LACOSTIR - LAyout, COntent and STructure in Interactive Retrieval

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Outline

Terminology

Models for Information Visualization

Information visualization of single elements

Information visualization of result sets

Interaction and event handling in visualization
Models for Information Visualization

Integrated model

- Focus/interest
- Information visualization
- Perception
- Interaction
- Event handling
- Query
- Information dialog context
- Selection
- Projection
- Selected docs.
- Projected docs.
- Result set
- Documents
- Documents with representation
- Representation
- User
Information visualization of single elements

- Degree of condensation
  - fulltext
  - surrogate
  - point in feature space

- Condensation view
  - structure: DB operations (project, aggregate)
  - content: summaries (query-dep./indep.)
  - layout: thumbnails

Combination of views possible!
Condensation: structure surrogate

Example of ranked list of titles + surrogate info
Condensation: content point in feature space
VIBE: result documents in term space
Condensation: Structure+content

INEX 05 Result list

   - Ayman Kayssi; Ralph Achkar; Mark Azar; Joseph Samaha
   - 1 Introduction
   - 10 Emerging technologies
     - 10.2 GPS ICs and cell phones
   - 5 G3 components
   - 6 Mobile site

   - Yi-Bing Lin
   - 2 Mobility management
   - 3 Handoff
     - 3.2 INTERSYSTEM HANDOFF
   - 4 Roaming
     - 4.2 REGISTRATION
     - 4.3 CALL DELIVERY
Information visualization of result sets

- Visualized view: content, structure, (layout)
- Visualized properties: doc. type, size, ...
- Visualization of relationships: link types
- Aggregated representations:
  - content: multi-document summarization
  - structure: attribute values (author, year,..)
- Transformations on result sets
- Visualization of multiple sets
Visualized View: Content
Kohonen feature map: SOMlib
Visualized View: Structure

Envision

### Envision Query Window

- **Query History:**
  - 1: 25: User Interface design
  - 2: 50: Card, Stuart K.
  - 3: 75: Aiken, Adele K.

- **Authors:**
  - Card, Stuart K.

- **Words in Title:**
  - human-computer interaction

- **Content Words:**

### Envision Graphic View: Query #2.1

- **Best 75 Items Found**

<table>
<thead>
<tr>
<th>Icon Label</th>
<th>Relevance Rank</th>
<th>Icon Size</th>
<th>Icon Shape</th>
<th>User Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Uniform</td>
<td>Item Type</td>
<td></td>
</tr>
</tbody>
</table>

- **Y-Axis:**
  - Author

- **Color Legend:**
  - Least Relevant
  - Most Relevant
  - Useful
  - Not Useful

- **Shape Legend:**
  - Book
  - Journal Article
  - Proceedings Article

### Envision Item Summary: Query #2.1

<table>
<thead>
<tr>
<th>Icon#</th>
<th>Useful</th>
<th>Est. Rel</th>
<th>Author/Editor</th>
<th>Year</th>
<th>Title</th>
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<tbody>
<tr>
<td>1</td>
<td></td>
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<td>Card, Stuart K.</td>
<td>1986</td>
<td>Understanding key constraints governing human-computer interfaces</td>
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<td>Card, Stuart K.</td>
<td>1983</td>
<td>The Psychology of Human-Computer Interaction</td>
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<td></td>
<td>Card, Stuart K.</td>
<td>1984</td>
<td>Human Limits and the VDT Computer Interface</td>
</tr>
</tbody>
</table>

Envision search results display.
Visualization of relationships

Mapuccio: graphical depiction of link structure (between retrieved pages)
Visualization of relationships
The Butterfly interface (browsing citations)
Multiple result sets
Interaction and event handling in visualization

- Zooming in
- Filtering
- Details
- Query reformulation