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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

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Areas of interest

- main areas of interest:

    – Collaborative Virtual Environments (C.V.E.),

    – Information Visualisation (I.V.), and

    – Educational Applications
   (using the above technologies)

Approach to the work

- ## Approach

  - representation of information and knowledge in 3D spaces (for potential use in a CVE system), which needs novel forms of doing

  - creation, sharing, and modification of information and knowledge visual representation on 3D worlds

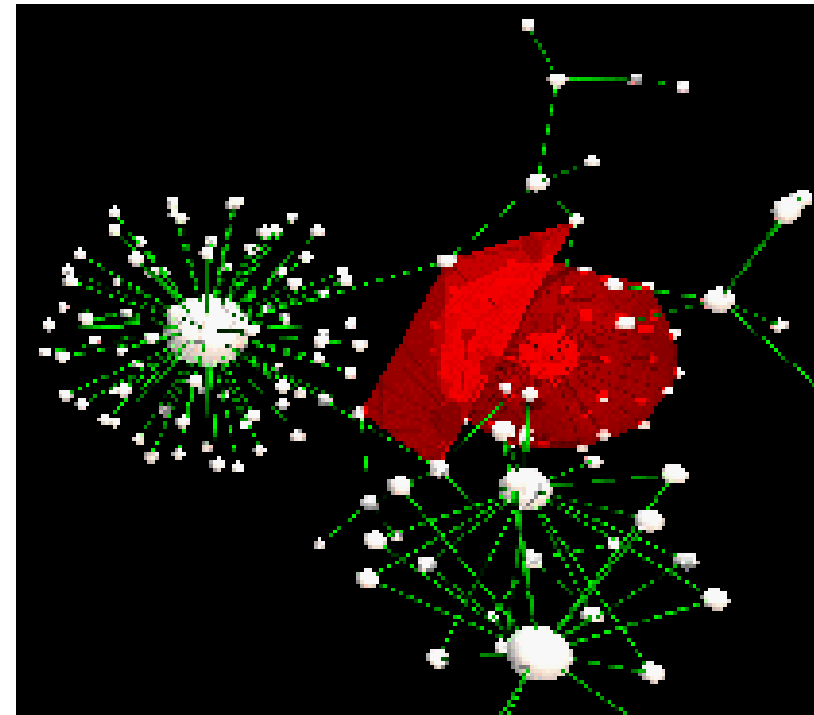 - productivity issues related to the systems use in an educational setting
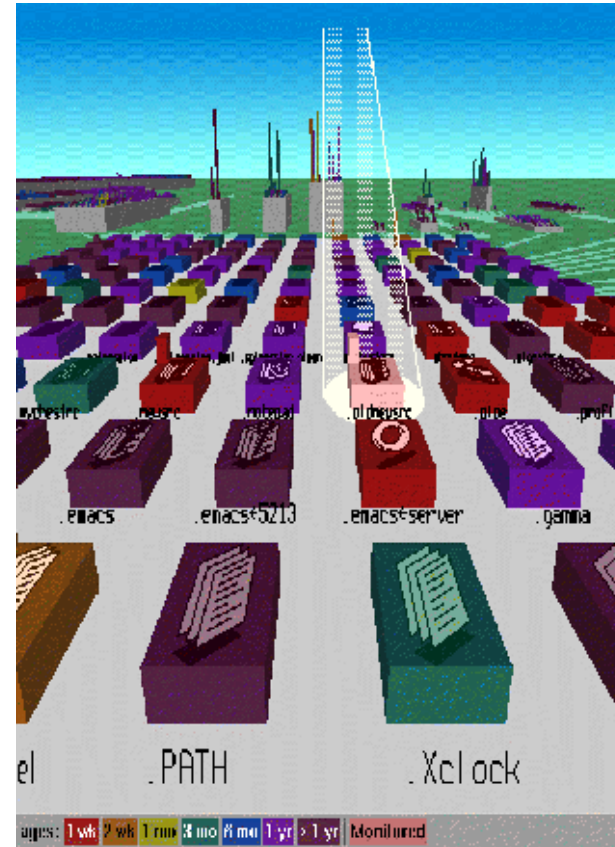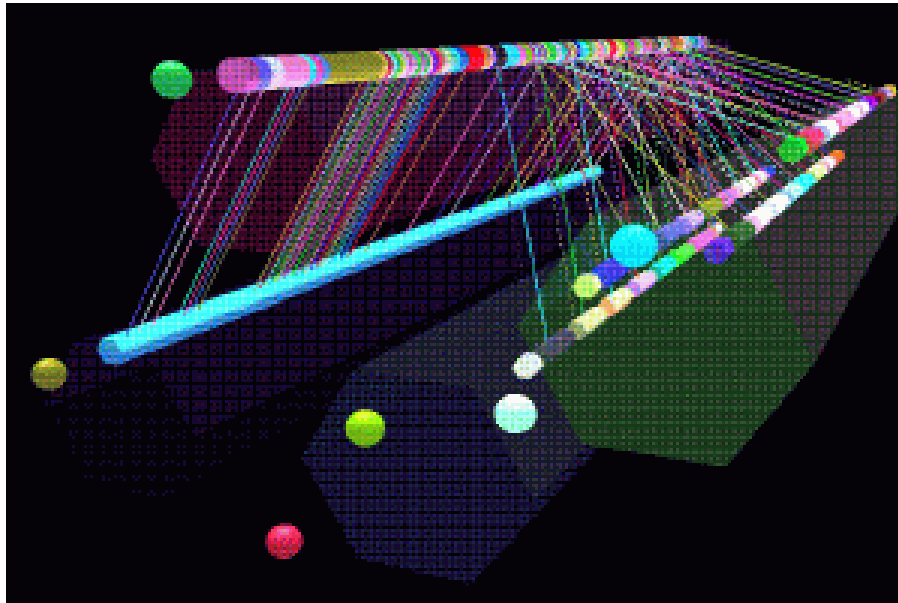
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Information Visualisation examples

Narcissus hyperstructure

Birmingham University
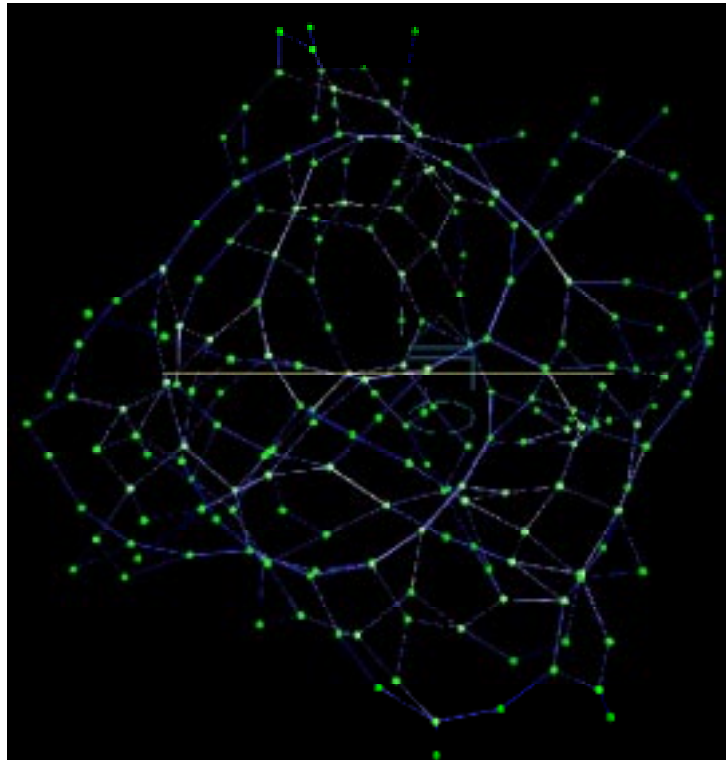
Example of a hyperstructure

Dave Snowdon, Nottimgham Univ.

Information Visualisation examples

FSN (fusion) file system navigator

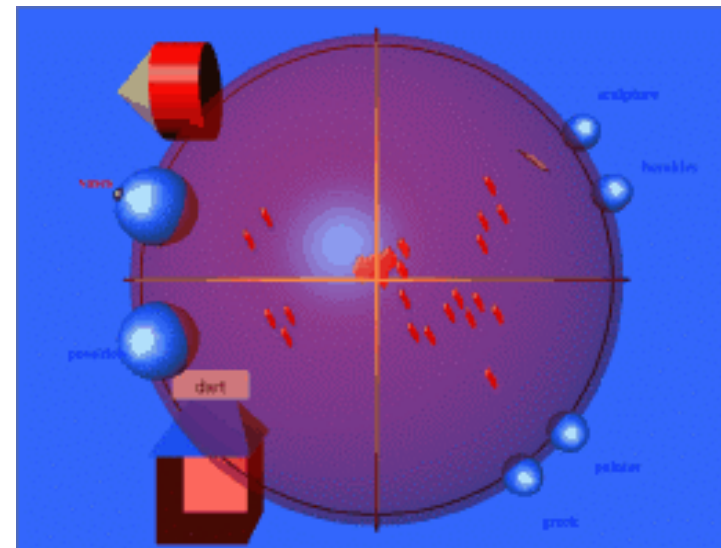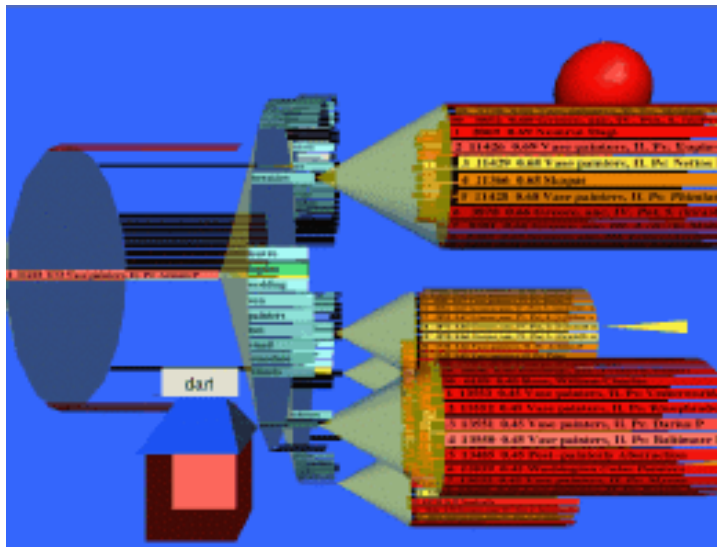Landscape metaphor, Silicon Graphics

VisuaLinda (visualize the execution of parallel processes)

Koike Labs, University of Electro-communications, Tokyo

Information Visualisation examples

LyberWorld (RelevanceSphere visualisation)

Matthias Hemmje, GMD, Germany

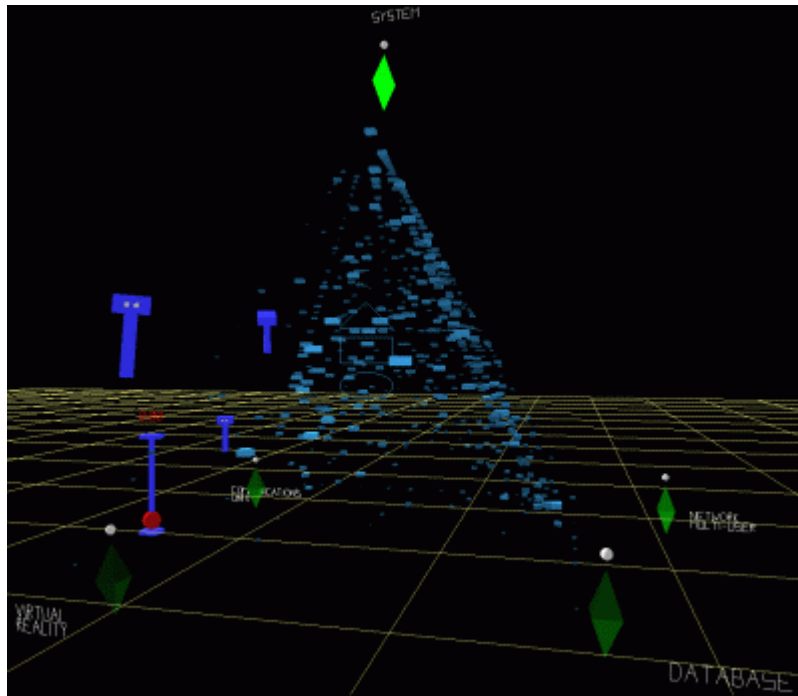LyberWorld (navigation cones visualisation)
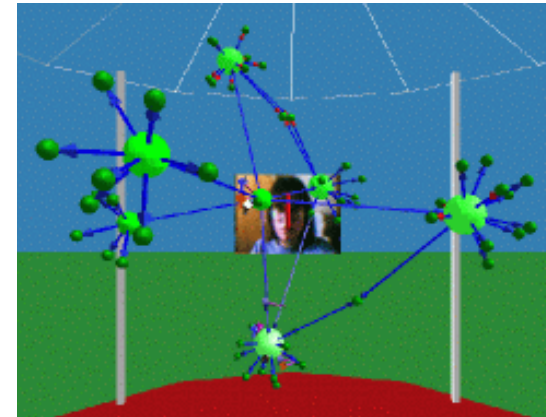
Matthias Hemmje, GMD, Germany

Information Visualisation examples

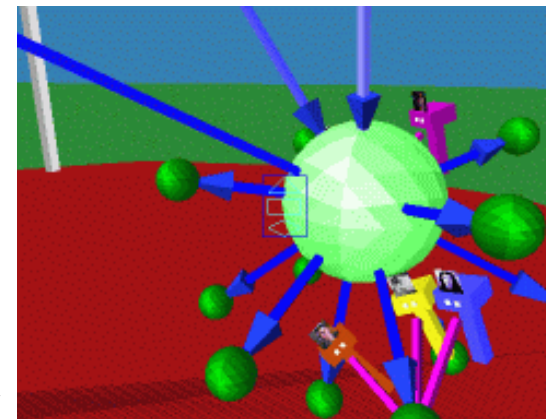### Internet Foyer (collaborative visualisations)

Brown, Benford, and Snowdon, Univ. of Nottingham

Overview of the

Internet Foyer

A group of users

around a web page

VR-Vibe (searching visualisation)

Steve Benford et al., GMD, Germany

- along with CVEs and IV there is a need to consider:
    - information design and architecture
    - discuss the representation of "other" dimensions
    - structure and relation features
    - human cognition principles
    - a common ground for base concepts
    - define classes for information usage
    - impact and use of web based cmc in education settings

The question to study and research application

- <u>concern</u>: *"How far can 3D visual representations computer mediated be useful in helping the understanding and communication between individuals?"*

- <u>research application</u>: use of 3D facilities to improve information visualisation providing a useful way of sharing workable knowledge representations to be shared as collective cognitive maps constructs, based on the individuals own visualisation filters (for use in education settings).

Main research problems

- dealing with the problems put by the n-dimensionally; (which restrictions must apply to a 3D representation in order to be a useful one?);

- model a workable set of parameters to represent as useful knowledge representations, for an information visualisation like extending concepts maps to use 3D facilities;

- develop an usable set of 3D symbols to serve as demonstrators for augmented/adapted 3D concept maps

- use an enabling set of technologies to implement the 3D space for (i) individual control and (ii) for sharing by several users.
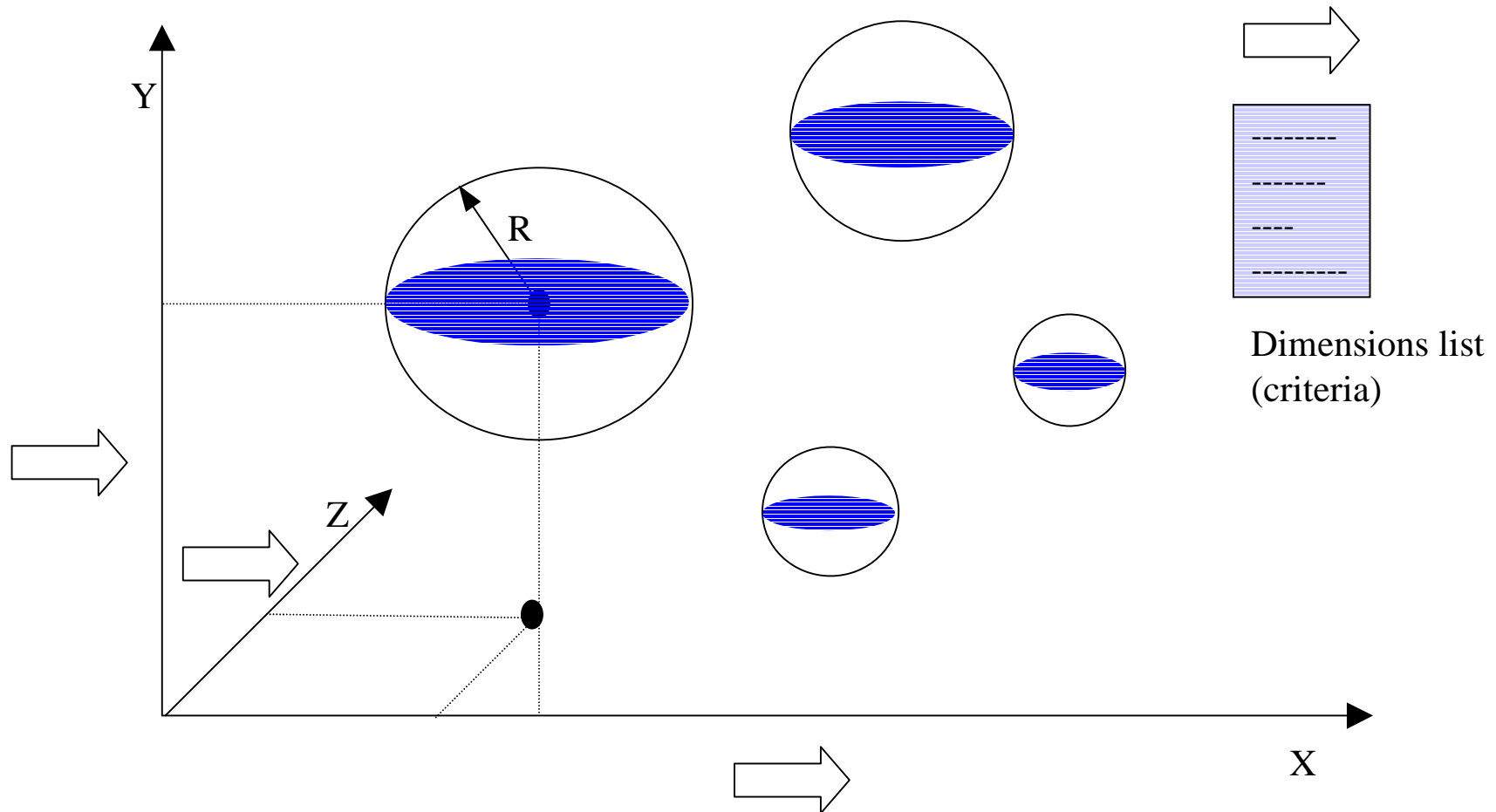
Project proposal: *the creation and visualisation of interactive information spaces*

Information Collection
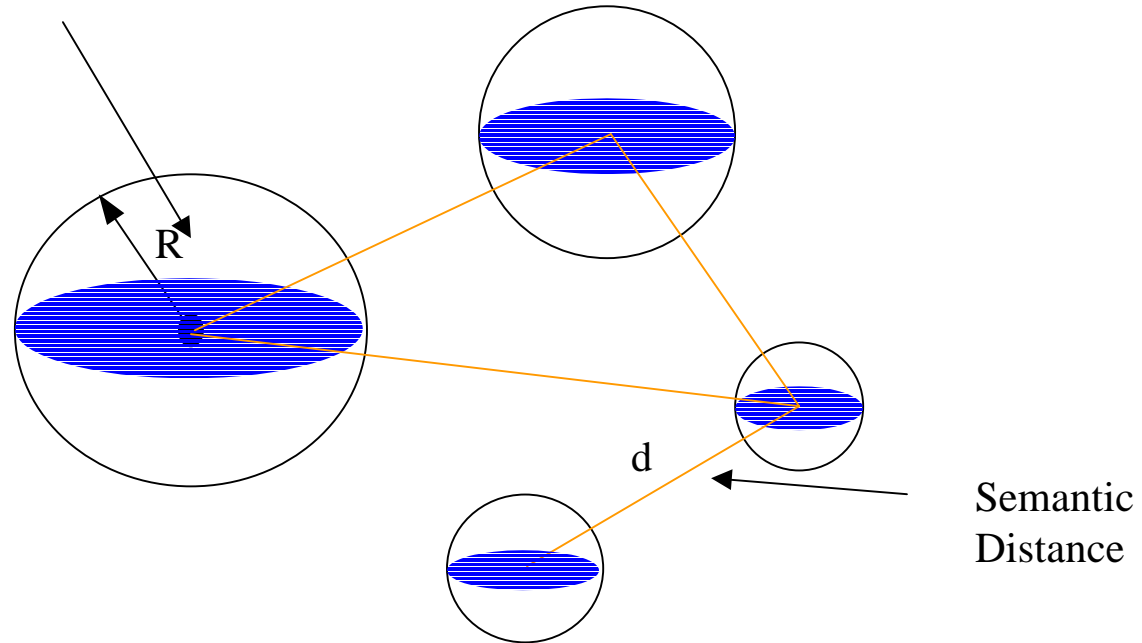
R

d

Semantic
Distance

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

Dimensions list
(criteria)

Work outline proposal

- deliver a literature survey for the information visualisation area and virtual environments (that explore the question set presented in section 5 of the first year report)
  - *- end January*

- work and develop a practical model to represent information and knowledge issues
  - *- end July*

- develop an implementation of the proposed project, as an Web application
  - *- end September*

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Personal Id.

Ph.D. student, full time
CSEG Group
Lancaster University
Computing Dept.

Research Assistant
Multimedia Resource Centre
University Fernando Pessoa
Dept. of Science and Technology

Luís Manuel Borges Gouveia

lmbg@ufp.pt

http://www.ufp.pt/staf/lmbg/