

GeoVISTA Studio

Geovisual Analytics Tool Builder
plus Visual, Statistical,
Computational Component Library

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<http://www.geovistastudio.psu.edu/>

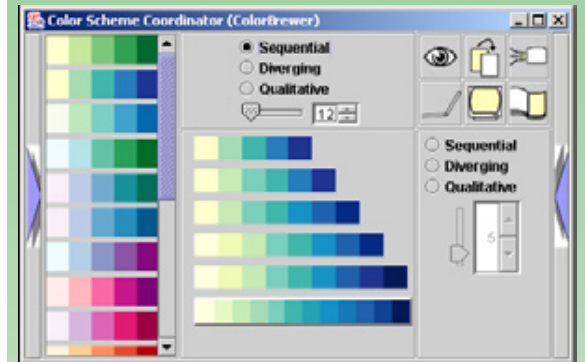
GeoVISTA *Studio* is a Java-based, open-source environment for building visual analytic tools from Java components together with a library of independent, but connectable components that can be used within *Studio* or in other application builders. *Studio* emphasizes methods and tools that combine visual, statistical, and computational components into coordinated applications. *Studio* is designed for geographic visualization and knowledge construction, but is easily extended into other domains.

Studio provides a visual programming environment that supports rapid development of complex applications and models. Users can drag components from a palette into the “design box” and link them together to create systems which they can run, test, and refine in real time. One popular component is ColorBrewerPlus, which provides a range of univariate and bivariate color schemes that are easily connected to any information display component. The figure at right illustrates the Exploratory Spatial-Temporal Analysis Toolkit (ESTAT) as implemented within *Studio*; ESTAT incorporates ColorBrewerPlus.

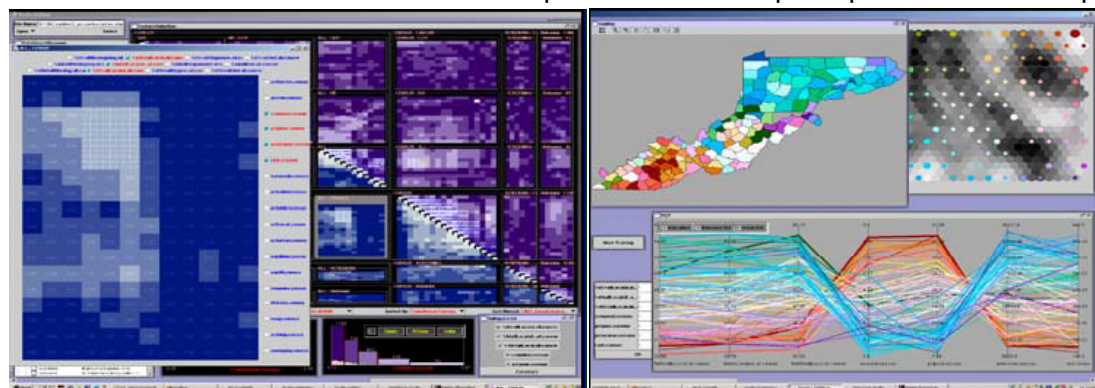
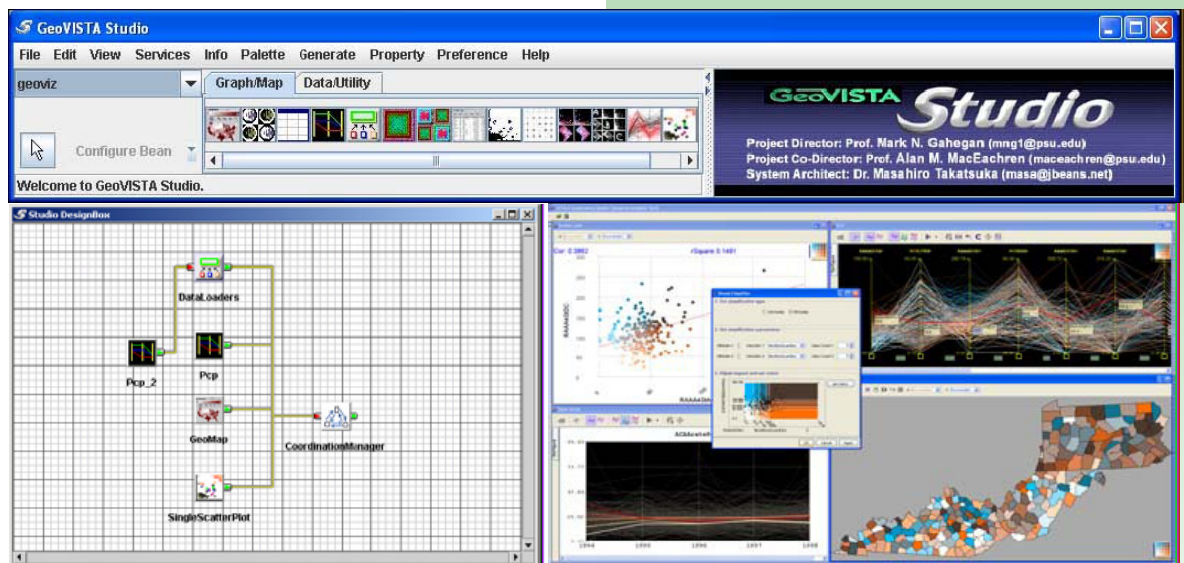
Studio's application building tools allow non-expert users to build visual analytic applications quickly, from a growing range of interoperable components. The Java Bean component architecture incorporated within *Studio* is well defined and widely used by other researchers and developers, making it possible to take advantage of a wide range of components developed elsewhere, either as they are or with a minimal amount of ‘wrapping’. Finished designs can be converted into stand-alone applets or applications, or distributed to other *Studio* users. ESTAT is available from: <http://www.geovista.psu.edu/ESTAT/>

As noted above, *Studio* supports exploration of multivariate, geographically referenced data by combining computational clustering and sorting methods with cartographic and information visualization methods. One example is the environment shown below. The left half of the figure depicts a hierarchical, computationally sorted matrix (of health and demographic variables) that is used to select interesting subsets of variables to which multivariate clustering methods are applied (in this case using a Self Organizing Map – SOM). The SOM output is color-coded using a diverging-diverging color scheme from the ColorBrewerPlus component and the map and parallel coordinate plot depict the cluster solutions in geographic and attribute space, respectively.

See: Guo, Gahegan, MacEachren, & Zhou, 2005, *Cartography & Geog. Info. Science*, 32(2), 113-132.



ColorBrewerPlus Component



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