A Catholic and Enhanced Study on Visuanalysis of Topic and Geo-Competition on Social Media

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Abstract: In the intelligence civilization, in addition to practical competence and information technologies, it is becoming increasingly critical for people to develop a wider range and encouraging social connections. Micro blogging communities that support updates, sharing new information like text, images, and videos time to time provided with privacy such as twitter. A twitter is Micro blog that uses digital backchannels to represent the timely exchange of pithy comments and impressions in large events. At present, mutual updates displayed in the form of a simple catalogue (list), making it difficult to get an overview of the communication that proceeds rapidly. This will confuse the participants of the twitter from the main event occurred. In other way, our Visual Backchannel design provides an evolving, interactive, and multi-faceted overview of large-scale ongoing conversations on Twitter. To visualize an uninterrupted updating information stream, we include visual saliency for what is happening at this moment and what has just occurred a moment ago, set in the context of the evolving conversation. For visual system we introduce a Temporal adjustable stacked graph represents topic streams that visualizes topic over time accompanied by two compact visualizations, people Spiral, Image Cloud that has shared images which are going to be varied according to the popularity in the events together with post listing all these are linked with the time ranges. We consider our design considerations, in particular with respect to developing visualizations of dynamically changing data. Through the Extension representation of user’s data supposed to increase the efficiency of the visual backchannel.

Keywords: Backchannel, Information Visualization, Events, Multiple Views, Edge Map, Data Stream, Micro Blogging, Information Retrieval, World Wide Web, Social Networking Sites.

I. INTRODUCTION

The word Backchannel communication is a rising social phenomenon, is an electronic conversation used to represent conversation that take place between the people at the same time. A back channel is everything going on in the room that isn’t coming from the presenter. It is where people ask each other questions, pass notes, get distracted, and give you the most immediate feedback you’ll ever get. It also lets you tailor and direct your presentation to the audience in front of you, and unifying the back channel means the audience can share insights, questions and answers like never before. A back channel is saved so you have a transcript of the information discussed. Therefore, as member, it is a good idea to record resources and main points in a back channel. Benefits of the back channel to the audience: As a presenter, the idea of presenting while people are talking about you is disconcerting. But to balance that, there are huge benefits to the individual members in audience and to the overall output of a conference or meeting.

• You don’t have to be physically present to participate
• You can connect with people
• You can do something else

The typing means you’re provoking interest These are using Digital channels to represent all the aspects of data; they share brief data which generate conversation of events. As these backchannels in digital conversations increases importance in representation of social information spaces in the chronological order. This may not provide complete details of the large scale events. To overcome from these problems we establish Visual backchannel to visualize uninterrupted updating information streams that combine three visual representations with a list of backchannel posts by means of two main types of exploratory interactivities linked brushing and cross filtering. Marian Dork Visual Back channel is combined with Topic streams, people spiral, Image cloud, list of posts (see Figure 1). The four observations, which are linked via highlighting, brushing, and filtering, are intended to provide visual photographic representation of constantly updating data. With this work, we make two contributions:

1. We propose the concept of implementing visual representation that merges representations of history and
current activities of information present in a Digital Backchannel.

2. We establish three interactive visual representations that have main points of large-scale backchannel and grant tentative One on each other a long time based on topics, and people in the context of a Visual Backchannel interface.

Figure 1. The Visual Backchannel—here shown for Twitter posts about the event visweek—consists of a) chronologically ordered list of posts b) People Spiral indicating the activity of participants, c) Image Cloud displaying shared photos. d) Topic Streams: a visualization representing topical development(e) controls for filtering and searching, f) Temporal Zooming

The rest of this paper is organized as follows. Section 2 motivates the need for Backchannels, and provides goals for our Backchannel system. Section 3 defines literature survey on the Visual Backchannels that deals with dynamic, evolving data. Section 4 explains interaction with backchannel, Section 5 outlines limitations of this work and future research directions, while Section 7 concludes the paper.

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II. MOTIVATION

Human conversation is too complex to analyses of blueprints of conversations. Within a conversation, all the complications and uncertainties of natural language present and all speakers will have their own communication characteristics. Studying these features through text dialog can be a complex job. The basic cause is the entire discussion cannot be viewed at single instance. This job can be done inconvenient if there is a way of visual representation of all this information at once through graphical patterns. Graphical patterns will see all the conversations in the social network and we can create an extract piece of artwork from the conversation takes place in a time. This visual representation, can guess that the speaker’s passion and how s/he is associated to some other speaker for the period of a conversation. This paper will discuss the different visualization techniques that are used to represent several conversations that take place with respect to current time and histories.

III. LITERATURE SURVEY

This section discusses that our work will be carried out on context of visualizing of determined conversations, experience the different informational visualizations and digital backchannels that are occurring over time.

A. Earlier techniques of Visualizing dynamic online Conversations

In the human conversation of data may well be impossible to predict the whole conversation content at an single instance so we are having research work on visualizing human communication considered its social and expressive aspects. For example, on a low level, visualizations are taken place based on the ordinary text based conversation that takes persons as an persons in the list as circles and the text conversation will be represented as link between the circles [1, 2]. On a high level, visualizing the people identity who’s presence is there in the chats and varied according to the changing of activity and structure according to the time [3, 4]. Further Visualizations on short-term [5] and long-term discussions [6, 7] can provide valuable cues about conversation activity and community patterns. Further research focuses on conversation mechanisms for structuring and ordering the display of exchanged messages that are dynamically updates with respect to the time takes place on the topics being discussed. The latter cluster visualization comes into the existences that incorporate with the history visualization. Here we enhanced research that has more attention on social and structural issue conversations in that we need to represent conversation topics in the context of the timeline implementation combined with participant’s activity and image impressions. All the previous research works either on the small and large, and high-low level, live conversations, discussions our work completely on the online conversations in SNS of web based data in clouds.

B. Representation of Event through DB

Digital backchannels can be used to represent the ongoing events. In the previous research on backchannel communication as private, informal, ephemeral, and only visible to those engaged in it, suggesting ethical and social concerns about increased persistence and visibility [8]. Later work enhanced that DB’s can used by public in case of Internet Relay Chat during academic conferences [9], and an interactive system to vote on audience questions. The advantages of a digital backchannel embrace the exchange of
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With the emergence of micro blogging, in particular through Twitter, we are witnessing a new type of backchannel that is not only for professional events, but also personal life events. Studies of Twitter posts, called ‘tweets’, through this sharing of messages on the events will be taken place [10]. Twitter has uniqueness in its accessibility, simplicity, and mobility as a platform as well as in the brief, broadcast-like, real-time, and loosely-linked nature of shared tweets [11].

Digital backchannels are used as information channels during current events. People using Twitter as an mediator for timely exchange of information [12, 13]. For example, Twitter members have actively posted reactions to an evaluation from a TV debate between the candidates in the 2008 US elections [14].

C. Topical representation in DB

![Figure 2](image2.png)

Figure 2. Representation of chronological ordered of shared information.

![Figure 3](image3.png)

Figure 3. Representation of social character of shared information.

In this section we are going to see the different techniques used to represent the topics in that the most prior work is Theme River (see fig 2,3) that can represent chronological ordered and social character of shared information uses horizontally-centred stacked graphs [15]. A recent revisit of the Theme River approach applied and adapted it to entertainment datasets and suggested new methods for ordering and colouring the streams [9]. The main drawback of these stacked graph techniques are static and lack of zooming or filtering operations. In our work we are introducing a dynamic and interactive stacked graph technique that is temporally, topically, and socially dynamic by visualizing live changing data and allowing temporal zooming and interactive filtering along topics, people, and search terms over the time. Visual representation will be of news, tags, and tweets use primarily motion to represent data change.

Still now all the visual back channel are used to represent the either of the preset or past in our work we are going to integrate current and recent and past topic changes using visual representations.

IV. INTERACTIVE EXPLORATION WITH VISUAL BACKCHANNEL

By implementing the visual backchannel is not enough to find efficiency we need to maintain the interactivity with the different aspects of the backchannel and its addition to seeing overviews, we implemented or approach to link all the remaining issues of the backchannel. Our system provides the interaction techniques to find the relationships between the aspects of backchannel regardless of topic, time periods, people participating in the event and the shared images with relevant posts. Linked brushing. Interactive exploration with brushing, whenever we moving the mouse pointer over the visual backchannel interface visualization all the participants and the chronological list of posts and the images will be changed according to the temporal values. Similarly whenever we click on the people spiral according to the user click posts, images and stacked graph will be changed it is vice versa to all aspects present in our design. Cross filtering. On the other hand of temporary relationship representation in all the aspects we can filter the necessary relations with this cross filtering. This will be maintained at the top right corner of the topic visualization interface. This filtering process will display all the selected topic as stream with an orange line according to the interest of the user and relevant people participated in that event and shared images with list of posts combined with the temporal values.

V. ENHANCED FEATURES OF VISUAL BACK CHANNEL

A. Visualization of twitter account with maximum users

With the previous work of visual representation we can also combine the visualization of the twitter account that has the maximum number of users. Here the maximum number of twitter account is find out from the analysis of number of followers and following of it. Based on the number we are going to represent it in circle form the size will going to be depends on the number of followers and label is account...
login name. A small part of this map design according to the 2011 accounts (see fig 4). Instead of representing the accounts that have maximum number of users it is better and fair to represent with respect to the number of number of tweets and their incoming links on the particular event. Here we had taken some set of account that Moritz used: @moritz_stefaner, @datavis, @infosthetics, @wiedekerh, @FILWD, @janwillemtulp, @visualisingdata, @jekukier, @mccandelish, @flowing data, @mslima, @blprnt, @pitchinteractiv, @bestiario140, @ea geryes, @feltron, @stamen, and @thewhyaxis. We looked at the 1000 latest tweets (or as many as they had if they hadn’t sent 1000) and found all the twitter accounts they mention. For each mentioned account we calculated its' support.

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The number of accounts in the original 18 that mentioned it and used that ranked list to enlarge my set to 50. The latest 1000 tweets for this larger set were retrieved and analyzed in the same way to enlarge the community to 100. I repeated this once more and used tweets from these 100 accounts to finally get a list of the top 1000. Like this we can get an large number of tweets for this so we represent this as below (see fig 5). The bigger nodes can be read off from this graph @blprnt, @moritz_stefaner, @flowingdata, @visualizing data, @janwillemtulp, @infosthetics, @golan, @mariuswatz, @reas, @ben_fry, @brainpicker, @nytimes, @timoreilly. Many of these larger nodes are unsurprisingly, the original seed accounts we started with. The color of the node depends on the number of incoming edges the darken node is the account with maximum number of tweets.

**B. Visualizing Human Conversation**

In the online conversations one can interact with many and many can interact with one to visualize this we can take the participants as nodes and the interaction with a line having the label as message. We can represent undirected link but individual link can show the relationship between participants (fig 6 (a)). This pattern cannot visualize which speaker is interacting with whom so we are going to represent with a line with arrow mark (fig 6 (b)).

Individual line alone cannot get good visualization so we need an graphics representation between the participants.

In the above representation all the participants are represented with coloured nodes and the circles between the participants are conversation (see fig 7). The circles become smaller and less faded as they approach the target to emphasize direction of movement. The circles with decreasing size indicating large size to small size shows

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**Figure 4.** Twitter account with maximum number of users.

**Figure 5.** Top most Twitter accounts with respect to the tweets and incoming links.

**Figure 6.** (a) Undirected link, (b) Directed link.

**Figure 7.** Animated response relations.
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D. Visual representation-email transferring
Still now in our visual backchannel representation we had seen the post in the twitter according to the event happened with combination of its images, people, and stacked graph. With combination of these we can represent the E-mail transferring between the users in the twitter. This will be designed with the concept of ‘Thread arcs’ [17]. A thread is defined as a collection of individual messages related to each other by the reply function in email. In a thread, the message to which a reply is sent is called the parent of that message. Any replies to a message are called children of that message. The first message in a thread is called the root. The generational depth of a message is the number of “reply to” relationships between a message and its root. This Email representation is different from the public discussion. In the public discussion the message can be visible to all the persons in the network but in this system the reply mail will be sent to the sender which cannot be seen by anyone in the network. This follows the chronological order of list that depends on the time. The technique to make Thread arcs and the pseudo code is,

1. To make a Thread Arc
2. Sort all messages chronologically
3. Find the generation depth of each message
4. For each message
   If the message is the root message then
     Place the node at the starting position
     Don’t draw an arc
   Else
     Place the message to the right of the last message.
     If the message generation depth is odd then
       Draw an arc above the line to the message’s parent
     Else
       Draw an arc below the line to the message’s parent
     Next message

1. Visualization of emails
In the visualization of emails by thread arcs messages are connected by link called relationships. Each and every Message is associated with time and equally spaced horizontally in the order of arrival. Let us consider an example of thread arcs with six messages(see fig 9). As soon as an user send an email to the another user that must be represented with an repletion ship by the links, and there interaction while selecting the messages (see fig 10,11).

Figure9. Chronological order of the messages with incoming time periods.

We are going to calculate the newly coming stream by measuring the average time stamps of all topic occurrences from the starting of the event until the end of the present time window. In the stream graph for the user contains all the topics on which user has performed his/her actions with respect to time? The label of the stream is not the event name it was taken from the post of user and the maximum occurrence of the word in the event. To increase the effectiveness for the topic streams of max users we are assign multiple colours. The topic streams are formed by cubic Bezier curves with their control points for each curve in the stacked graph the distance between the two curves will be as stream width.

C. Topic stream for the top most users
In the previous discussion we had implemented a visual backchannel for social online live events with an concept called topic streams. In that we created an topic stream with respect to the occurrence of the event on the twitter and relevant people and their images but we haven’t see that on what type of topic the user is going to work. In this section we are going to see the extension of the topic streams in such a way that for each top most users. The methodology behind this is, we are going to create a topic stream with time on x-axis and topics on y-axis (see fig 8). After deciding the position of it we need to see the ordering of the streams. It is quite difficult to decide the arranging order of the streams between the time intervals in the past representation of topic streams we arranged both from top and bottom. Whenever we perform zooming or panning along time dimension the activity re-ordering will be takes place and we can not decide which topic has been occurred first. So, we decided to represent the steams from top to bottom. The newly coming topic will be represented at the top with the name of individual tweet.

Figure8. Top most users Robert Scoble stream graph for the year 2008 in twitter.
VI. GEOREFERENCED MICROBLOG DATA

According to Tobias Schreck and Daniel Keim Micro blogging services such as Twitter stream millions of user messages every day. With the advent of nearly ubiquitous mobile Internet access in many countries and the availability of low cost GPS sensors for end users, these messages are expected to increasingly carry geotagged information that researchers can analyze along with textual content. In 2011, in one of three mini challenges conducted as part of the IEEE VAST Challenge, Held in conjunction with the Conference on Visual Analytics Science and Technology, participating research teams were charged with analyzing about one million geo located Twitter messages to characterize a flu-like epidemic outbreak in the fictitious city of Vastopolis (www.cs.umd.edu/hcil/vastchallenge). A team from the University of Konstanz developed an interactive display that filters data by location and time. By analyzing the daily occurrence of messages. The researchers could trace the epidemic's progress based on changes in message volume at city hospitals. Figure 12a shows the main interface, which displays messages in a dot map. Investigation of message content using word clouds revealed important keywords that described symptoms of the disease such as diarrhea and pneumonia. In response to the same mini challenge, Stuttgart University researchers developed the Scatter Blog technique, shown in Figure 12b which directly embeds the most discriminative keywords in a traditional map display. The University of Konstanz system also includes automatic analysis components. As Figure 12c shows, An anomaly detection method compares message content and frequency with historic data to highlight potentially important time and space patterns. In general User feedback is needed to define the phenomena of interest. Automatic analysis can successfully detect anomalies, but users must explore and refine the underlying reasons.

VII. CONCLUSION AND FUTUREWORK

We have designed the Visual Backchannel, a interface for represent conversations of social online data in clouds around events that gives an over view to get a visual sense of large backchannel conversations over time, follow evolving representations of a live, continually changing data set, explore its temporal, topical, social, and pictorial facets. In order to visually summarize what a backchannel conversation is about and how it changes, we have introduced Topic Streams, as temporally adjustable stacked graphs, and two lightweight visualizations, People Spiral and Image Cloud that represent the authors and images of a backchannel. These three visualizations provide context for the continually...
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updated chronological post listing and are themselves continually updating and evolving. The viewer can have the ability in different types for interactive explorations to focus on events with respect to time span, participant, and/or topic of interests and provides this temporarily fading highlight according to the viewer actions.

In a continual stream of information, of visual backchannel recent and the present data has been represented with the combination of history of the data. With combination of this we had suggested an visual representation of topic streams for the top most users and top most accounts according to the number of followers and following, incoming links, and also an edge map visual representation for representation of implicit and explicit data sets, and visualization of email transferring in the twitter account on online. While we have addressed challenges of data change and development in the context of backchannels for events, we feel that there is a need for much more research on representing both the ‘now’ and ‘recent’ in changing information spaces. For this we can add additional features like’s polls, discussions, and the ability to form impromptu groups around topics of interest. Visual analytics is a frontier research topic. Combining interactive visualization with automatic data analysis affords new and exciting capabilities. And many domains would benefit from the application of this methodology to large. Complex data like that generated by social media.

VIII. REFERENCES