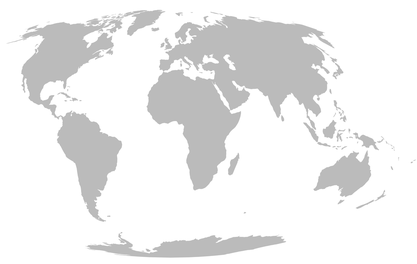
Size

Quantity



Projections

Mollweide



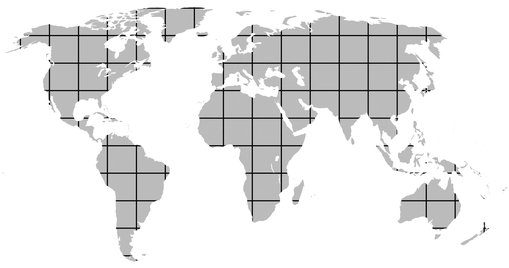
Mercator

Basic Map Representations

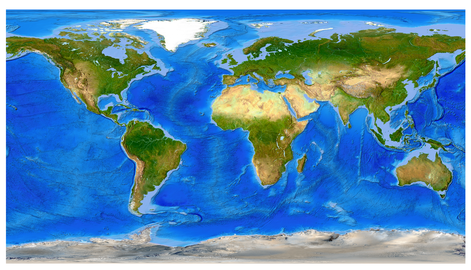
Political Map

Shape-based Map

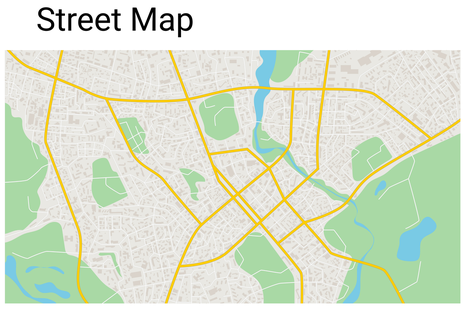
Grid Cartogram



Topographic Map

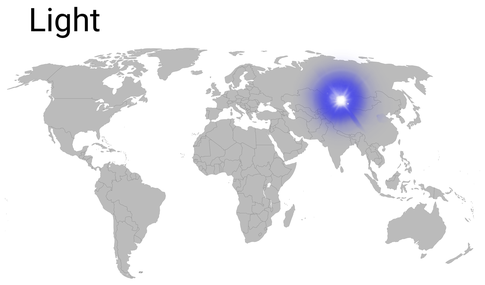


Street Map

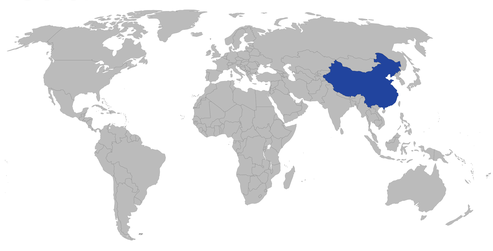


Highlights

Light



Color



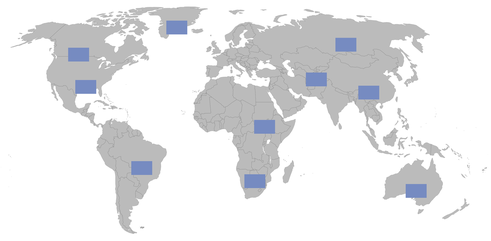
Map Pin

3D Transformation

Enlarged Portions

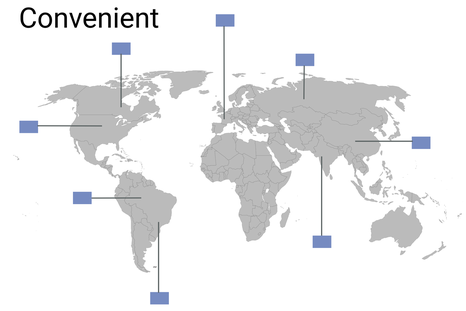
Label Positions

Situated



Linked

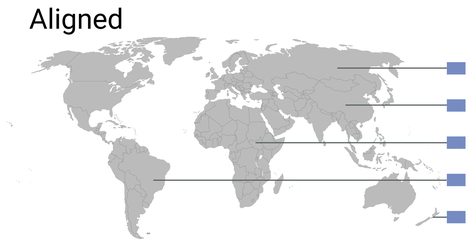
Convenient



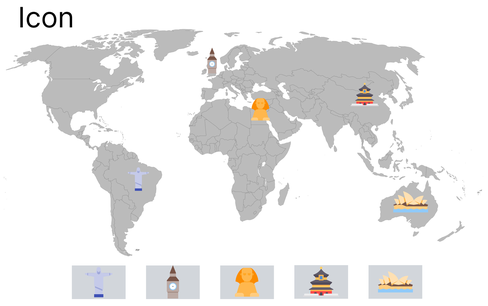
Matched

Text

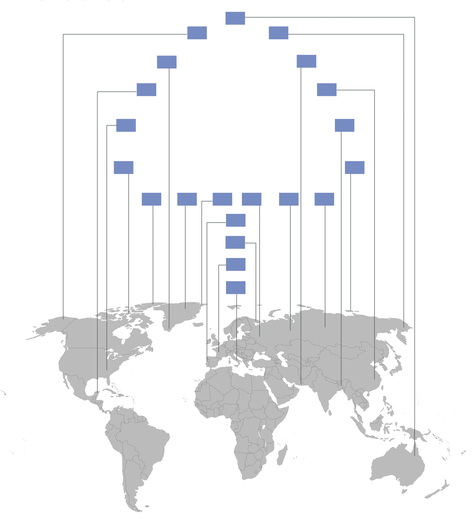
Aligned



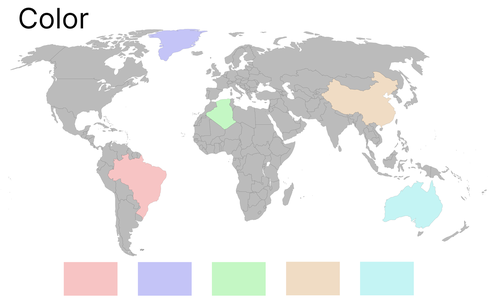
Icon



Ordered



Color



Conclusion & Future Work

The analysis offers a contributing "cheat sheet" to assist designers in swiftly and effectively developing geo-infographics. Moving forward, the visual elements we have identified could be instrumental in developing templates for the automatic generation of geo-infographics, making it more accessible to the wider public.

Reference

[1] M. He, X. Tang, and Y. Huang. To visualize spatial data using the-matic maps combined with infographics. In 2011 19th InternationalConference on Geoinformatics, pp. 1–5. IEEE, 2011.