
Personalized Presentation Builder

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Abstract

We can observe a paradigm shift on the Web from a predominantly machine-centered view towards an increasingly user- and community-centered view better described as the "Social Web". The data that can be extracted from users' social network accounts provide us with much personal information about them, their persona and life styles. The next rational step in this field is to create applications that take advantages of such information to provide more effective and personalized services to users. This paper is an attempt to introduce the Storytelling System which is a subcomponent of the Narrative Visualization Recommender System [1]. Our objective is to go through its conceptual design which allows us to share personalized story with other users and find an acceptable model to measure the effectiveness of such a system as a means of information presentation.

Author Keywords

Content Personalization; Storytelling.

ACM Classification Keywords

H.5.m. Information interfaces and: Miscellaneous.

Introduction

According to Reuters [2], 62 percent of people who are connected online communicate through social networking sites such as Facebook and Twitter. Widespread use of similar tools results in exponential

growth in user-generated content that is publicly available and left in the web to be extracted. Social Web allows users to generate content and share it with others. It leads to an alternative for people to create their own online identity. As it is discussed in several recent studies such as [3] and [4], the given persona is reliable and does not necessarily present a false identity. Social network analytics tools are well established in recent years and the next step is to develop applications to demonstrate the advantages of knowing users' personas. Envision, a single tool that allow us to improve significantly how information is reflected, communicated and shared by knowing background of our users in advance. For instance, one of the novel approaches in education and information exchange is to personalize the nature of the information from the starting point. As this is discussed by Valentine and Wukovitz, such an approach addresses one of the major challenges facing any educator who steps into a classroom: convincing students that the material being taught is relevant to their lives. Besides, it also provides the teacher with a starting point for teaching a variety of other concepts such as information ethics, and evaluating information [5]. This is just a small application that can be done through our proposed system that has been previously introduced as the narrative visualization recommender. Narrative visualization recommender is the solution to leave a memorable message followed by a pleasant experience, benefiting from interactive storytelling tactics [1]. However, the main obstacle that has been discussed in our previous work is to manage the system's three main components: the extracted persona, the interactive visualization and the story generator, work together as a recommender system. Our conceptual paper is a good initiation, but more

works is required to reach to a comprehensive solution. In our previous literature review we identified vast number of studies dedicated to the field of visualization as well as predicting user personality. Although the existing visualization and presentation systems have many strengths and great potential, and recent research demonstrates the feasibility of building a similar system, we found, there is so far little research in the area of personalized presentations. In this paper we have decided to continue the path towards designing and developing the proposed presentation framework by introducing our story generator. To prepare a foundation to measure the effectiveness of a similar system, we decided to avoid the unwanted personalization complexity. The complexity can be a sentence structure, style, color or picture which is common in a story, however in a more abstract case such as a presentation, we face with a simplified version of a story. After conducting a literature review on some of the related researchers and applications on personalized content sharing in different contexts, we identify the pros and cons of each method. Moreover, we emphasis on a details conceptual design of our story telling system. In particular we describe the purpose of each component and its subcomponents by focusing on their general structure. Finally, we draw conclusions and present a vision for future research.

Background

Filter bubble is a well-known concept [6] in the field of data analytics. The information that we have exposed publicly about ourselves can be used in many applications and personalization is one the primarily applications. Two common practical approaches to assist us with personalization of information are content-based (CB) [7] and collaborative filtering (CF)

[8]. The CB approach is based on recommending items or services that are similar to those in which the user has shown interest previously. On the other hand, the CF approach, is based on other individuals who are found to have similar preferences. While recently, we witness more efforts towards leveraging interest indicators [9] such as purchase history, focusing on previous consumption behavior and the metadata cannot be a complete solution, since it does not consider contextual information or social network relation. A common method is to rely on a user profile that reflects the personal interests [10] [11], but it does not take other criteria like temporal data, location data, user's emotional or user's personality. A popular method that falls into this category is a tag cloud based recommendation system for user-generated content [12]. This idea is based on using the information from the user's close friends which is known as an extension to the existing model and could be the introduction of "trust values". Although, all these approaches are well suited for recommending items or services, traditionally they are not designed for live personalization of a presentation or other similar textual contents.

Proposed Methodology

As shown in Figure 1, we define our system as a web application. On one side, we allow our storyteller to craft the story where we call it the workspace. Since we are planning to avoid the complexity at the early stage of our research by limiting the story within a presentation concept, we only allow the author to build the presentation with point formatted sentences followed by images. On the other side, we have our story generator system which personalizes the given story based on the user's aggregated social network profile. The recommender component feeds its

suggestions from two sources. The core is coming from customization suggested by the author while the system uses its predefined templates to recommend potential personalization. The goal is to allow the system to learn and improve its template over time by adding new suggestions introduced by users to personalize their stories.

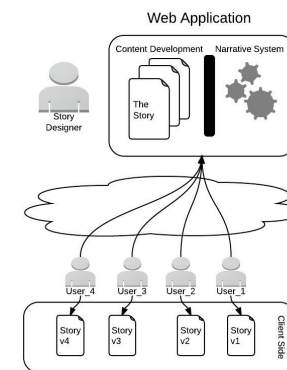


Figure 1. Personalized Content-Sharing System Overall Look.

To generate the presentation and build our system foundation we rely on impress.js [13]. It is an open source presentation toolset comprised of a JavaScript library, and CSS3 transforms and transitions in modern browsers and inspired by the idea behind prezi.com [14]. Its web foundation allows us to extend it with new features such as allowing the author to attach rules to a given object in the presentation. The rules can be strict, like age or soft like allowing the author to set a weight for a specific treat. Figure 2 illustrate a potential overall look for the author workspace. In this example, the

author use three scenarios for a picture on the top left hand side of the presentation. The first picture is associated with the default scenario, while to present the third picture, the system requires specific level of technical skills.

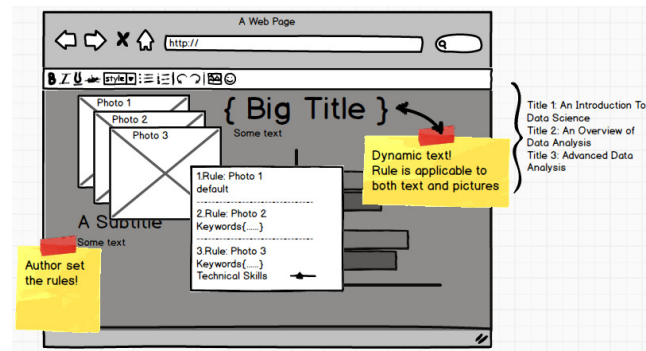


Figure 2. Workspace mockup.

To enable this level of personalization, we require a custom way to deal with performance related issues. Traditionally, we need to load the page content once and cache the content. However, personalization does not allow efficient caching since the personalized content must be recreated for each visitor. To overcome the performance related issues and improve the user end experience, we may want to evaluate caching static (default) contents and mapping out personalized contents using AJAX and cookie.

Aggregating the user's profiles [15] offers the option to store and study user personality, professional interests and other treats in a single place. The challenge lies in accessing and extracting the optimal amount of data to create a comprehensive overview of the user while keeping in mind the reliability and privacy concerns. As

shown in Figure 3 Every user login to the system based on requested social network account defined by the author. Once the user login to a requested account, a bar which present the predicted accuracy of the extracted data from the user social network account being updated. If system failed to harvest enough reliable data, we leave the option to ask maximum number of five short questions designed by the author from the user.

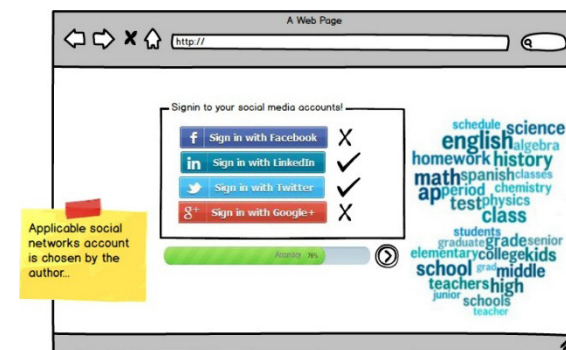


Figure 3. Login page mockup.

As we discussed previously [1], once we aggregate our findings from different social networks for a single user, we come up with a summary of the personal traits. For instance, we can obtain the users' personal interests from their Facebook profile, and their professional interests from LinkedIn, while we can use personality models such as big five [16] to predict user personality by analyzing unstructured data from Twitter. Initially

the system suggests the portion of required personal information but the author can review it and adjust it. However, majority of the topics follow similar pattern and this can be captured and used by the system so that the automated recommender component improve over time.

Evaluation of effectiveness of a recommender system continues to represent an emerging research area that faces variety of challenges. Traditional guidelines employed in usability testing of web applications are incomplete for our recommender system. In the first phase, narrative interviews can assist us to capture user's point of view before laying out the final design. While, in the second phase of evaluation, we can conduct user evaluation experiment to validate the comprehensibility of the personalized presentation. It follows by building a classifier that assigns a comprehensibility score to any input document [17]. Although the ranking model originally developed for

web search and a CQA forum, it has the potential to significantly assist our research with predicting the sophistication level of a given text. By comparing the result from the experiment and our ranking model, we can build a reliable method to measure the effectiveness of our system.

Conclusion and Future Work

In this paper we demonstrated the possibility of using personal traits in a recommender systems within a presentation context. The recommender system for storyteller can be the next rational step towards a new era of education and information sharing. Although both recommender system and content sharing separately have gained attention recently, we do not see an effort to combine these fields. With our proposed conceptual design, we show the possibilities and potential look for personalized story generator framework. Future work include implementing a working prototype to evaluate the effectiveness of the system and integrating the solution with a tool to predict users' persona.

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