

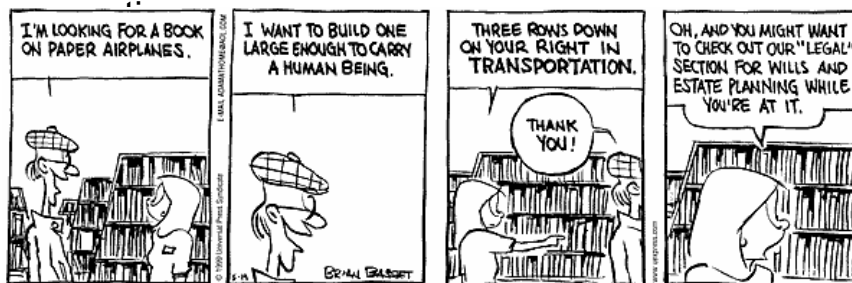
## Designing Usable Search Interfaces: The Good, The Bad, The Ugly

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Whitney Interactive Design  
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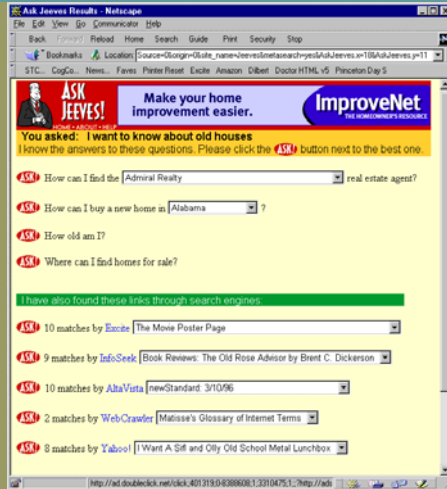
### Why is search so hard?

- Most people can tell you what they want, but they have trouble being specific enough for a machine to interpret their requests or make



<http://www.ucomics.com/adamathome>  
May 19, 1999

## Can we “just tell it what we want”?



<http://www.askjeeves.com>

- Words can have specialized meanings
  - “Old House” is a renovator’s term, and has special meaning
- Words can have double meanings
  - “Dinosaur” can be a prehistoric beast or a metaphor for someone whose time has passed

Since I captured this response, the database has learned about “old houses” and now returns more useful results.

## Is search used at all?

- UIE reports on their usability testing say that:
  - 53% of users found what they wanted without using the site search engine
  - Only 30% succeeded using search
  - Search entry boxes located on every page are generally ignored
- Jakob Nielsen’s Uselt column suggests:
  - Over half of all users are “search dominant” going directly to a search function
  - Others use search only when links fail
  - Search entry boxes or buttons should be located on every page

In a recent usability test we conducted, even general consumers wanted search -- “a place where they could type in what they were looking for”

## Is the solution a "one field" interface?

The screenshot displays several search engine interfaces. At the top is the Google search page with its logo and a search box. Below it are three other search engines: Find It! with a yellow background and 'Search made simple.' slogan; CNN.com with a blue search box; and MerckMedicus shown within a browser window. At the bottom is the AltaVista search page with a search box and an example query: 'Where can I find quotations by Ingmar Bergman?'. The slide footer contains the text 'DESIGNING SEARCH INTERFACES © 2001,2002 Whitney Quesenbery' and the number '5'.

## Search Interaction

The flowchart illustrates the search interaction process. It begins with a thought bubble 'Formulate a question' leading to a box 'Create the query'. An arrow points to 'Review results', which is also influenced by a 'Refine search' arrow from the 'Formulate a question' bubble. From 'Review results', an arrow labeled 'Select an item' leads to 'Examine selected item'. A thought bubble 'Evaluate likelihood of success' is positioned above this arrow. From 'Examine selected item', an arrow labeled 'Try again' loops back to 'Review results', with a thought bubble 'Evaluate success' below it.

- The user interface includes elements to:
  - Enter the query
  - Display the list of results
  - Display an item found

The slide footer contains the text 'DESIGNING SEARCH INTERFACES © 2001,2002 Whitney Quesenbery' and the number '6'.

## Formulating the Query

Formulate  
a question

Create  
the query

Search interfaces are hard for general users

- The “Boolean Paradox”
  - “Find the names of all people living in New Jersey and Maryland”

STATE=NJ AND STATE=MD vs  
STATE=NJ OR STATE=MD

- Queries which are easy to say can be difficult to express in precise syntax
  - “Let’s find a western. No John Wayne, except the one with Katherine Hepburn might be OK, and no Val Kilmer. Not too much violence, and some good scenery.”
- Engines support different capabilities - no consistency
  - Search rules vary; syntax varies

## Formulating the Query

Formulate  
a question

Create  
the query

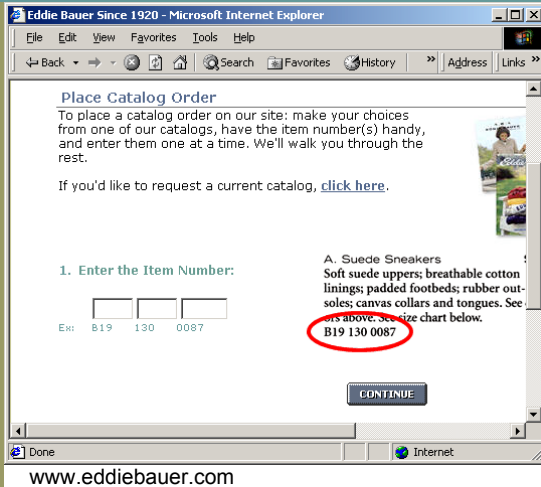
- How people express a search query depends on what they are looking for and their starting approach to the problem of finding information

- **FIND**  
I know exactly what I’m looking for and just need to find it
- **STRUCTURED**  
I want to narrow down my choices and then be able to look through some options
- **QUERY**  
I can describe what I’m looking for and need to see a few good options
- **BROWSE**  
I just want to explore. I’ll follow my nose.
- **GUIDED**  
I want to be taken through in a planned way - not really a search?

# Designing Usable Search Interfaces

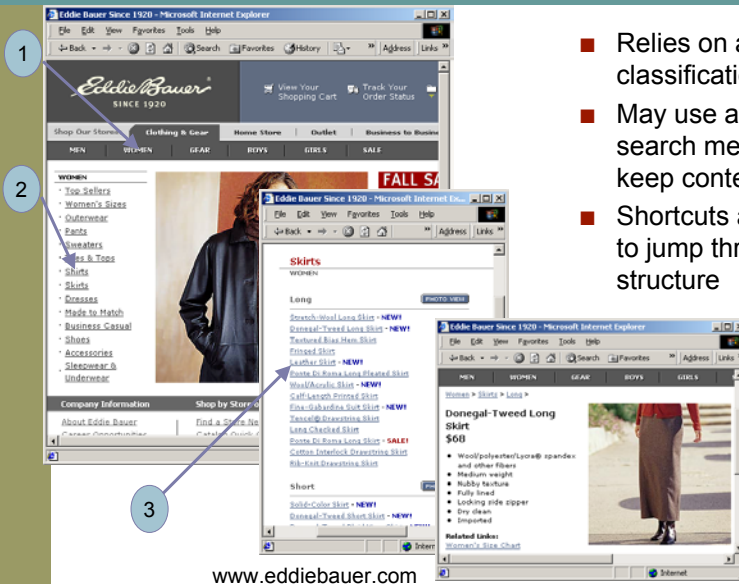
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## Find



- Find offers precision in a single step
  - For those who know the domain well
  - Have a second source of information
  - Need precision or efficiency

## Structured



- Relies on a classification scheme
- May use a hidden search mechanism to keep content evergreen
- Shortcuts allow users to jump through structure

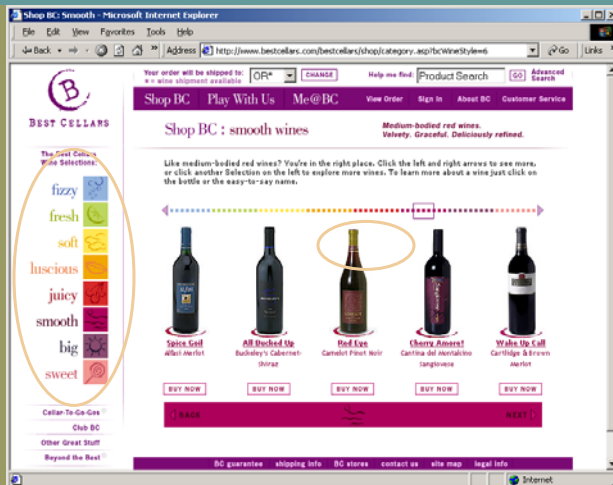
## Mental models and classifications



http://www.wine.com/home/

- A classification scheme for experts
  - Type
  - Winery
  - Region
- Does it answer:  
"What wine will I like?"

## Mental models and classification



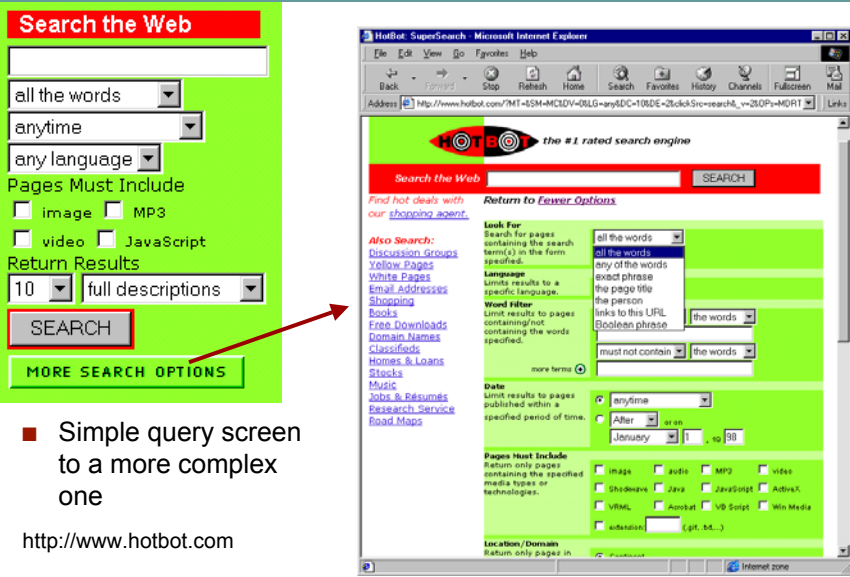
http://www.bestcellars.com/

- A classification scheme for non-experts - Organized by a description of how it tastes
- Asked themselves:  
How do average shoppers talk about wine?

# Designing Usable Search Interfaces

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## Query



**Search the Web**

all the words  
anytime  
any language

Pages Must Include  
 image  MP3  
 video  JavaScript

Return Results  
10 full descriptions

SEARCH

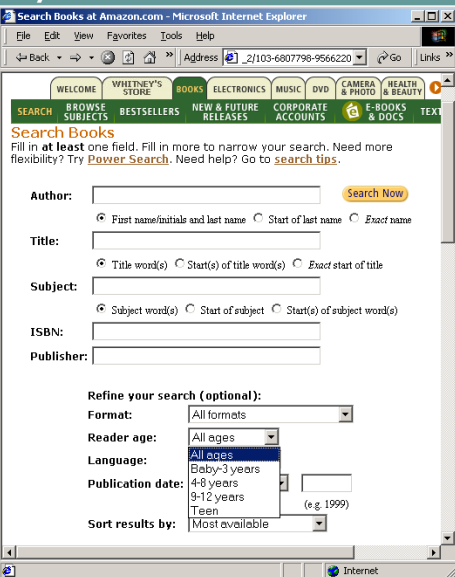
MORE SEARCH OPTIONS

- Simple query screen to a more complex one

<http://www.hotbot.com>

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## Query



Search Books at Amazon.com - Microsoft Internet Explorer

WELCOME WHITNEY'S STORE BOOKS ELECTRONICS MUSIC DVD CAMERA & PHOTO HEALTH & BEAUTY

SEARCH BROWSE SUBJECTS BESTSELLERS NEW & FUTURE RELEASES CORPORATE ACCOUNTS E-BOOKS & DOCS TEXT

**Search Books**

Fill in **at least** one field. Fill in more to narrow your search. Need more flexibility? Try **Power Search**. Need help? Go to **search tips**.

Author:  Search Now

First name/initials and last name  Start of last name  Exact name

Title:

Title word(s)  Start(s) of title word(s)  Exact start of title

Subject:

Subject word(s)  Start of subject  Start(s) of subject word(s)

ISBN:

Publisher:

Refine your search (optional):

Format:

Reader age:

Language:

Publication date:

Sort results by:

- Balancing complexity with enough fields
- Are they assuming: "Only people who know books will use the advanced search?"

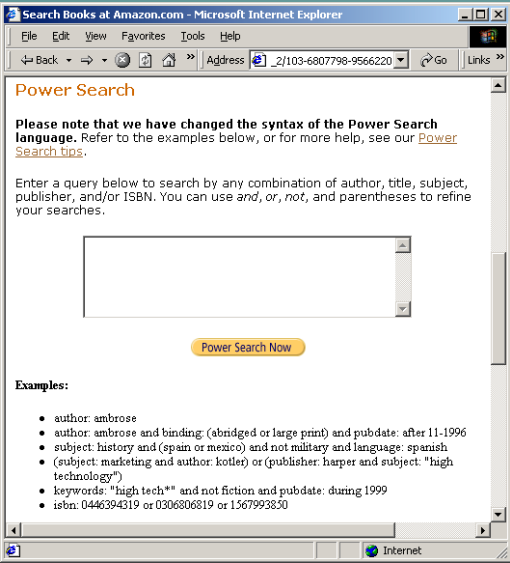
<http://www.amazon.com>

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# Designing Usable Search Interfaces

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### Query



Power Search

Please note that we have changed the syntax of the Power Search language. Refer to the examples below, or for more help, see our [Power Search tips](#).

Enter a query below to search by any combination of author, title, subject, publisher, and/or ISBN. You can use *and*, *or*, *not*, and parentheses to refine your searches.

Examples:

- author: ambrose
- author: ambrose and binding: (abridged or large print) and pubdate: after 11-1996
- subject: history and (span or mesco) and not: military and language: spanish
- (subject: marketing and author: kotler) or (publisher: harper and subject: "high technology")
- keywords: "high tech\*" and not: fiction and pubdate: during 1999
- isbn: 0446394319 or 0306806819 or 1567993850

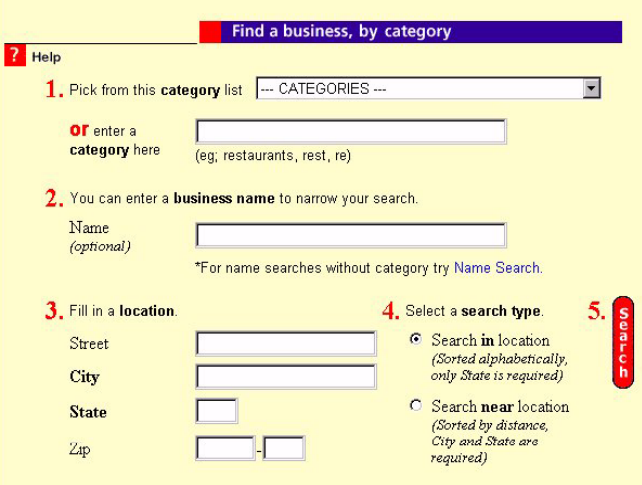
http://www.amazon.com

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- Power search goes all the way back to a one-field interface

Users enter a complete query, with no assistance.

### Making the UI helpful



Find a business, by category

? Help

1. Pick from this **category** list
- or enter a **category** here   
(eg, restaurants, rest, re)
2. You can enter a **business name** to narrow your search.  
Name   
*(optional)*  
\*For name searches without category try Name Search.
3. Fill in a **location**.  
Street   
City   
State   
Zip  -
4. Select a **search type**.  
 Search **in** location  
(Sorted alphabetically, only State is required)  
 Search **near** location  
(Sorted by distance, City and State are required)
5. **SEARCH**

Source: Alta Vista business search

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- Create a sequence
- Prompts provide instructions
- Examples are available when needed

## Browse: Facets



Each recipe is assigned at least one:

- Main ingredient
- Course/meal
- Preparation style
- Cuisine
- Season/Occasion

Starting from any one of these 'facets' the user may

- Back up to a previous selection
- Choose another facet to narrow the search
- Select from one of the list of recipes presented

All selections are done by clicking on links - no entering text

<http://www.epicurious.com>

## Using browsing to create a complex search



- The Enhanced Search screen shows all of the options in the browse, but allows for combinations

- It retains a sense of browsing, even though it is constructing a boolean search behind the scenes

<http://www.epicurious.com>

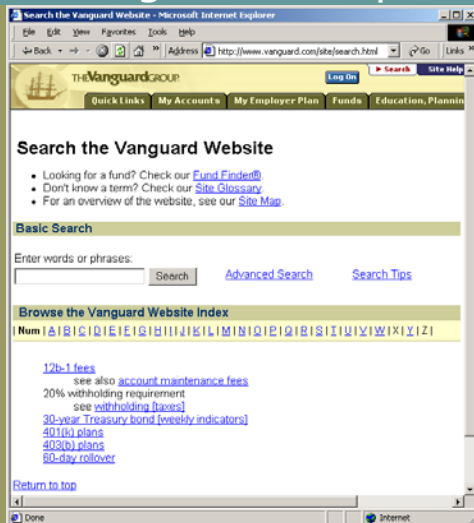
## Reviewing results

Review results

Evaluate likelihood of success

- How well does the interface present results so that an item can be selected with confidence
  - Enough information in the result item to give a strong scent of information
  - Ability to discriminate between different types of documents
  - Easily scan-able

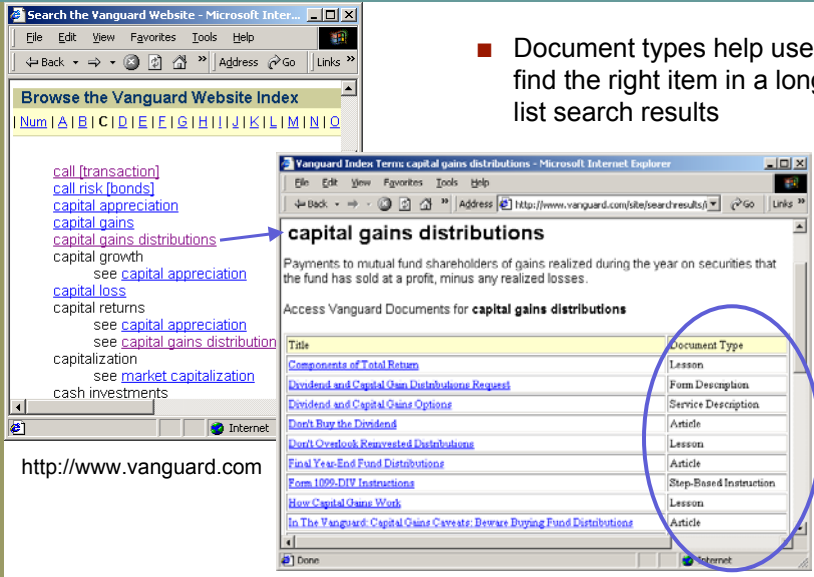
## Combining Search Options



- Combines several approaches on one page
  - Links to special features that are likely to provide direct answers
  - Simple text-box search (and a link to an advanced search)
  - Browse, using index terms

http://www.vanguard.com/site/search.html

## Helping users identify the document type



Document types help users find the right item in a long list search results

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## Offering results in more than one format

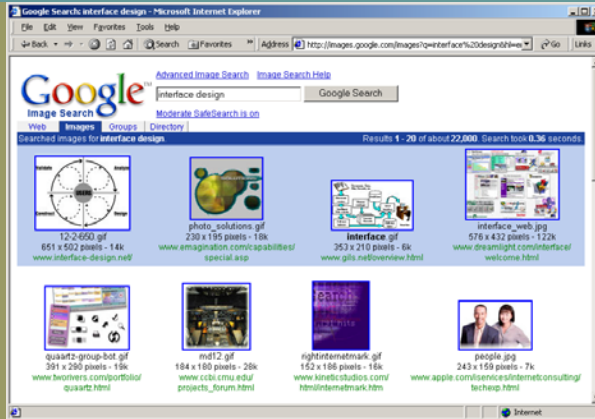


Improving the chance for a successful choice

- Grouping and classification of results
- Editorial selection
- Related actions

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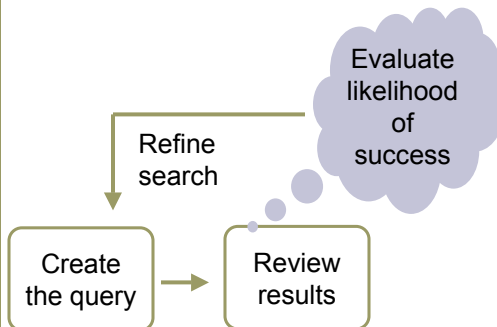
## Image browsing



- Image searches allow results to be browsed visually
- Display includes file name, size and source

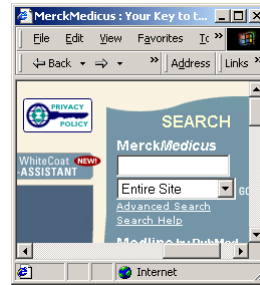
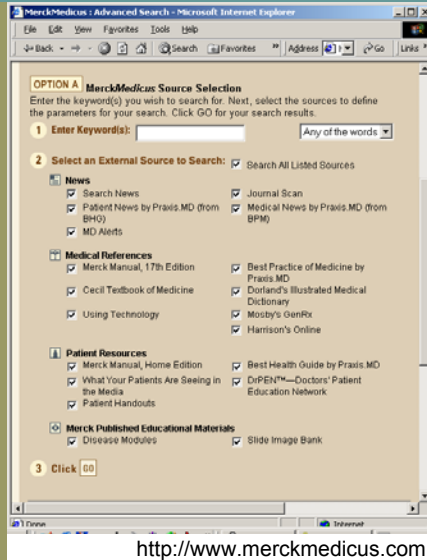
<http://www.google.com>

## Refining the search



- Combining refining the search with reviewing the results
- Continuously displayed results
- Options to search within the current results set

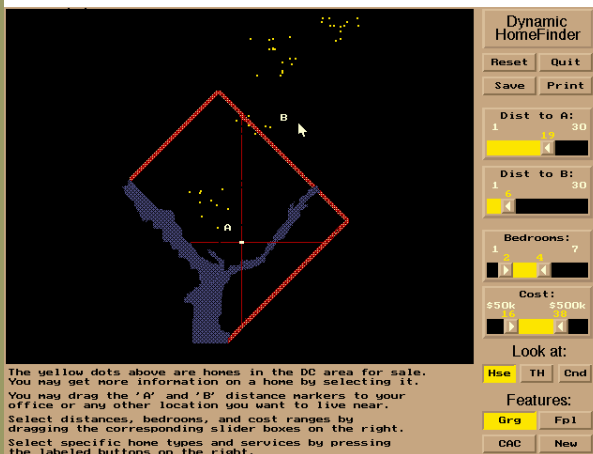
## Selecting the scope of the search



- The advanced search screen does not have many options, except the ability to select the scope of the search by selecting which references are searched

## Combining query and results on a screen

"Where can I find a house?"



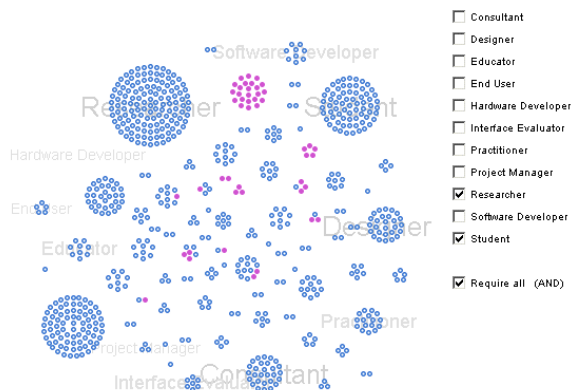
The yellow dots above are homes in the DC area for sale. You may get more information on a home by selecting it. You may drag the 'A' and 'B' distance markers to your office or any other location you want to live near. Select distances, bedrooms, and cost ranges by dragging the corresponding slider boxes on the right. Select specific home types and services by pressing the labeled buttons on the right.

Developed at the HCIL of University of Maryland  
<http://www.cs.umd.edu/hcil>

- Direct manipulation to form a query
  - A visual representation of the query and the results
  - Rapid, incremental, and reversible actions
  - Selection by pointing
  - Immediate and continuous display of results

## Combining query and results

### People Browser



- Consultant
- Designer
- Educator
- End User
- Hardware Developer
- Interface Evaluator
- Practitioner
- Project Manager
- Researcher
- Software Developer
- Student
- Require all (AND)

The full set is always available, but a simple query is constructed by checking types of people.

People matching the query are shown in purple

<http://www.chiplace.org/people/>

## References

- A comparison of different search engines in 1996 and 1999  
<http://www.curtin.edu.au/curtin/library/staffpages/gwpersonal/searchstudy/>
- Clarifying Search: A User Interface Framework for Text Searches - Shneiderman, Byrd, Croft
- UIE on search: <http://world.std.com/~uieweb/searchart.htm>
- Nielsen on search: <http://www.useit.com/alertbox/9707b.html>
- Innovations in Classification - Peter Merholz  
<http://www.peterme.com/archives/00000063.html>

# Designing Usable Search Interfaces

## Whitney Quesenbery, Whitney Interactive Design

### About Whitney Quesenbery



Manager of the STC  
Usability SIG

Outreach Director  
for UPA

*"It's exciting when  
a new design  
changes people's  
lives by helping  
them work better."*

Whitney has extensive user interface design and project management experience. She has produced award winning multimedia products, user interfaces, web sites, and software applications. A key player in the development of the LUCID Framework, she promotes the importance of human interaction and usability in interface design.

*User Interface Designer:* Created user interfaces for software applications, web sites, multimedia applications, documentation.

*Big-Picture Visioning:* Whitney specializes in the big picture for applications and projects. She sees how the client's needs and the users' needs best fit together, and she knows how to present that vision for maximum effect.

*Theatrical Lighting Designer 1974-1989:* Discovered that a computer screen is just like a tiny stage in the way that audience attention is directed by the design.