

## **Brief Bio and (PR)<sup>2</sup>: Problems & Pitches – Rants & Raves by *Mark Gerstein***

Dear invited participant of the NSF Workshops on Knowledge Management and Visualization Tools in Support of Discovery at the National Science Foundation, Arlington, VA on March 10 & 11, 2008, see <http://vw.slis.indiana.edu/cdi2008/workshop1.html>.

In preparation for the workshop we ask you to provide a brief bio and your input to the questions below. Your input will be available to all participants and people which are “interested (but cannot attend)” before the meeting to complement the introduction of participants and to structure the workshop more effectively.

Thank you for your time.

### **Self Introduction**

Please introduce yourself by providing a

- photo of yourself  
<http://gerstein.info/a/mbg-pic/>  
particularly  
<http://gerstein.info/a/mbg-pic/smile-crop-550pix.jpg>
- brief biography of about 250 words  
<http://www.gersteinlab.org/about/short-bio.txt>
- up to five major publications  
<http://papers.gersteinlab.org/papers/structint/>  
<http://papers.gersteinlab.org/papers/nethierarchy/>  
<http://papers.gersteinlab.org/papers/sciam2/>  
<http://papers.gersteinlab.org/papers/encodepgenes/>  
<http://papers.gersteinlab.org/papers/intint/>
- link to your home page and  
<http://gerstein.info>
- links to data or software you serve (if applicable).  
<http://papers.gersteinlab.org/papers/subject/tools/>  
<http://www.gersteinlab.org/>

### **General Questions**

1) What is (are) your main interest(s) in attending the workshop?

I am interested in attending the workshop to expand my horizons on scientific visualization. Currently, I mostly know what has been done in the biomedical domain, particularly related to genomes and molecular structure. I'm, of course, also aware of impressive things happening on the web for the general public. I'm very curious on how other scientific domains have harnessed visualization and am interested in seeing if some of these approaches can be transfered to genome informatics.

2) What information/knowledge management needs do you have?

Explain your ‘dream tool’ for scientific discovery and innovation.

My dream tool for scientific discovery would be a genome visualization system that lets one browse the genome as effortlessly as one using Google maps to browse the earth. It would allow one to see the sequence as a simple linear line and also to some degree as 3D chromatin structure and as networks of molecular connections (e.g. those related to regulator and regulated). It would place annotation on the genome and inter-relate this annotation in detail with the full free text of the biomedical literature.

3) What is the most insightful visualization of static or dynamic phenomena you know?

*[Ideally this visualization led to a major discovery/innovation. Examples could come from science, art, or any other field of human endeavor. Note that we plan to use this visualization on your name card.]*

The most insightful visualization that I know about was, of course, Watson & Crick's synthesis of Franklin and Wilkins' diffraction data into an easy to comprehend 3D model and then going on to show how this could explain many of the fundamental processes of genetics. The power of this visualization, of course, stems from the fact that the 3D structure represented a real chemical entity. It also connected two disciplines -- chemistry and genetics -- with a central visual metaphor that proves useful to this day.

4) What would you like to learn / achieve at the workshop?

I would like to see various applications people have developed for large-scale visualization, particularly how they enable one to bridge between different disciplines with a central visual metaphor. My inspiration for the later is the way that the visual network metaphor allows one to bridge between such diverse concepts as protein interactions, social relationships, and electrical circuits.

***Please send the completed document by February 20th, 2008  
to Katy Borner <[katy@indiana.edu](mailto:katy@indiana.edu)> and Elisha Hardy <[efhardy@indiana.edu](mailto:efhardy@indiana.edu)>***