

# Heidi Lam

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## RESEARCH INTERESTS

- Information Visualization
- Human Computer Interaction
- Human Vision

## EDUCATION

### **Doctor of Philosophy (2004 – 2008), University of British Columbia**

- Studied the visualization of large data sets to support exploratory data analysis
- Awarded the NSERC Postgraduate Scholarship (PGS-D2, 42K CDN)
- Awarded the Killam Pre-Doctoral Fellowship (8K CDN)
- Awarded research grants from Agilent Laboratories (36K USD) and Google Inc. (50K USD)

### **Master of Applied Science (2002 – 2004), Simon Fraser University**

- Designed and implemented a medical laboratory result reporting system for handheld devices
- Graduated with an A+ average

### **Bachelor of Applied Science (1997 – 2001), Simon Fraser University**

- Systems Option, Biomedical Engineering Stream
- Designed and implemented an online discussion application as thesis
- Graduated with an A- average
- Thesis awarded with Distinction
- Awarded the NSERC Industrial Postgraduate Scholarship (41K CDN)

### **Candidate for Doctor of Medicine (1993 –1996), University of Ottawa**

- Completed three years of medical studies

### **Bachelor of Science (1989 –1993), University of British Columbia**

- Combined Honours in Biochemistry and Chemistry
- Graduated with the highest mark in the department of Biochemistry
- Awarded the NSERC Postgraduate Scholarship (PGS-A, 31K CDN)

## PROFESSIONAL EXPERIENCE

### Google Inc., Mountain View, California, USA

#### ***Software Engineer (Jul 2008 – Present)***

- Design visualization tools for data analysts at Google

#### ***Intern Student: Session Viewer Field Study (Jun – Aug 2007)***

- Designed and conducted a field study with seven data analysts to investigate Session Viewer use in analyzing real-world large web log data
- Co-authored conference paper with fellow researchers
- Presented study findings to ads quality team

#### ***Intern Student: Session Viewer (May – Aug 2006; Jan – Apr 2007)***

- Researched, designed and implemented a visualization tool to support exploratory analysis of large web log data
- Iteratively refined tool based on interviews and informal observational studies with analysts
- Discovered previously unknown findings in web usage study data using tool
- Co-authored conference paper and video with fellow researchers
- Presented study findings and demonstrated tool use to search quality project leads, to search quality and usability engineers and analysts, and in a poster session
- Worked with Java for tool implementation; SPSS for data analysis

### Agilent Laboratories, Palo Alto, California, USA

#### ***Intern Student: Line Graph Explorer (Jul – Oct 2005)***

- Researched, designed and implemented a highly scalable visualization technique to display hundreds of line-graphs produced by high-throughput measurement instruments
- Conducted a qualitative user study with biologists to evaluate the effectiveness of the prototype in chromatography data analysis
- Co-authored poster and conference paper with fellow researchers
- Presented project to research group and product team in an open-house poster session and in a project presentation session
- Worked with Java for tool implementation

### Microsoft Research, Redmond, Washington, USA

#### ***Intern Student: Summary Thumbnail (May – Aug 2004)***

- Researched, designed and implemented a visualization technique that allows viewing of desktop-sized html documents on PDA-sized displays without horizontal scrolling
- Conducted a qualitative user study to evaluate design and to collect research questions for a quantitative study
- Investigated the effectiveness of the design for everyday web information searches as compared to the Pocket IE one-column display mode, a thumbnail view, and a desktop view with a quantitative user study
- Co-authored conference paper and video with fellow researchers
- Presented project to research group and product team
- Worked with C#.NET and Flash for prototyping and study instrumentation; SPSS for data analysis

## **Neoteric Technology, Vancouver, British Columbia, Canada**

### ***Software Developer and Usability Specialist (Oct 2001 – Apr 2004)***

- Constructed user interface guidelines for desktop and mobile applications
- Specified, designed and developed desktop and mobile applications based on user requirements in the areas of laboratory sample storage and retrieval, medical laboratory test ordering, and blood unit tracking
- Assisted in the development of company website (www.dataloginternational.com)
- Worked with Visual Basic (embedded, VB6 and VB.NET), VC++, and database programming

## **Nortel Networks**

### ***Co-op Student: Preside Network Management, Richmond British Columbia, Canada (May – Dec 1999)***

- Enhanced the performance monitoring component of Nortel's Preside network management product
- Completed component, system and regression testing for the same product
- Designed and developed an internal website for new hires and co-op students
- Worked with C++, PERL and HTML
- Evaluated as highly enthusiastic, productive and an excellent team player

### ***Co-op Student: Interactive Voice Response, Toronto, Ontario, Canada (Jan – Apr 1998)***

- Designed a methodology to generate code packages as part of Nortel's Telephony solution
- Contributed to the team's function library (in C)
- Worked with UNIX, C and Oracle/SQL
- Evaluated as a quick learner with the ability to work with different groups

## **TEACHING EXPERIENCE**

### **Teacher's Assistant for Undergraduate Usability Engineering Course (ENSC 304) (Jan – Apr 2004, Jan – Apr, 2003)**

- Delivered 30-minute talks on "Designing for Small Devices" to introduce design challenges, practical solutions, and research activities in the area of small devices
- Contributed midterm questions based on the small device talks
- Assisted in midterms and assignments drafting and revisions

## PUBLICATIONS

- **Lam, H.** (2008). A Framework of Interaction Costs in Information Visualization. To appear in *IEEE Transactions on Visualization and Computer Graphics*.
- **Lam, H.** and T. Munzner, T (2008). Increasing the Utility of Quantitative Empirical Studies for Meta-analysis. In *Proceedings of the 2008 CHI Workshop on BEyond time and errors: novel evaluation methods for Information Visualization*, pp. 21-27.
- **Lam, H.**, D. Russell, D. Tang, and T. Munzner. (2007). Session Viewer: Visual Exploratory Analysis of Web Session Logs. In *Proceedings of the IEEE Symposium on Visual Analytics Science and Technology (VAST'07)*, pp. 147-154.
- **Lam, H.**, T. Munzner, and R. Kincaid (2007), Overview Use in Multiple Visual Information Resolution Interfaces. *IEEE Transactions on Visualization and Computer Graphics*, 13 (6): 1278-1283. (Paper presented at Infovis'07)
- Kincaid, R. and **H. Lam** (2006). Line Graph Explorer: Scalable Display of Line Graphs Using Focus+Context. In *Proceedings of the Workshop on Advanced Visual Interfaces (AVI'06)*, pp. 404-411.
- **Lam, H.**, R.A. Rensink, and T. Munzner (2006). Effects of 2D Geometric Transformations on Visual Memory. In *Proceedings of the 3rd Symposium on Applied Perception in Graphics and Visualization (APGV'06)*, pp. 119-126.
- **Lam, H.**, T. Munzner, and R.A. Rensink (2006). The Invariance of Visual Long-term Memory to Geometric Transformation. *Journal of Vision* 6 (6), 983a.
- **Lam, H.**, A.E. Kirkpatrick, J. Dill, and M.S. Atkins (2006). Effective Display of Medical Laboratory Report Results on Small Screens: Evaluation of Linear and Hierarchical Displays. *International Journal of Human Computer Interaction* 21 (1), 73-89.
- **Lam, H.** and P. Baudisch (2005). Summary Thumbnails: Readable Overviews for Small Screen Web Browsers. In *Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems (CHI 2005)*, pp. 681-690.
- **Lam, H.**, B. Fisher, and J. Dill (2005). A Pilot Study of CZTalk: A Graphical Tool for Collaborative Knowledge Work. In *Proceedings of the 38<sup>th</sup> Hawaii International Conference on System Sciences*, 104.3.

## POSTERS AND PRESENTATIONS

- **Lam, H.** and T. Munzner (2005). MusicLand: Exploratory Browsing in Music Space. Poster presented at *InfoVis 2005*, Minneapolis, USA.
- **Lam, H.** (1996) Clinical Study on Risk Factors of Inflammatory Breast Cancer. Presented at the Ottawa Civic Hospital, Ottawa, Canada.
- **Lam, H.** (1992) Factors Affecting Human Stem Cell Differentiation and Proliferation. Poster presented at the *Health Sciences Student Research Forum*, Vancouver, Canada.

## THESIS WORK

- **Lam, H.** (2008). Visual Exploratory Analysis of Large Data Sets: Evaluation and Application. University of British Columbia: *Doctor of Philosophy Thesis*.
- **Lam, H.** (2004). Displaying Medical Laboratory Report on Small Screens. Simon Fraser University: *Master of Applied Science Thesis*.
- **Lam, H.** (2001). From CZWeb to CZTalk: A Graphical Tool for Online Discussion. Simon Fraser University: *Bachelor of Applied Science Thesis*.
- **Lam, H.** (1993). Excess Partial Molar Enthalpies Of 1,2-Propanediol and Water In 1,2-Propanediol-Water Mixtures. University of British Columbia: *Bachelor of Science Thesis*.

## PATENTS

- Baudisch, P. and **H. Lam**. Summary Thumbnails. Published filing #20060085743.
- Kincaid, R. and **H. Lam**. Focus plus context viewing and manipulation of large collections of graphs. Published filing #20060028471.

## GENERAL INTERESTS AND ACTIVITIES

- Obtained the Licentiate Performer Certificate for Pianoforte from the Trinity College of Music, London, England in May 1996
- Served at the Cancer Information Line to answer questions from the general public regarding cancer for one year in 1993
- Enjoy reading history, science, and literature

## REFERENCES

- Available upon request