User-Controlled Link Adaptation

by
Theophanis Tsandilas & m.c. schraefel
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presented by
Brian Horn & Hania Abd-El-Razik

Road Map

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Authors

• monica m.c. schraefel
  – Currently at the Intelligence, Agents, Multimedia (IAM) Group, School of Electronics and Computer Science, University of Southampton
  – research focuses particularly on interaction design for improved access to information:
    • mSpace, Smart Tea, semantic web
    • Over 50 publications

• Theophanis Tsandilas
  – Research: Adaptive Hypermedia and Hypertext Navigation
  – Graduate student at U of T (Dr. schraefel is supervisor)
Introduction

• The Problem:
  – “Reduce information overload, and guide the user’s navigation.”[1]

Definitions

• Direct manipulation is an interaction technique involving:
  • continuous representation of objects
  • rapid, reversible, incremental actions & feedback
  • users directly manipulate objects, using actions that correspond at least loosely to the physical world.

[adapted from http://www.wordiq.com/]

Definitions

• “Adaptive Hypermedia generally tries to model users in order to anticipate their interests or requirements, and automatically adjust content to match that model. Adaptable Hypermedia looks at how to support user-determined … interaction”
  [http://www.eecs.soton.ac.uk/~mc/]

A History of Link Adaptation

Brusilovsky:

Adaptive Navigation: techniques for adapting the hypertext links to the user

  5 main types of adaptive navigation
  1. direct guidance
  2. adaptive link sorting
  3. adaptive link annotation
  4. adaptive link hiding
  5. map adaptation
direct guidance – helps the user select the appropriate link

link sorting – links are sorted according to relevance (can result in confusion)

link annotation – change the presentation of the link anchor (e.g. colour and font)

link hiding – hides link anchors

map adaptation – only relevant links are displayed

[for more information visit http://www.win.tue.nl/~debra/webnet98/invited.ppt]
System Overview: System Map

Critique: Advantages

- Reduces **Cognitive Overhead**
  - frustration & disorientation
- Gives the user direct control over the adaptation process
- User Models change over time and this system eliminates faulty models
  - ex. User’s interest inferred from passed interests of the same or similar users

System Overview: History Visualizations

Critique: Disadvantages

- Requires too much effort
- Any web designers here?
  - Often designers use colors, fonts for semantic groupings. Even if not, will disrupt carefully crafted layouts & schemes!
- Scalability
- Arbitrary interest levels
- Screen real-estate
- Non-browser devices: eg. mobile devices
- Wasted system resources

X-Y visualization organizing nodes by time and topic

Circular visualization organizing nodes by time
Critique: Trade-Offs

<table>
<thead>
<tr>
<th>User is in control</th>
<th>Too much effort required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less cognitive load when some links are emphasized</td>
<td>Visual modifications can disrupt the author’s message</td>
</tr>
</tbody>
</table>

Related Work

- WebWatcher
- FilmFinder
- StretchText & Zooming

Related Work: WebWatcher

- Enter your interest, it acts as a tour guide (agent)
- System’s suggestions followed ~48% of the time
- Human experts predicted which link would be followed ~47% of the time

Related Work: StretchText & Zooming

- **StretchText**: collapsible content
- **Zooming**: resized content
Related Work: FilmFinder

• Recurring theme is to reduce information overload & make a given task easier for the user

• The goal of a hypermedia application:

  “to support, using associative relationships, the carrying out of actions which result in the identification, effective utilisation and control of appropriate information”

[lecture 10, slide 4]
Discussion

• How can idea be improved?
• Is it a problem worth solving?
• How do users interpret the weights of the sliders?

Conclusion

Adaptive & Adaptable direct manipulation techniques as an effective addition to adaptive hypermedia.

Can this be advantageous?

“The main goal of AH systems is to provide personalized views of hypermedia responding to different goals”

[Tsandilas p. 8]

References

3. Theophanis Tsandilas & m.c. schraefel. *Usable Adaptive Hypermedia Systems*