Oncosifter: A Customized Approach to Cancer Information

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- Motivation
- Overview of Oncosifter
- Modules of Interaction
- Conclusion
Volumes of medical data is available on lab research, latest news, treatment & diagnosis.

In information age – data available in electronic format and accessible over internet.

Various websites provide information only related to specific topics

Eg: Oral Cancer, Breast Cancer

Thus a need to make all topics available at one location.
Websites have data available at different levels/locations

Medical Jargon Usage

Need to:
- Make data easily available
- Standardize data access procedures
- Focus on non-medical community

Oncosifter

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“Onco” means Cancer
Oncosifter is developed to filter cancer related news and medical information
Limited medical jargon is used – with focus on non-medical user groups
Latest News and Diagnosis & treatment information is provided at same location
Information access procedures are standardized
Personalization of news through customization

System Design:
- System implemented in Perl-CGI
- Information Sources:
  - Medlineplus - latest cancer news
  - Cancer.gov - diagnosis and treatment information
- Consistent interaction styles for data access
- Different modules of interfaces developed
  - Keyword Based Search Interface
  - Directory Interface
  - Hierarchical Visualization Interface
  - Personalization Search Interface
Oncosifter: Overview

Different Modules of interaction in Oncosifter

Oncosifter

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**Oncosifter: Modules of Interaction**

- **Keyword Based Search**
  - Query submission is through a text-box
  - Query - Controlled vocabulary match is performed to retrieve information
  - In Oncosifter: Query – keyword match performed to acquire URL-addendum
  - Data is dynamically accessed
  - Information filters applied to parse relevant data for display

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**Keyword-Based Search Interface**

The system uses an information customization engine known as **SIIFTER** (Smart Information Filtering Technology for Electronic Resources) developed at Indiana University

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**Figure: Keyword based search interface and corresponding results page**
Oncosifter: Modules of Interaction

- Directory Search
  - Provides overview of the different types of cancer
  - Categorization of cancers – for simplified search
  - Common terms used by non-medical community are used to identify cancers
  - Multiple cancers in the same category name are concatenated in display

Directory Search Interface

Figure: Directory search interface and corresponding results page
Oncosifter: Modules of Interaction

- Hierarchical Visualization Interface
  - Graphical visualization reveal structure in data
  - Cancer categories represent hierarchical tree data structure
  - Hyperbolic tree used in to display cancer categories
  - Category classification of cancer is easily available
  - Minimum interaction needed to get information

Figure: Hierarchical search interface and corresponding results page
**Oncosifter: Modules of Interaction**

- **Personalization Search Interface**
  - Feature to customize news retrieval topics
  - Rating scale provided to set the users profile
  - Highly rated cancer news are displayed at the top
  - Users discretion to change the profile at any instance
  - Article rating used to promote system learning and change users profile automatically

**Keyword-Based Search Interface**

**Oncosifter: Modules of Interaction**

Figure: Personalization search interface and corresponding results page
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Oncosifter System:
- Latest news and diagnosis & treatment information is obtained
- Different user-friendly modules of interaction are available
- Only relevant information is displayed
- Multiple cancers of the same type are displayed together
- Consistency in layout
- Similar interaction styles
- Ability to build personal profiles and customize it based on feedback

Reduces cognitive load on user
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Oncosifter: References


Thank You