News Timeline: An Visual Analysis Tool for Heterogeneous Data Sources

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ABSTRACT

{**TODO: Add the abstract after complete the summary**}

Index Terms: K.6.1 [Management of Computing and Information Systems]: Project and People Management—Life Cycle; K.7.m [The Computing Profession]: Miscellaneous—Ethics

1 INTRODUCTION

Exploring heterogeneous data from different sources can be complicated and error pruning if not well dealt with hidden relationship between entities or possible data conflicts between materials. In the MC1 of VAST Challenge 2014, to extract relationship between POK and GAStech we need to extract important people from different sources of file, e.g. employee resume, email, research report, and a huge volume of news with conflits. In our design of the analysis tool News Timeline. {**TODO: Choose a better name for our tool**}, we integrate different kinds of source files into a timeline-based view, providing a quick overview for user to choose important file to focus for efficiency.

Our design mainly consists of three parts, namely resume viewer, news timeline, and email reader. {**TODO: Is this right?**} Cooperating with tools like Jigsaw and Google fusion, we can quickly extract important events and entities from massive data.

2 DESIGN PRICIPLES

{**TODO: Explain what do we concern about in our design and how did we solve them.**}

3 VISUALIZATION TOOLS

3.1 Resume reader

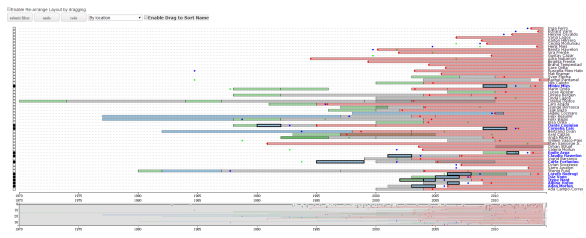

Figure 1: Resumer viewer

Resume reader is the fisrt paragraph. [1].

3.2 News timeline

{**TODO: Finish description for newstimeline.**}

3.3 Email Reader

{**TODO: Finish dealing with email reader.**}

3.3.1 Design And Overview

In MC1 we have email headers from two weeks of internal GAStech company email, we can get a social network from this data and then discover communities. For MC1, we need to reveal the connections between GAStech employees and to find suspectable clues including the subject of emails. If there is an email containing words related to POK, then we can try to find the connections between the sender of the email's community and POK. Therefore we implemented a visual analytic tool for email headers based on D3.js. The tool is easy to use and effective to discover communities.

3.3.2 Layout And User Interactions

Our tool's layout containing four components, filters, email sending and receiving timeline, email headers view, and community view. After selecting an employee through the filter, his/her email records will be depicted on the timeline, the contents of email headers will be put in the email headers view and some communities including him/her will be showed in the community view.
Users can interact with the layout both directly and indirectly, including selecting employees, filtering by keywords and limiting.

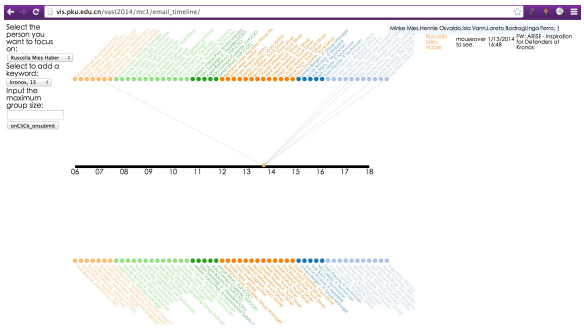

Figure 2: Email Reader

4 DATA EXPLORATION

{**TODO: Describe how do we explore data sources to extract details.**}

5 CONCLUSION

{**TODO: What do we achieve with our tool.**}

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[1]This is footnote

REFERENCES

[1] G. Grinstein, D. Keim, and M. Ward. Information visualization, visual data mining, and its application to drug design. IEEE Visualization 2002 Course #1 Notes, October 2002.

[2] G. Kindlmann. Semi-automatic generation of transfer functions for direct volume rendering. Master's thesis, Cornell University, 1999.

[3] Kitware, Inc. *The Visualization Toolkit User's Guide*, January 2003.

[4] M. Levoy. *Display of Surfaces from Volume Data*. PhD thesis, University of North Carolina at Chapel Hill, 1989.

[5] W. E. Lorensen and H. E. Cline. Marching cubes: A high resolution 3d surface construction algorithm. In *Computer Graphics (Proceedings of SIGGRAPH 87)*, volume 21, pages 163–169, July 1987.

[6] N. Max. Optical models for direct volume rendering. *IEEE Transactions on Visualization and Computer Graphics*, 1(2):99–108, June 1995.

[7] G. M. Nielson and B. Hamann. The asymptotic decider: Removing the ambiguity in marching cubes. In *Visualization '91*, pages 83–91, 1991.

[8] C. Ware. *Information Visualization: Perception for Design*. Morgan Kaufmann Publishers, second edition, 2004.