EventLens: An Automatic Magazine Generating System for Social Media

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Abstract. Social media has become the most convenient platform for news reading nowadays. In this paper, we introduce an automated digital magazine generating system—EventLens, which provides a platform to help the users get information more effectively through intelligent information selection and integration on social media. In our application, we not only design the functionalities, interface, and overall user experience to satisfy users’ need in terms of information content and reading habits, but also propose the necessary solutions: an automated magazine layout method and a swift image retargeting method to solve the problems in the process of digital magazine auto-generation.

Keywords: magazine generating, layout, image retargeting, usability.

1 Introduction

Social media platforms, such as Twitter, are convenient channels for users to share experiences, discuss events, and read news. The big events are always the most trending topics on the micro-blog platforms. Such a platform provides not only a large quantity of rich media content but also gives users’ different point of views of ongoing trending events. Besides, much more facets are also available from the third-party resources such as the news websites, which are good supplement for social media information. Adequate resources enable users to access the information presented comprehensively. However, information overload makes it very time-consuming to effectively find the useful content. Furthermore, the data retrieval of cross-platform usage is absolutely uncomfortable comparing to users’ traditional reading habits. One of the possible solutions is to closely integrate the contents from multiple platforms into one medium like a digital magazine, to give a much more unified UI and centralized experience. However, how to provide the mechanism for auto-generate a magazine with aesthetic layout becomes a big challenge. In this paper, we introduce a novel digital magazine generation system—EventLens, that can automatically generate a digital magazine with a user-friendly and aesthetic layout.
Related Work

Digital magazines have become more and more popular since 1980s; and it has been much evolved to be highly customizable. Many readers subscribing to digital magazines not only have desires to read their contents, but also tend to personalize their forms, such as selecting the layouts and appearances. With the rapid increasing of the mobile applications, now people can easily download many Apps from different platforms to create heavily customized digital magazines for personal or commercial purposes.

The apps that are currently available on different platforms mostly have slick user interface and enable the customization as their advantages. They classify the information into categories and let users to customize the categorization. For example, Filpboard lets user to have their own information resources registered as content provider, such as Twitter and Facebook, on the “board”—the main view in their UI. It is shown to be a generally accepted concept, from the huge success of Flipboard on iOS [1]. However, these apps are only categorizing the information in very restricted and limited ways, without being able to put the related news together automatically. Users cannot get any sort of linkage based on the semantic relevance of different pieces of information like Wikipedia does. The result is that user has to keep going in and out of different categories or even different apps, to manually search for more information about the same event he is interested in. We have developed EventLens system which is able to find the news related to a certain topic contextually and integrate them together.

In the digital magazine generating procedure, we faced two big challenges. The first is how to automatically generate the layout of the contents to deliver great legibility via well-designed presentation; and the second is how to do image-retargeting to make the reading experience conformable.

For the first challenge, there are some previous work but mainly focus on adaptive document layout via manifold content [2], and adaptive layout for dynamically aggregated documents [3]. These work give us great inspiration, but due to the different usage scenarios, it is hard to directly employ their methods to solve our problems. For the second challenge, many image retargeting methods have been studied [4], such as Non-homogeneous warping (WARP) [5], Seam-Carving (SC) [6], Scale-and-Stretch (SNS) [7], Multi-operator (MULTIOP) [8], Shift-maps (SM) [9], Streaming Video (SV) [10], and Energy-based deformation (LG) [11], but most of them were based on relatively complex computer vision algorithms. However, our foreground part based on Flash Actionscript 3.0 that is not so strong in pixel level processing. So a fast image retargeting without complex computing is necessary.

System Design

To solve the information integration problem in social media, we propose our automatic event mining algorithm and layout management method. Our system (Fig.1) deals with a huge amount of micro-blog data by using the algorithm called “Bi-lateral