Assignment 2
CS6750, Fall 2020

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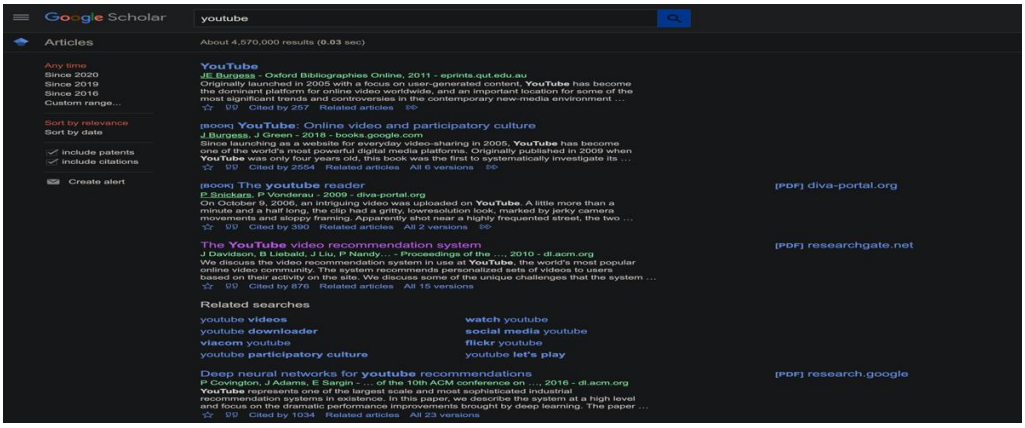
***Abstract*—** "Google Scholar" is a web search engine designed to find scholarly literature & academic resources, released in 2004 by Google. The goal of this website is "make the worlds problem solvers 10% more efficient" by allowing easier and more accurate access to scientific knowledge.

However, the User Interface of Google Scholar website has large gulf of evaluation. The *literature search to selection* process is longer. In this project, I propose research & redesign of the Google Scholar website's User Interface to reduce user's *literature search to selection process efficient* (reduce search time, etc.).

PROBLEM:

Google Scholars search results link to all kind of paid & unpaid papers, reports, abstracts, web articles about a topic of research. Usually, commercial journal articles are not free, and most people will be able to access only an abstract and the citation details of an article and have to pay a fee to access the entire article. The only filter given for content filter is 'date of literature published'.
In this project, I will focus on re-design of Google Scholar's *search result webpage's* user interface. I intent to give users more autonomy of content filtering and improve *click to content finding* journey more efficient.



Literature search result about 'YouTube'

USER TYPES:

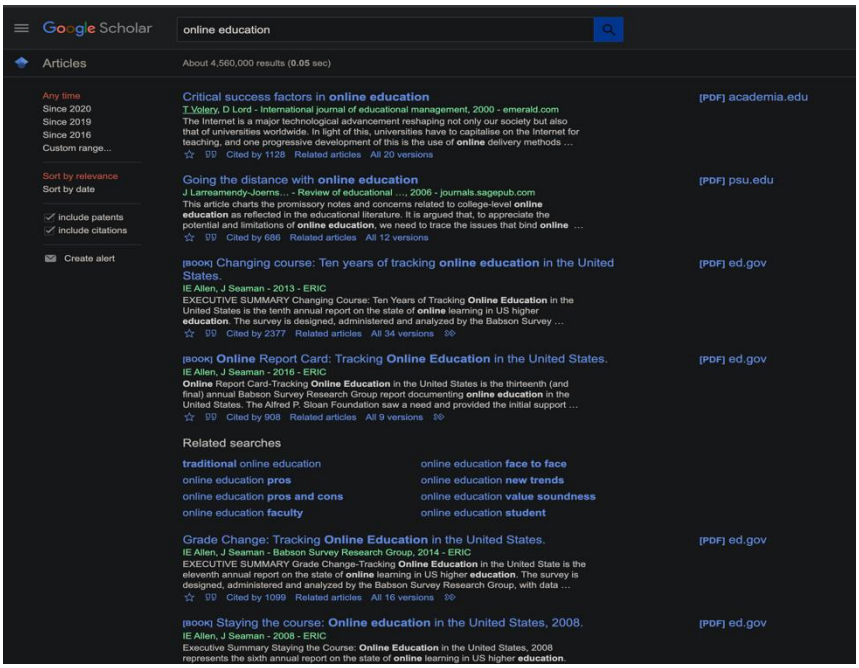
Google scholar is world's largest academic search engine, free for everyone to find scholarly articles & knowledge across different disciplines.

"From one place, you can search across many disciplines and sources: articles, theses, books, abstracts and court opinions, from academic publishers, professional societies, online repositories, universities and other web sites. Google Scholar helps you find relevant work across the world of scholarly research"

NEEDFINDING PLAN 1:

Need finding approach: *Naturalistic Observation*

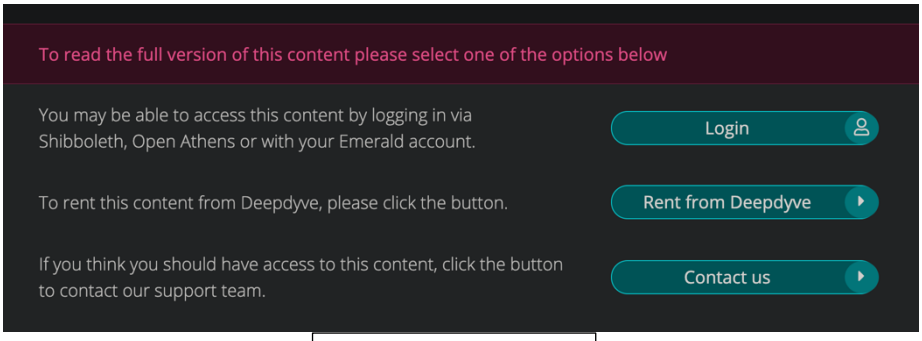
Assume I am looking for literature an 'Online Education' topic. Search result by term 'online education' results in thousands of related articles as below.



Google Scholar results on 'Online Education' topic

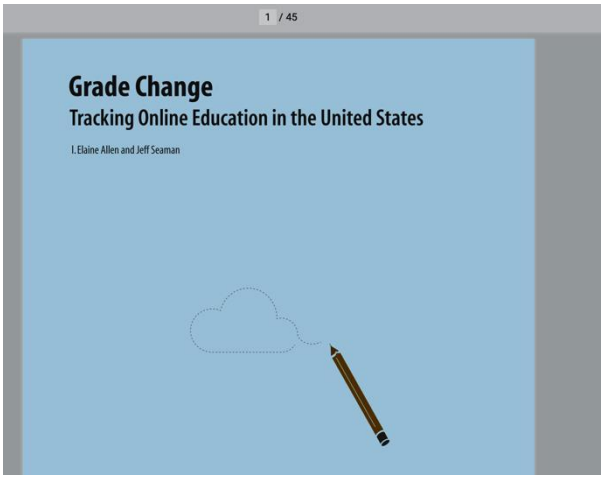
The user goal is to find few free pdf of related literature. But the search result options are overwhelming with mixed offerings of book, papers with different web links. The only option is clicking each link and check if the link actually directs to free pdf article.

Clicking on link 1, "Critical success factors in Online Education", results in below webpage:



Search results on link 1

Looking at above screen, it is clear that user's expectation of 'free pdf article' didn't quiet meet and it is waste of time and affects search efficiency.



Search results on link 5: "Grade Change"

"Grade Change" URL resulted into a 45-page pdf book which is what I was expecting.

Based on above cases, it is clear that literature search process on Google Scholar is a *hit or miss* scenario, consuming lot of time. Hence, a redesign of UI is proposed to reduce literature search time using users' additionally preferences as input.

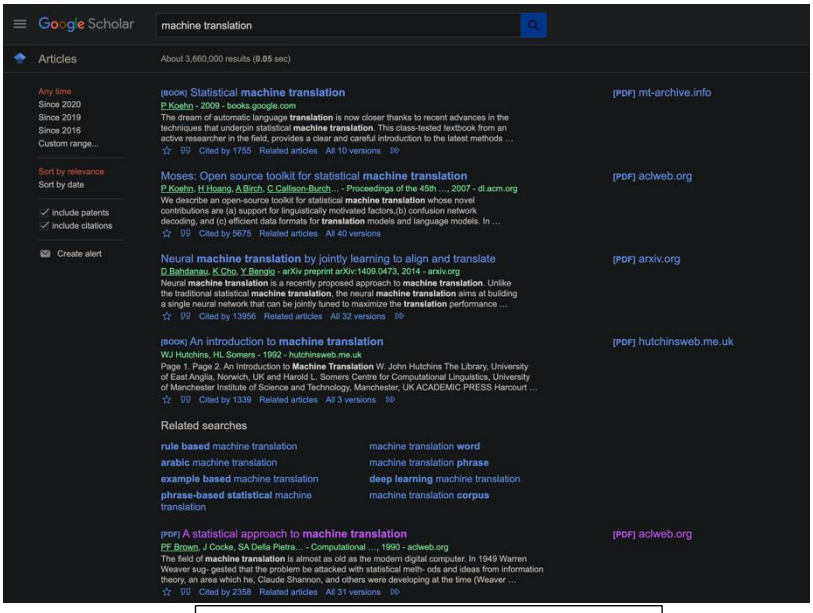
Potential Bias using Naturalistic Observation:

Looking through Naturalistic Observation lenses, designer becomes users and thinks just form their own perspective. These kind of UI models fails to generalize for larger audience. Also, this approach lacks a holistic view of problem space by focusing more on just observable metrics by a user.

NEEDFINDING PLAN 2:

Need finding approach: Participant Observation

In 'Participant Observation' approach, a user finds a specific topic, here, an academic paper on topic 'Machine Translation'.



Search results on "Machine Translation"

Out of top 5 links:

Link 1: Book

Link 2: A 4-page academic paper on Machine Translation topic

Link3: A link Cornell University library

Link 4: Book

Link 5: A 7-page academic paper on Machine Translation topic

Initial idea of UI redesign will capture broader article topics like BOOK, PAPER, PAID, FREE, etc. And user can now filter by broader topic which will reduce hit-miss selection criteria steps, reduce search time and improve literature selection search efficiency.

Data collection through 'Participant Observation' approach:

To quantify impact of research using 'Participant Observation' need finding approach, below are some of the data metrics that should be collected:

1. Time from *click to find*
    a. Time taken by a user to find specific literature
2. Steps taken to land on a final article
    a. Total clicks
    b. Total different literature visited before final literature

A controlled experiment needs to be conducted to measure impact of new proposed user interface.

Potential Bias using Participant Observation:

This model focuses on specific tasks more than broader domain. Hence, all UI changes done by only using learning from Participant Observation, need-finding approach, might lead to task based modeling bias. This approach also suffers from limitations to capture all possible literature format tags/categories.

NEEDFINDING PLAN 3:

Need finding approach: Surveys Observation

It will be ideal to understand different challenges faced by Google Scholar users and later prioritize and group challenges like:

1. Longer *click to find* process
2. Pay walls (paid literature)
3. Multiple logins to access literature (.edu login, etc.)

Besides above open-ended survey question, it would be worth asking things like alternate solution for finding free literature, advanced tips on Google Scholar.

Survey deployment & data collection will be done through SurveyMonkey.com.

Survey will ask both qualitative and quantitative questions related to existing Google Scholar user interface. Survey will focus on 1 specific task, which is, *time took to find expected literature by user*.

Potential Bias using Surveys Observation:

Survey question design will be biased due to limited existing information.

REFERENCE:

https://en.wikipedia.org/wiki/Google_Scholar