Data Visualization Applications in Virtual Globe Software

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ABSTRACT

Focusing on the intersection of visual data mapping and virtual globe software, this application is part digital library and part analytical tool. It combines data sets into a collaborative database and visualizes the information through Google Earth overlays. This user-centered interface makes previously hard-to-use public information (e.g. census data) accessible and easily interpretable.

We are presenting an interactive application named GeoDatum that allows users to upload their databases and display this information through a number of visualization tools, either individually or comparatively. The software is an open source web application with multiple goals. Primarily, it is a central repository for both geographic boundaries and the data related to those boundaries. In addition, it gives users the ability to create dynamic visualizations viewable in Google Earth's extensible KML environment, complete with full 3D renderings and animations. The trade-off is that anyone who wants to use the application to generate visualizations will leave their data for public use.

The software's core functionality is to allow users to import their own Shapefiles as well as CSVs containing data about the geographic areas. Shapefiles are an industry standard GIS format supported by numerous software applications including ArcGIS. This software will convert this information into KML files and Google Earth overlays. While it can display publicly available data sets, it also allows a user to include their own information, thus making it a useful internal analytic tool for private interests as well.

We will present a case study done with the Brooklyn Public Library that utilizes this tool in the service of a project on urban planning and analysis.

Categories and Subject Descriptors

E.1 [**Data Structures]:** *graphs and networks.*

E.2 [**Data Storage Representations]:** *Composite structures.*

H.3.7 [**Information Storage and Retrieval]:** Digital Libraries – *Collections, Disseminations, User issues*.

General Terms

Measurement, Design, Experimentation

Keywords

Information visualization, Retrieval and browsing, Data mining/extraction, Enterprise-scale Information Architectures, Distributed information systems, Insightful analyses of existing systems, Systems and algorithms for preservation.

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