

Shared visualisation and virtual environments for co-operative learning

The problem

- supporting the sharing of information between users
- supporting the learning process across distributed groups within a given organisation
- providing distribute access to knowledge from different types of machine

Areas of interest

Information Visualisation

- the process of transforming data, information, and knowledge into visual form making use of human's natural visual capability

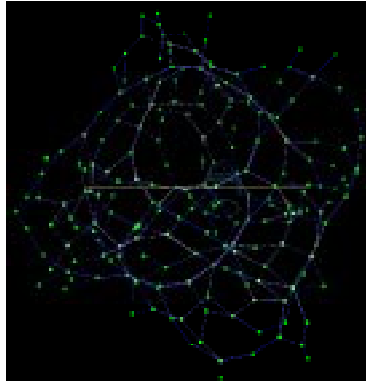
Card, Eick, and Gershon (1998)

Information Space

- an information design in which representations of information objects are situated in principled space, where location and direction makes sense in a way that permits mapping and space navigation

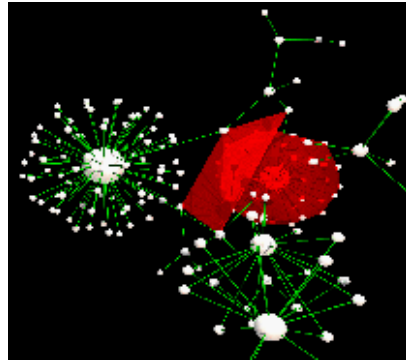
Foltz, M. (1997)

Information Visualisation / information space examples



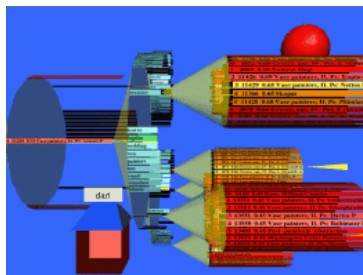
Example of a hyperstructure
Dave Snowdon, Nottingham Univ.

Narcissus hyperstructure
Birmingham University

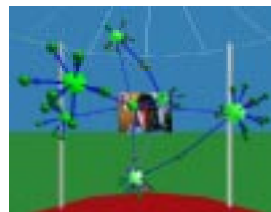


Information Visualisation / information space examples

Internet Foyer (collaborative visualisations)
Brown, Benford, and Snowdon, Univ. of Nottingham



Overview of the
Internet Foyer

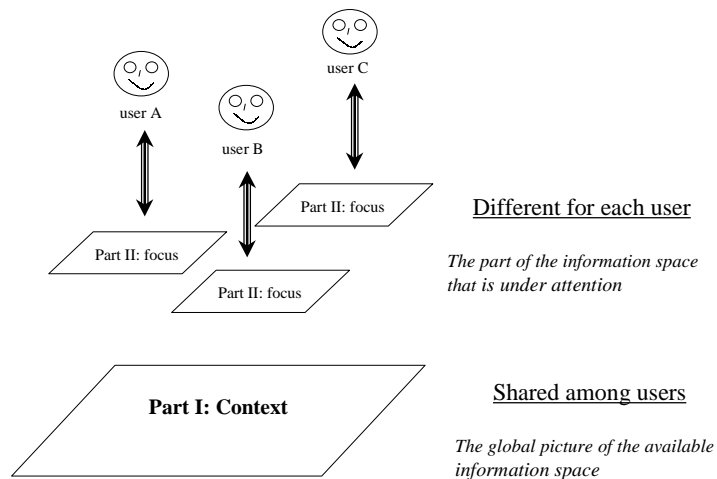


A group of users
around a web page

LyberWorld (navigation cones visualisation)
Matthias Hemmje, GMD, Germany

• Approach

- representation of information using 3D facilities to develop an information visualisation design with two main characteristics:
 - 1) uses a top-down principle where different users share a common collection of agreed concepts;
 - 2) an integrated two part information visualisation, one, shareable, dealing with context, and other, customised by each user, dealing with focus.
- support production/integration for search and browse tactics



Concern

- can computer mediated 3D visual representations be useful in helping the understanding and communication between individuals

Research application

- a 3D information visualisation design that allows sharing workable knowledge representations as collective cognitive maps constructs, and offers each individual, customised visualisation filters (for use in education settings)

- model a workable set of parameters to represent useful knowledge representations, for an information visualisation design that use 3D facilities;
- develop an usable set of 3D symbols to serve as demonstrators for supporting the 3D information space as an information visualisation design;
- select an application where the system can be tested. A learning environment to support and generate workable knowledge as a two part information visualisation;
- use an enabling set of technologies to implement the 3D space for (i) individual control and (ii) for sharing by several users.

The prototype application name

C Collaborative
Provide a workplace to develop a sharable context view of an information space

E Electronic
Design to take advantage of the potential integration with available (digital) information resources

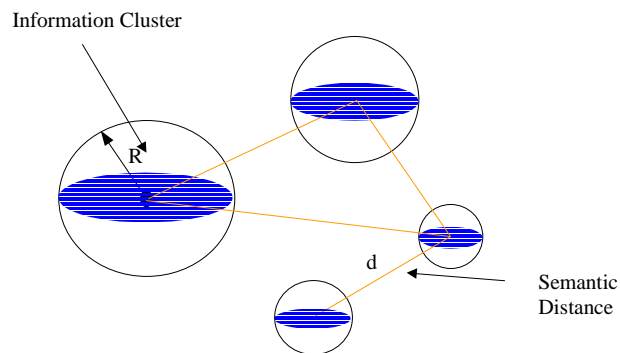
L Language

T Translation for
Offer means to translate into visual form the otherwise written material to support the context description of the information space

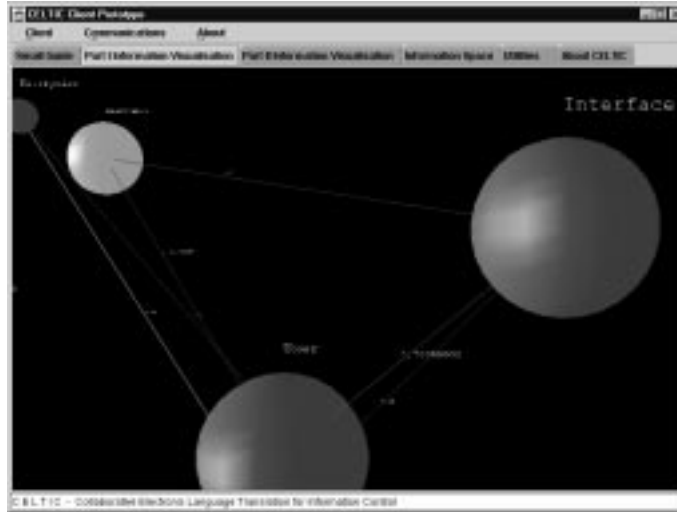
I Information

C Control
Provides a two step tool for dealing with information retrieval in form of search and browse proposals

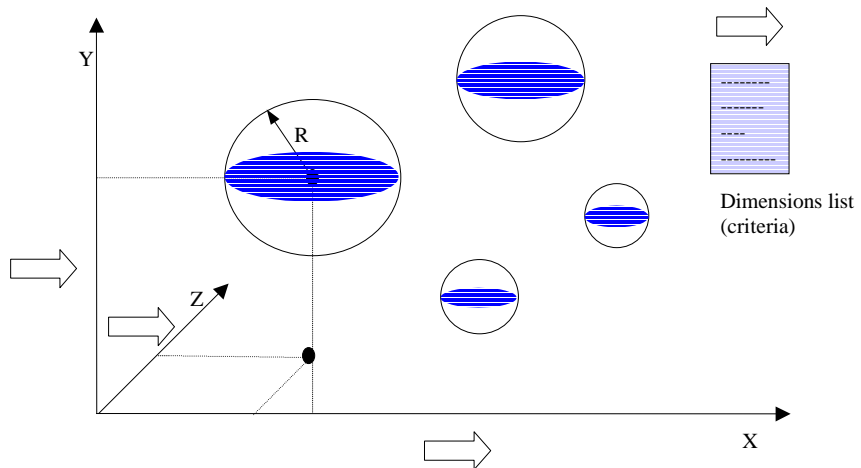
Project proposal: *the creation and visualisation of interactive information spaces*



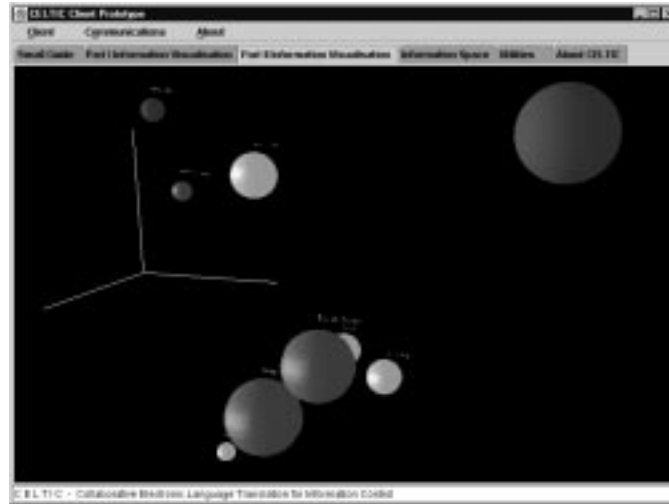
Information visualisation - part I - context



Project proposal: *the creation and visualisation of interactive information spaces*



Information visualisation - part II - focus



Current status

- an information visualisation model, its parameters and algorithms have been developed;
- a Java 3D prototype with proposed 3D symbols has been made to test the information visualisation design;
- the use of an undergraduate class in under preparation, along with the study to be done in the evaluation phase;
- a Java client / server application to test the proposed application is under (final) development
(the prototype uses technologies like: Java 1.2 Swing, Java 3D API, networking, RMI, serialisation, and file I/O)

Ph.D. Project Work

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