WOSView Demo: A Tool to Explore the Web of Slides

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ABSTRACT

We will demonstrate a prototype system WOSView built based on the vision of the Web of Slides(WOS), which aims to link all the lectures slides so as to facilitate navigation over all the slides. The links can be created at the slide level or at the level of phrases inside a slide, and many types of links can be created. The prototype system we built implements the most basic type of links, which link slides that have similar content and integrates lectures from four different MOOCs. WOSView also supports keyword search, which generates virtual links dynamically. We will demonstrate how the graphical interface of the WOSView enables students to flexibly navigate into slides from different courses and explore related slides using both static and dynamic links and solicit feedback from the community about the vision of WOS.

Author Keywords
Slides; Link probabilities; MOOC

DESCRIPTION OF INTERFACE

This Demo is associated with a Work-in-Progress submission titled "Web of Slides: Automatic Linking of Lecture Slides to Facilitate Navigation." A Web of slides (WOS) is realized by creating links between slides to connect otherwise scattered slides over a number of Massive Open Online Courses (MOOCs). Just as the hyperlinks connecting the scattered web pages form a useful World Wide Web, we envision that the links connecting many scattered slides would also bring similar benefits to many online learners and enable them to flexibly navigate into useful slides from scattered sources. Our demonstration will include a walkthrough of the first version of a Web of Slides browser, WOSView. Due to the homogeneity of the content we are linking, the same browser can

support navigation over any WOS and thus can be used to facilitate learning in any course. WOSView is hosted as a Python Flask Web App and it is similar to an extended form of PowerPoint. Users can navigate through WOSView either sequentially or with similarity-based links. Another type of navigation is using the search functionality to help find slides quickly using queries. Figures 1 and 2 show some screenshots of our interface.

WOSView can be accessed using any web browser. There is a navbar at the top of the page that contains drop-down menus to select a Course and the Lectures within the course. Currently, the tool supports 4 Coursera courses related to Data Mining and NLP. There are "Prev" and "Next" buttons below the slide which will take the user to the next and previous slides of the current slide. For each slide, we provide a set of related slide links on the right of the slide. These links are obtained using various IR and ML techniques leveraging various slide features. These Related Slides are displayed in decreasing order of similarity to the current slide. Hovering over a link displays a preview of the related slide in the form of a tool tip, so that users can decide whether to click on a link or not. Clicking on the related slide will take the user to that slide. After clicking a related slide, the user can use the "prev" and "next" button to navigate through the lecture of the related slide. With the help of the related slide links, a learner can navigate both within and across courses learning about a topic. The user can view his last 50 most recently visited slides using the "Recently Visited slides" tab in the navigation bar. Such a learning experience would provide complete knowledge in terms of breadth and depth about a certain topic in an easier way compared to sequential navigation of slides.

If the related slide link is blue, it links to a slide in the same course, while a brown colored link links to a slide in a different course. If you hover over a related slide link, you can preview the linked slide in the form of a tooltip.

WOSView also provides a search bar at the bottom of the slide to search for slides given a query. The primary purpose of the search bar is to give users the flexibility to navigate to a particular region on the WOS. This allows the user to make an even larger jump from the current slide.

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Each search result will also include a small snippet below it showing the specific slide content that matches the query. Hovering over the search result will provide a tooltip showing a preview of the associated slide. If the search terms don't appear in any slide, no results will be returned.

The end slide of a lecture is connected to the first slide of the next lecture through the "next" button, and vice versa for the "prev" button.
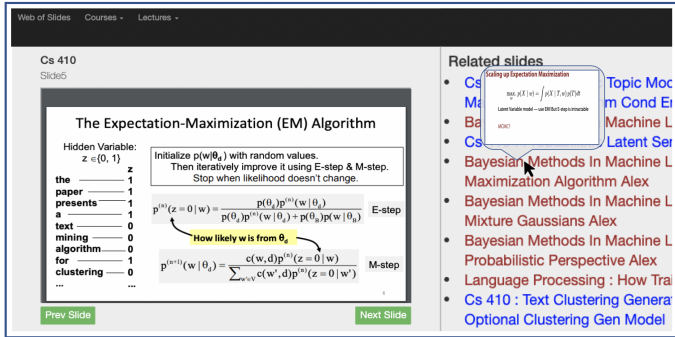
(a) Scenario where the user clicks on a related link for the current slide based on the preview.
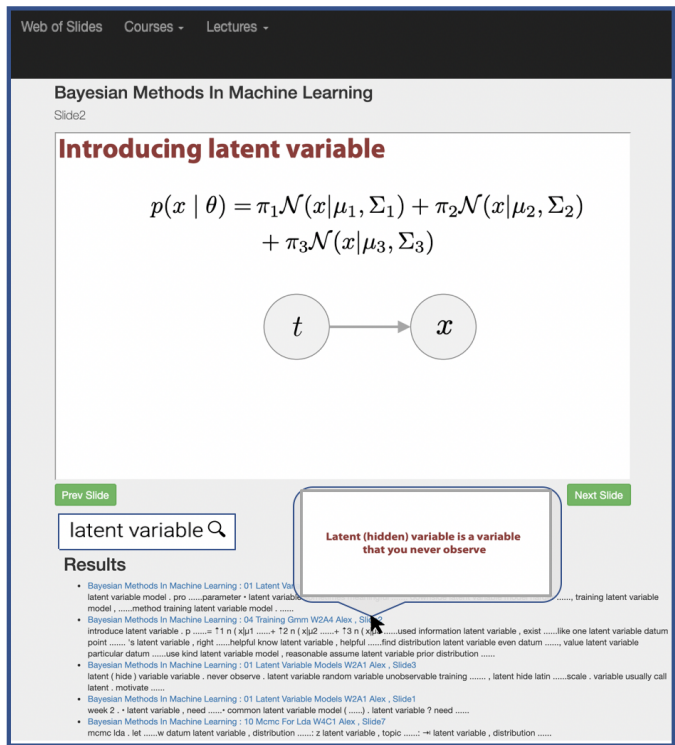
(b) Scenario where the user searches for a query and obtain relevant links

Figure 1

USER INTERACTION
A user can start by selecting a Course and a particular Lecture within a course. This will take them to the first slide in the chosen Lecture. Once a user is on a particular slide in a lecture, they can either navigate sequentially through the lecture using the Next/Prev slide buttons or jump to a Related slide. They can also use the search bar to find slides specific to their search terms.

WOSView is mainly targeted towards learners. We identify two distinct types of learners based on their learning goals. The first group of users are users with short term goals such as preparing for a quiz. Since the quiz may not test beyond the course's contents, learners would prefer to navigate either sequentially or only use related links that lead within the course. The related links within the course will help them quickly review previous concepts with respect to the current slide. The search bar also helps them immediately find the slides for a given topic.

The other type of learners have long term learning goals. These users may want to learn about a specific topic in depth and may not be bound by a short deadline. Such learners will take maximum advantage of the links across courses connecting a specific topic. Of course, both types of learners can use all other features of WOSView.

We show two different demo scenarios for WOSView: The first one is where the user opens a slide and then clicks on a related link. This related link is similar to the current slide and is often an alternate explanation or perspective of the same concept. It is shown in Figure 1(a). The second scenario is where the user looks at a slide and then types a query in the search box to obtain slides relevant to the search query as shown in Figure 1(b).

We will use a laptop computer for our demonstration with an external display screen if possible. The URL of the Web of Slides is http://timan102.cs.illinois.edu/webofslides//slide/cs-410/0.

FUTURE DEVELOPMENTS
One of the important future developments to improve the utility of WOSView is to improve the quality of our links for both related slides and search bar results. This can be done by improving our link probability estimation algorithm, by supporting other types of links as described in our Work in Progress paper, and by leveraging user clicklogs to identify the links that were useful. These will serve as gold-standard labels which can be used for training supervised models or evaluating models.

We also performed a User evaluation using our tool whose results are detailed in our Work in progress paper. Based on the feedback, we identified that some users use links within the same course while some users also use links outside the course. Adding filters for links and search results, such as the ability to constrain results to within a certain course or lecture, would improve the usefulness of this tool. We also received suggestions to improve the layout of the UI. Some suggestions include the ability to view more than one slide per page. We can include these features to reduce the number of clicks required to use this tool.