







Partnership for International Research and Education A Global Living Laboratory for Cyberinfrastructure Application Enablement

Best practices for the visualization and comprehension of Electronic Health Records:

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I. Research Overview and Outcome

Problem Statement

EHRs will eventually allow patients greater access to their health history and allow them to become active participants in their own well-being. Therefore there is a growing need for establishing good visualization practices to help developer in generating software that encourages users to look at their

Emerging Visualization Themes

Themes (Commonality)	Comments
Timelines (3)	For long term conditions, they allow the user to find patterns between spans of time and treatments/symptoms. When the data gets too large, zoom techniques are a good solution. The use of timelines is widespread.
Tree Structures (2)	The tree structure can be difficult to comprehend, but it's a fairly common way of organizing the information into topics (e.g. physical treatments, ailments, etc). This is a preferable method for physicians.
Tables/Charts (2)	Bar charts, tables, etc are not well suited for traversing large datasets, but they do give users an overview of the data which can be a guide during data exploration. Their use varies, but often the main choice when making patient oriented software.
3D (1)	3D environments are not prevalent, but are useful tool when 3D medical imagery is available. 3D imagery can be rendered in 2D interfaces, but the 3D environment can put users in a context that encourage 3D exploration of multiple datasets
Photos (1)	Medical images are commonly used, but a new trend is user-taken photos. User's take photos of activities they are engaged in. When combined with other themes, they allow the user to see what activities could

Motivation and Impact

By understanding how to effectively visualize EHR, not only will the patients comprehend meanings in the data better, but they will also be given a valuable tool is playing an active role in their health.

Conclusion and Future Work

Research into EHR visualization and interfaces is still in it's early stages as widespread hospital integration is undergoing. The Emerging Themes to the left are some of the common features available in EHR software. The most successful software systems are capable of displaying data in various formats (e.g tree or timeline). As new interaction techniques and interfaces emerge, these themes still vary, and new themes (not possible before) will surface. Further research involves implementing a system with all mentioned themes integrated.

II. International Experience

Locations in China

At every site, there's a history and many stories. Walking along unrestored areas of the Great Wall and seeing just how much it's gone through (rain, drought, trees, so on), helps one understand the dedication China had to the safety of it's people. The temple of heaven was full of rituals foreign to American culture, but we see how dedicate the king was to his people and faithfully performed his duties at the temples.

Cultural Experience

There's lots of horn honking! But, it's not an angry gesture like in America, it's just to say, "I'm here." We also learn, as Americans, we say "Thank You" and "Sorry" too excessively. It was also difficult to pay as a guest. During a dinner outing, our host told the waitress to return our money and take her money instead, and the waitress did! I wasn't offended, but humbled by the generosity, and the length they'd go to be generous.

Tsinghua University

As we got to know a few students, we realized graduate students have many things in common, even across cultures. We had our differences, some things we were jealous about, some things we were grateful to be without, and many other things to laugh about with each other. I found the University itself to have many great research labs and because they constantly post their work, I found many great research projects to look into.



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