COMPSCI 708S1C Multimedia and Hypermedia Systems

Spatial Hypertext

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Different types of Hypertext

- Page-based Hypertext
- Map-based Hypertext
- Spatial Hypertext

Page-based Hypertext

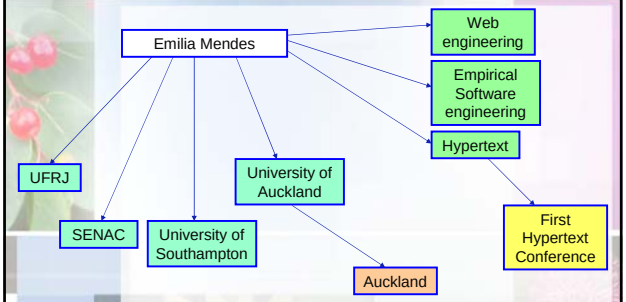
Emilia Mendes

Dr. Mendes has been researching hypertext since 1989 at UFRJ, SENAC, and Web engineering, empirical software engineering since 1995 at the University of Southampton and now the University of Auckland.

Hypertext represents non-linear reading and writing, and involves peoples such as writers, artists and software developers. The first ACM Hypertext Conference took place in 1987 …

The University of Auckland, located in Auckland, was established in 1883 and currently has more than 40,000 students …

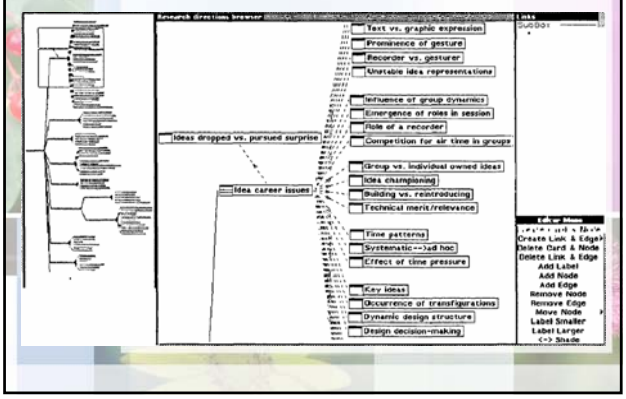
Map-based Hypertext



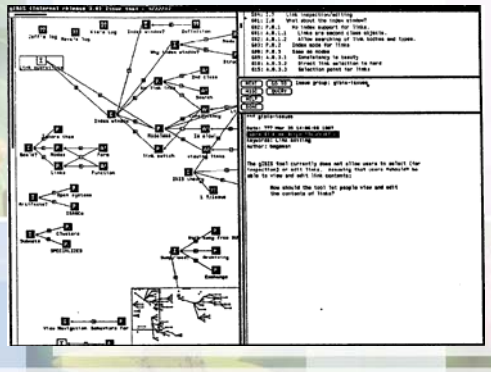
Map-based Hypertext

- Late 80s – map-based hypertext
  - gIBIS, Aquanet, Sepia, Note Cards
  - Argumentation and knowledge building
- Some systems built maps from nodes and links (e.g. NoteCards)
- Others allowed authoring to be based on maps (e.g. gIBIS), thus making the map the primary interface

Example of a NoteCards Browser [1]



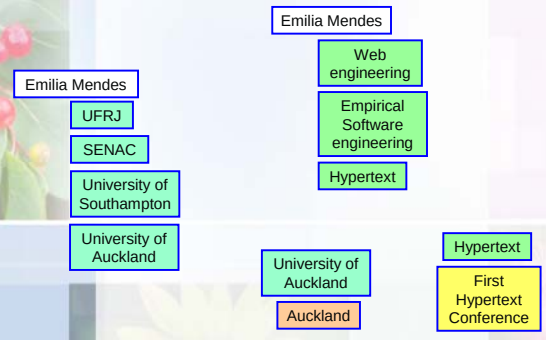
The gIBIS interface [2]



Spatial Hypertext [3]

- Allows users represent groups of nodes and their implicit relationships through their visual similarity and location (spatial display).
- Allows constant evolution of ideas
- Research from Aquanet shows that links between nodes could be implied rather than explicitly provided.

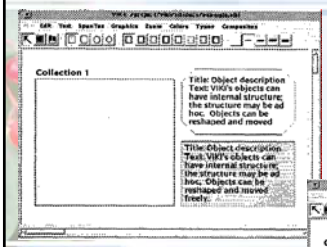
Spatial Hypertext



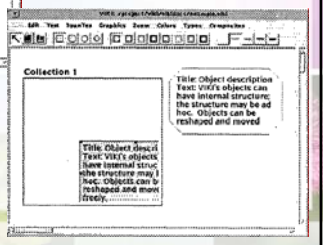
Spatial Hypertext [3]

- 1993: First spatial hypertext systems: VIKI (VIsual and KInesthetic analysis tool).
- VIKI allowed one to build and manipulate implicit spatial relations
- Well suited to contexts where the information continually evolves, and for knowledge representation

VIKI screen shots [4]



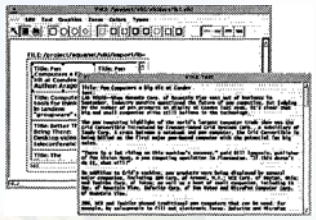
Objects can have different shapes, background colours, border colour, border width.
Objects can only contain text
There are no explicit links



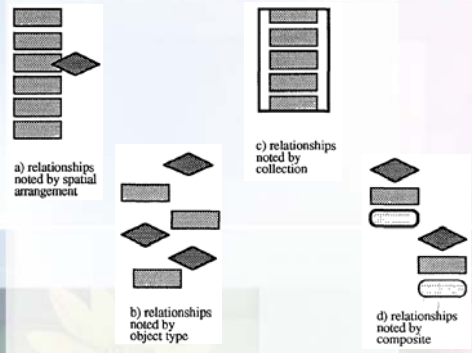
Objects can be dragged to Collections, thus creating a hierarchy of knowledge

VIKI

A maximized object



VIKI: How relationships emerged



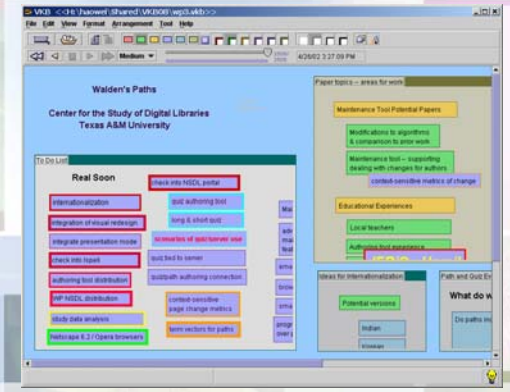
1st Generation Spatial Hypertext [3],[4]

- Support evolving interpretation through visual language
- Emphasizes simplicity of expression over simplicity of comprehension
- Recognition of visual structure to aid knowledge representation
- Common tasks
  - Information collection, organisation, and sharing (personal & collaborative)
  - Process of information triage (sorting through and organising relevant materials)

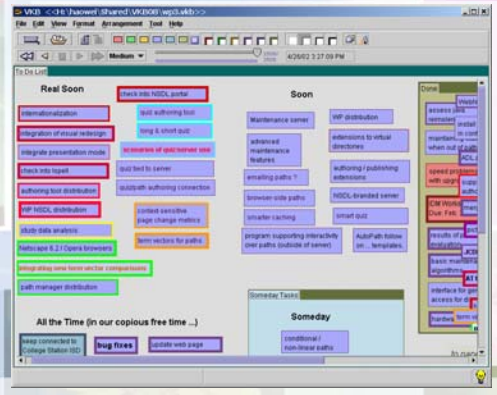
2nd Generation Spatial Hypertext [5]

- Support for longer-term and larger-scale tasks
  - Possible to navigate through using a history mechanism
  - Allows the creation of links between spatial hypertexts
- Support for presentation-oriented spatial hypertexts
  - Greater visual expressiveness, additional media
  - Spatial hypertext via Web servers
  - Allows for the use of explicit links when necessary

VKB System (Visual Knowledge Builder) [5]



VKB System (Visual Knowledge Builder) [5]



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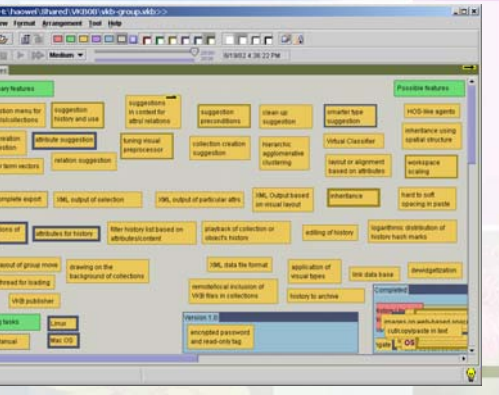

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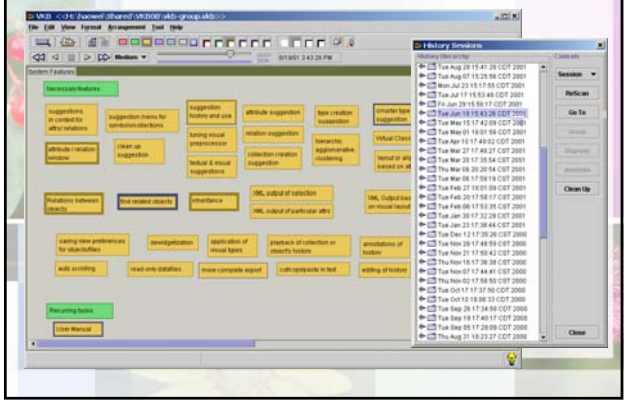
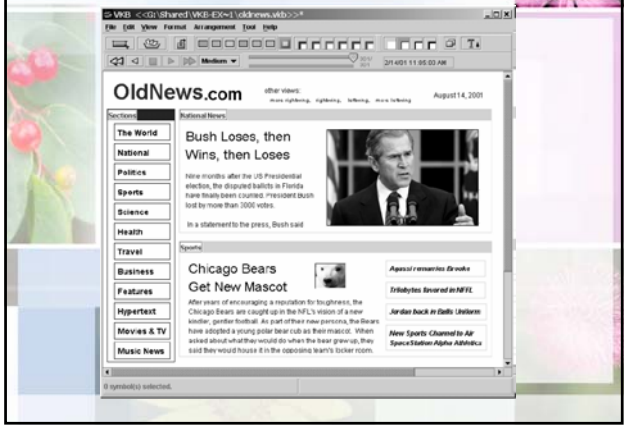
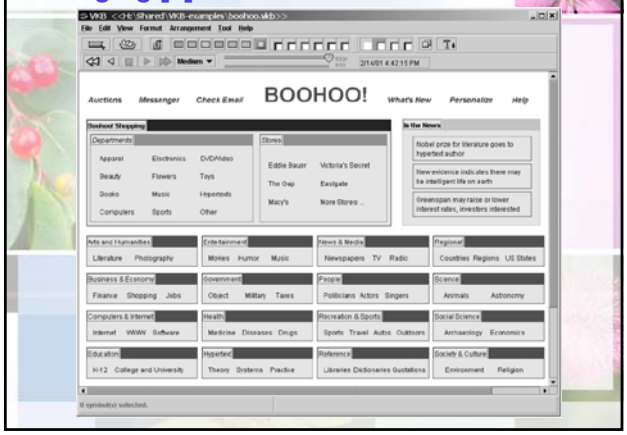


Possible Spatial Hypertext Newspaper [6]



Cataloging [6]



References

[1] Randall H. Trigg, Peggy M. Irish. Hypertext habitats: experiences of writers in NoteCards, Proceedings of the ACM conference on Hypertext, 1987, ACM Press, pp. 89-108.

[2] Jeff Conklin, Michael L. Begeman . gIBIS: a hypertext tool for exploratory policy discussion, Proceedings of the 1988 ACM conference on Computer-supported cooperative work, January 1988

[3] www.isr.uci.edu/events/ASE-Workshop-2002/presentations/shipman.ppt

[4] Catherine C. Marshall, Frank M. Shipman, James H. Coombs. VIKI: spatial hypertext supporting emergent structure, Proceedings of the 1994 ACM European conference on Hypermedia technology, 1994, pp. 13-23.

[5] Frank Shipman, J. Michael Moore, Preetam Maloor, Haowei Hsieh, Raghu Akkapeddi. Spatial Hypertext: Semantics happen: knowledge building in spatial hypertext, Proceedings of the thirteenth ACM conference on Hypertext and hypermedia, June 2002, pp. 25-34

[6] F. Shipman, H. Hsieh, R. Airhart, P. Maloor, and J.M. Moore, "The Visual Knowledge Builder: A Second Generation Spatial Hypertext", Proceedings of the ACM Conference on Hypertext, 2001, pp. 113-122.