

Visualizing Personal Histories

A Workshop, July 21-22, 1997

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Overview and Workshop Summary

Personal history records are central to decision-making in medicine, hiring, personnel reviews, life insurance, and educational admissions. These records are increasingly computerized but on-screen presentations are often more difficult to traverse than paper records. Physicians often fail to review online patient histories and bank officials reject loan applicants rather than digging into an electronic financial history. Visual overviews may enable dramatic improvements in decision-making, much as graphical user interfaces have contributed to desktop publishing, directory browsing, and air traffic control. Visual presentations of personal histories and biographies offer new research challenges in:

- temporal visualization and graphical presentation
- information coding by color, size, position, etc.
- user interface controls
- overview+detail view or focus+context design
- temporal search and browsing
- data structures and algorithms
- importing and exporting of data
- integration of image, audio, and video data
- privacy protection and data validation.

The University of Maryland Human-Computer Interaction Laboratory (HCIL) has been working on this topic for three years. Our first effort was in developing a youth history overview prototype for the Maryland Department of Juvenile Justice. This was enthusiastically received by the users and we began to explore other possibilities, especially medical patient histories.

For more information see: <http://www.cs.umd.edu/projects/hcil/Research/1997/patientrecord.html>

In order to explore the state-of-the-art in visualizing personal histories we organized a two-day workshop for researchers and advanced developers. We wanted to ensure an open atmosphere with focused interaction, and therefore limited the range of topics and number of attendees. We invited a few people we knew to be working on the topic and a notice on CHI-Announcements generated many interesting additions (see program below).

The opening talk by Nahum Gershon surveyed the broader area of information visualization. He encouraged attendees to get rid of old metaphors and expand the current “bag of tricks” with thoughtful consideration of effectiveness blended with visual excitement. Several speakers presented striking examples of historical timelines, including Priestley’s (1765) first timeline depicting the lifespan of famous figures from antiquity. Each speaker offered varied examples, showing the rich possibilities. Lively discussions ensued, on topics such as taxonomies, implementation tools, and technology transfer.

Four controversies appeared:

- 2-D vs. 3-D: many timelines are presented as 2-dimensional displays, but there were intriguing 3-dimensional examples. Problems of orientation, navigation, and occlusion seemed greater in 3-D, but many designers are at work on solutions.
- fisheye vs. hierarchical browsing: because of the large span of time in most personal histories (52 million minutes in a 100 year lifespan), some

method is needed to get an overview and to see details. The fisheye approach (context + focus) is visually appealing and currently popular, but hierarchical browsing (overview + detail) had strong support because of large zoom factors and stable displays.

- what coding methods are appropriate: Many approaches to coding temporal and other properties were shown, including, color, length, thickness, orientation, and shape. There was a strong desire for sound empirical data to guide design.
- what to do about missing and uncertain data? In many cases information is missing (e.g., allergies) or uncertain (date of vaccination). How shall designers indicate such information?

There was a strong desire for standard data formats for personal histories to coordinate development and sample cases so diverse strategies could be compared. The workshop website provides information and links: <http://www.cs.umd.edu/projects/hcil/vph.htm>

Program

Opening Speech: Information Visualization: The Next Frontier
Nahum Gershon, MITRE
<gershon@mwunix.mitre.org>

An Empirical Study Comparing LifeLines with Tabular Format
Anne Rose, University of Maryland
<rose@cs.umd.edu>

Using LifeLines for Medical Records: Data Structure Support
Catherine Plaisant, University of Maryland
<plaisant@cs.umd.edu>

Providing a usable summary for health care records: Lessons from inpatient and outpatient settings

John Karat, IBM Research
<jkarat@watson.ibm.com>

Summarizing Medical Records

Seth Powsner, Yale University
<Seth.Powsner@Yale.Edu>

Using compositional visualization methods for complex visual tasks: Automated visual presentation generation for patient medical records

Michelle Zhou, Columbia University
<zhou@cs.columbia.edu>

Priestley's Lives to Lifes Lines: With Tom's veggies as an example

Howard Wainer, Educational Testing Service
<hwainer@ets.org>

Characterizing the content and the presentation of timelines

Vijay Kumar Texas A& M University
<vijayk@bush.cs.tamu.edu>

PadWebMap: A Zooming WWW History Map

Ben Bederson, University of New Mexico
<bederson@cs.unm.edu>

The Worker Profile: Visualizing the Worker Profile at the Quebec Worker Compensation Board

Daniel Lafreniere, GESPRO Group, Quebec
<lafrenid@gespro.com>

Visualizing Student Histories in Hyper-Courseware

Kent L. Norman, University of Maryland
<kent_norman@mail.lap.umd.edu>

Overview and clustering of text-based personal narratives

Sharon Laskowski, National Institute

for Standards and Technology
<sharon@coastline.ncsl.nist.gov>

We Make Memories: A revealing personal biography
Abbe Don (In video)

Presenting Historical Biographies: The Web-Bio of David Seymour
(<http://www.icp.org/chim>)

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Organizers

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