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InfoMaps: Anticipatory linked context sensitive access to broadly heterogeneous data

We will describe a prototype, InfoMaps, an extension to weave, a widely open-source data access, analysis and visualization platform. InfoMaps facilitates knowledge discovery by allowing an analyst to simultaneously explore complex and distributed data from diverse data sources that vary in their degree of structure. InfoMaps has a broad applicability to discover explicit and implicit linkages in data collected from document collections, audio and video files, proprietary reports, biological databases, prescriptions, insurance claims and memos. InfoMaps utilizes context sensitive access where keys relevant to the current state of the data visualized (the context) are used to access other relevant records from other, possibly non-visualized data sources. This relevance can be temporal, geospatial, or any other ontological relationship. User selected records in the structured data visualizations are automatically linked with related unstructured data records, and vice versa, whether or not the records are currently being accessed or visualized. InfoMaps is also an anticipatory system. As a user interacts with visualizations or the system accesses data, InfoMaps can continually monitor pre-identified peripheral data sources to access and present those records that are contextually relevant. This is done by retrieving document, audio, image, graphics or video files related to data that are being visualized and analyzed using context sensitive ontologies with generated topics. InfoMaps can easily be scaled from a single individual to an entire organization while ensuring layout consistency at those levels to enhance analyst cognition and accelerate organizational learning.

Biography

Georges Grinstein is Professor of Computer Science at the University of Massachusetts Lowell, was Head of its Bioinformatics Program, Director of its Institute for Visualization and Perception Research, and now Chief Scientific Officer of Weave Visual Analytics, where he focuses on the continuing evolution of the Weave open source platform. He received his PhD in Mathematics from the University of Rochester in 1978. He has over 40 years in academia with extensive consulting, over 300 research grants, products in use nationally and internationally, several patents, numerous publications in journals and conferences, a book on interactive data visualization, founded several companies, been the organizer or chair of national and international conferences and workshops in Computer Graphics, in Visualization, and in Data Mining. He has given numerous keynotes and mentored over 40 doctoral students and hundreds of graduate students. He has been on the editorial boards of several journals in Computer Graphics and Data Mining, a member of ANSI and ISO, a NATO Expert and a technology consultant for various government agencies and commercial organizations.

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Notes:

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