

Bongshin Lee

Computational User Experiences Group
Visualization and Interaction Research Area
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RESEARCH INTERESTS

Human-Computer Interaction

Information Visualization

- Visualization for Interactive Machine Learning
- Tree/Graph Visualization
- Bioinformatics Visualization
- Uncertainty Visualization
- Visual Analytics

User Interfaces and Interaction Techniques

- Mobile User Interfaces and Interaction
- Mobile Visual Analytics
- User Interfaces for Entertainment
- User Interfaces for Healthcare

EDUCATION

May 06 **Ph.D.**, Computer Science, University of Maryland, College Park, MD
Dec. 02 **M.S.**, Computer Science, University of Maryland, College Park, MD
Feb. 98 **M.S.**, Computer Science, Yonsei University, Seoul, Korea
Feb. 96 **B.S.**, Computer Science, Yonsei University, Seoul, Korea
Magna Cum Laude

WORK EXPERIENCE

Jul. 06 – **Microsoft Research, WA**
Researcher, Computational User Experiences (CUE) Group,
Visualization and Interaction (VIBE) Research Area
Current Manager: Desney S. Tan
Former Managers: George Robertson and Mary Czerwinski

- Jun. 02 – May 06 **University of Maryland, College Park, MD**
 Graduate Research Assistant
 Human-Computer Interaction Lab (HCIL), Computer Science Department
 Advisor: Benjamin B. Bederson
- May 04 – Aug. 04 **Microsoft Research, WA**
 Research Intern, Visualization and Interaction Research Group
 Mentors: Mary Czerwinski and George Robertson
- Jun. 03 – Aug. 03 **Microsoft Research, WA**
 Research Intern, Visualization and Interaction Research Group
 Mentor: Patrick Baudisch
- Jun. 01 – Aug. 01 **Telcordia Technologies, Inc., NJ**
 Summer Intern, Information Services Research Group
 Mentor: John R. Wullert II
- Nov. 99 – Jul. 00 **Inzoo Network, Seoul, Korea**
 Software Engineer
- Mar. 98 – May 99 **Datawave System, Inc., Seoul, Korea**
 Software Engineer
- Mar. 96 – Feb. 98 **Yonsei University, Seoul, Korea**
 Graduate Research Assistant
 Multimedia/Graphics Lab, Computer Science Department
 Advisor: Yoon-Chul Choy

TEACHING EXPERIENCE

- Spring 2007 Instructor, Microsoft, Redmond, WA
 Advanced **Korean**
- Aug. 00 – May 02 Teaching Assistant, University of Maryland, College Park, MD
C++ Programming, Human-Computer Interaction, and Developing User Interfaces
[\[Teaching Excellence Award for Graduate Teaching Assistant\]](#)
- Jun. 00 Instructor, Samsung Cutting-edge Technology Research Center, Kyunggi, Korea
MFC Programming and ATL/COM Programming
- Sep. 96 – Aug. 97 Teaching Assistant, Yonsei University, Seoul, Korea
C++ Programming
- May 97 Instructor, Samsung Cutting-edge Technology Research Center, Kyunggi, Korea
MFC Programming
- Jun. 96 Instructor, Samsung Information Technology Academy, Seoul, Korea
Visual Basic Programming

AWARDS AND FELLOWSHIPS

Apr. 08	Gold Star Bonus Award Microsoft Research, Redmond, WA
May 05	Department Award (in recognition of the First Place Tie IEEE InfoVis Contest 2004) Computer Science Department, University of Maryland, College Park, MD
Dec. 04	Finalist, Microsoft Graduate Fellowship 2005-2006
Aug. 04	1 st place in IEEE InfoVis Contest 2004
May 01	Teaching Excellence Award for Graduate Teaching Assistant Computer Science Department, University of Maryland, College Park, MD
Mar. 96 – Feb. 98	Industry Academic Liaison Scholarship LG Electronics Inc., Seoul, Korea
Nov. 94	3 rd place in Samsung Myungin-jun, Software Competition Samsung Electronics Co. Ltd., Seoul, Korea
Sep. 94, Sep. 93	Top Student Prize Computer Science Department, Yonsei University, Seoul, Korea
Mar. 93 – Feb. 96	Jongha Scholarship Jongha Scholarship Foundation, Seoul, Korea
Sep. 92	Undergraduate Scholarship Computer Science Department, Yonsei University, Seoul, Korea

PUBLICATIONS

Book chapters

Robertson, G.G., Czerwinski, M., Fisher, D., Lee, B. (2009) **Selected Human Factors Issues in Information Visualization**, *Reviews of Human Factors and Ergonomics, Volume 5*, To appear.

Peer-reviewed journal papers

Dwyer, T., Lee, B., Fisher, D., Quinn, K.I., Isenberg, P., Robertson, G., and North, C. (2009) **A Comparison of User-Generated and Automatic Graph Layouts**, *IEEE TVCG (InfoVis 2009)*, Vol. 15, No. 6, pp. 961-968.

Kim, B., Lee, B., Knoblach, S., Hoffman, E., and Seo, J. (2009) **GeneShelf: A Web-based Visual Interface for Large Gene Expression Time-Series Data Repositories**, *IEEE TVCG (InfoVis 2009)*, Vol. 16, No. 6, pp. 905-912.

Lee, B., Nachmanson, L., Robertson, G., Carlson, J.M., and Heckerman, D. (2009) **PhyloDet: A Scalable Visualization Tool for Mapping Multiple Traits to Large Evolutionary Trees**, *Bioinformatics*, Vol. 25, No. 19, pp. 2611-2612. (Applications Note)

Skeels, M., Lee, B., Smith, G., Robertson, G.G. (2009) **Revealing Uncertainty for Information Visualization**, *Information Visualization*, Accepted for publication. (Extended version of the AVI paper)

Robertson, G.G., Fernandez, R., Fisher, D., Lee, B., Stasko, J. (2008) **Effectiveness of Animation in Trend Visualization**, *IEEE TVCG (InfoVis 2008)*, Vol. 14, No. 6, pp. 1325-1332.

Kuntzen, T., Timm, J., Berical, A., Lennon, N., Berlin, A.M., Young, S.K., Lee, B., Heckerman, D., Carlson, J., Reyor, L.L., Kleyman, M., McMahon, C.M., Birch, C., zur Wiesch, J.S., Ledlie, T., Koehrsen, M., Kodira, C., Roberts, A.D., Lauer, G.M., Rosen, H.R., Bihl, F., Cerny, A., Spengler, U., Liu, Z., Kim, A.Y., Xing, Y., Schneidewind, A., Madey, M.A., Fleckenstein, J.F., Park, V.M., Galagan, J.E., Nusbaum, C., Walker, B.D., Lake-Bakaar, G.V., Daar, E.S., Jacobson, I.M., Gomperts, E.D., Edlin, B.R., Donfield, S.M., Chung, R.T., Talal, A.H., Marion, T., Birren, B.W., Henn, M.R., and Allen, T.M. (2008) **Naturally occurring dominant resistance mutations to HCV protease and polymerase inhibitors in treatment-naïve patients**, *Hepatology*, Vol. 48, No. 6, pp. 1769-1778.

Lee, B., Brown, K., Hathout, Y., Seo, J. (2008) **GOTreePlus: An Interactive Gene Ontology Browser**, *Bioinformatics*, Vol. 24, No. 7, pp. 1026-1028. (Applications Note)

Lee, B., Robertson, G.G., Czerwinski, M., Parr, C.S. (2007) **CandidTree: Visualizing Structural Uncertainty in Similar Hierarchies**, *Information Visualization*, Vol. 6, pp. 233-246. (Extended version of the Interact paper)

Tan, D.S., Smith, G., Lee, B., Robertson, G.G. (2007) **AdaptiviTree: Adaptive Tree Visualization for Tournament-Style Brackets**, *IEEE TVCG (InfoVis 2007)*, Vol. 13, No. 6, pp. 1113-1120.

Kim, B., Lee, B., Seo, J. (2007) **Visualizing Set Concordance with Permutation Matrix and Fan Diagram**, *Interacting with Computers*, Vol. 19, No. 5-6, pp. 630-643.

Parr, C.S., Lee, B., Bederson, B.B. (2007) **EcoLens: Integration and Interactive Visualization of Ecological Datasets**, *Ecological Informatics*, Vol. 2, No. 1, pp. 61-69.

Kang, H., Plaisant, C., Lee, B., Bederson, B.B. (2007) **NetLens: Iterative Exploration of Content-Actor Network Data**, *Information Visualization Special Issue on Visual Analytics*, Vol. 6, pp. 18-31. (Extended version of the VAST paper)

Lee, B., Parr, C.S., Plaisant, C., Bederson, B.B., Veksler, V.D., Gray, W.D., Kotfila, C. (2006) **TreePlus: Interactive Exploration of Networks with Enhanced Tree Layouts**, *IEEE TVCG Special Issue on Visual Analytics*, Vol. 12, No. 6, pp. 1414-1426.

Herrnson, P.S., Bederson, B.B., Lee, B., Francia, P.L., Sherman, R.M., Conrad, F.G., Traugott, M., Niemi, R.G. (2005) **Early Appraisals of Electronic Voting**, *Social Science Computer Review*, Vol. 23, No. 3, pp. 274-292.

Parr, C.S., Lee, B., Campbell, D., Bederson, B.B. (2004) **Visualizations for Taxonomic and Phylogenetic Trees**, *Bioinformatics*, Vol. 20, No. 17, pp. 2997-3004.

Lee, B., Lee, K.-H., Ko, S.-K., Choy, Y.-C. (1999) **Design and Implementation of Indexing and Query Languages for an Efficient Retrieval of SGML Documents**, *Journal of the Korea Information Processing Society*, Vol. 6, No. 12.

Peer-reviewed conference papers

Smith, G., Tan, D., Lee, B. (2009) **iSee: Interactive Scenario Explorer for Online Tournament Games**, *Proceedings of ACE 2009*.

Paek, T., Lee, B., Thiesson, B. (2009) **Designing Phrase Builder: A Mobile Real-Time Query Expansion Interface**, *Proceedings of MobileHCI 2009*.

North, C., Dwyer, T., Lee, B., Fisher, D., Isenberg, P., Robertson, G., Inkpen, K. (2009) **Understanding Multi-touch Manipulation for Surface Computing**, *Proceedings of Interact 2009, LNCS*, Vol. 5727, pp. 236-249.

Lee, B., Smith, G., Robertson, G., Czerwinski, M., Tan, D.S. (2009) **FacetLens: Exposing Trends and Relationships to Support Sensemaking within Faceted Datasets**, *Proceedings of CHI 2009*, pp. 1293-1302.

Talbot, J., Lee, B., Kapoor, A., Tan, D.S. (2009) **EnsembleMatrix: Interactive Visualization to Support Machine Learning with Multiple Classifiers**, *Proceedings of CHI 2009*, pp. 1283-1292.

Paek, T., Thiesson, B., Ju, Y.C., Lee, B. (2008) **Search Vox: Leveraging Multimodal Refinement and Partial Knowledge for Mobile Voice Search**, *Proceedings of UIST 2008*, pp. 141-150.

Skeels, M., Lee, B., Smith, G., Robertson, G.G. (2008) **Revealing Uncertainty for Information Visualization**, *Proceedings of AVI 2008*, pp. 376-379. (short paper)

Robbins, D.C., Lee, B., Fernandez, R. (2008) **TapGlance: Designing a Unified Smartphone Interface**, *Proceedings of DIS 2008*, pp. 386-394.

Nachmanson, L., Robertson, G., Lee, B. (2007) **Drawing Graphs with GLEE**, *Proceedings of GD 2007, LNCS*, Vol. 4875, pp. 389-394. (short paper)

Lee, B., Robertson, G.G., Czerwinski, M., Parr, C.S. (2007) **CandidTree: Visualizing Structural Uncertainty in Similar Hierarchies**, *Proceedings of Interact 2007, LNCS*, Vol. 4663, pp. 250-263.

Kang, H., Plaisant, C., Lee, B., Bederson, B.B. (2006) **NetLens: Iterative Exploration of Content-Actor Network Data**, *Proceedings of VAST 2006*, pp. 91-98. [[Invited to a special issue of *Information Visualization*](#)]

Lee, B., Czerwinski, M., Robertson, G., Bederson, B.B. (2005) **Understanding Research Trends in Conferences using PaperLens**, *Extended Abstracts of CHI 2005*, pp. 1969-1972. (short paper)

Baudisch, P., Lee, B., Hanna, L. (2004) **Fishnet, a fisheye web browser with search term popouts: a comparative evaluation with overview and linear view**, *Proceedings of AVI 2004*, pp. 133-140.

Lee, B., Parr, C.S., Campbell, D., Bederson, B.B. (2004) **How Users Interact with Biodiversity Information Using TaxonTree**, *Proceedings of AVI 2004*, pp. 320-327.

Bederson, B.B., Lee, B., Sherman, R.M., Herrnson, P.S., Niemi, R.G. (2003) **Electronic Voting System Usability Issues**, *Proceedings of CHI 2003*, pp. 145-152. [[Top 10 Downloads from ACM DL in October 2004](#)]

Wullert II, J.R., Basu, C., Lee, B. (2002) **Searching and Navigating Document Collections using Voice Access**, *Proceedings of AVIOS 2002*, pp. 349-356.

Lee, B., Choy, Y.-C. (1997) **An Information Retrieval System for Structured Documents**, *Proceedings of the Korea Information Science Society Fall Conference*, pp. 357-360.

Ko, Y., Lee, B., Choy, Y.-C. (1997) **An Implementation of SGML Parser using Multiple LALR(1) Parsing Table**, *Proceedings of the Korea Information Science Society Spring Conference*, pp. 73-76.

Peer-reviewed workshop/demo/poster/video papers

Venolia, G., Tang, J., Cervantes, R., Bly, S., Robertson, G., Lee, B., Inkpen, K., and Drucker, S. (2010) **Embodied Social Proxy: Connecting Hub-and-Satellite Teams**, To appear in *CSCW 2010 Conference Supplement*. (video)

Lee, B., Parr, C.S., Plaisant, C., Bederson, B.B. (2006) **TreePlus: Visualizing Graphs as Trees**, *Posters/Videos Compendium of InfoVis 2006*, pp. 184-185. (video)

Kim, B., Lee, B., Seo, J. (2006) **Visualizing Set Concordance with Permutation Matrix and Fan Diagram**, *Posters/Videos Compendium of InfoVis 2006*, pp. 142-143. (poster)

Kang, H., Plaisant, C., Lee, B., Bederson, B.B. (2006) **Exploring Content-Actor Paired Network Data using Iterative Query Refinement with NetLens**, *Proceedings of JCDL 2006*, pp. 372. (demo)

Lee, B., Plaisant, C., Parr, C.S., Fekete, J.-D., Henry, N. (2006) **Task Taxonomy for Graph Visualization**, *Proceedings of the AVI 2006 Workshop BELIV'06*, pp. 81-85.

Lee, B., Parr, C.S., Plaisant, C., Bederson, B.B. (2005) **Visualizing Graphs as Trees: Plant a seed and watch it grow**, *Proceedings of GD 2005, LNCS*, Vol. 3843, pp. 516-518. (poster)

Lee, B., Czerwinski, M., Robertson, G., Bederson, B.B. (2004) **Understanding Eight Years of InfoVis Conferences using PaperLens**, *Posters Compendium of InfoVis 2004*, pp. 53-54. (poster) [[Winner of InfoVis Contest](#)]

Lee, B., Bederson, B.B. (2003) **Favorite Folders: A Configurable, Scalable File Browser**, *UIST 2003 Conference Supplement*, pp. 45-46. (demo)

Technical reports

Lee, B., Nachmanson, L., Robertson, G., Carlson, J., Heckerman, D. (2008) **Det. (Distance Encoded Tree): A Scalable Visualization Tool for Mapping Multiple Traits to Large Evolutionary Trees**, Tech Report MSR-TR-2008-97, Microsoft Research, Redmond, WA.

Kim, B., Lee, B., Seo, J. (2006) **Visualizing Concordance of Sets**, Tech Report HCIL-2006-07, Human-Computer Interaction Lab, University of Maryland, College Park, MD.

Lee, B., Czerwinski, M., Robertson, G., Bederson, B.B. (2005) **Understanding Research Trends in Conferences using PaperLens**, Tech Report HCIL-2004-34, CS-TR-4719, UMIACS-TR-2005-27, Human-Computer Interaction Lab, Computer Science Department, University of Maryland, College Park, MD.

Parr, C.S., Lee, B., Campbell, D., Bederson, B.B. (2003) **TaxonTree: Visualizing Biodiversity Information**, Tech Report HCIL-2003-40, CS-TR-4678, Human-Computer Interaction Lab, Computer Science Department, University of Maryland, College Park, MD.

Lee, B., Bederson, B.B. (2003) **Favorite Folders: A Configurable, Scalable File Browser**, Tech Report HCIL-2003-12, CS-TR-4468, UMIACS-TR-2003-38, Human-Computer Interaction Lab, Computer Science Department, University of Maryland, College Park, MD.

Patents

21 patents are pending.

Etc

Lee, B. (2006) **Interactive Visualizations for Trees and Graphs**, Ph.D. Dissertation, University of Maryland, College Park, MD.

Lee, B. (2004) **A Tree Layout Approach to Graph Visualization**, Ph.D. Proposal, University of Maryland, College Park, MD.

Parr, C.S., Lee, B., Campbell, D., Bederson, B.B. (2002) **Tree Browsing: Visualizing Biodiversity Information**, Biosciences Day poster presentation, University of Maryland, College Park, MD

Lee, B. (1998) **A Retrieval of SGML Document Based on User Defined Document Model**, M.S. Thesis, Yonsei University, Seoul, Korea

PROFESSIONAL SERVICE

Conference Committee: CHI 2009 Print Publications Co-Chair, CHI 2008 Print Publications Co-Chair, InfoVis 2009 Discovery Exhibition Co-Chair, InfoVis 2008 Contest Co-Chair, InfoVis 2009 Program Committee, InfoVis 2008 Program Committee, IVAPP 2010 Program Committee, VISUAL 2007 Program Committee

Reviewer: IEEE TVCG, IVS, IJHCS, JASIST, CHI 2010, CHI 2009, CHI 2008, CHI 2007, InfoVis 2009, InfoVis 2008, InfoVis 2007, InfoVis 2006, InfoVis 2004, UIST 2008, UIST 2007, UIST 2006, UIST 2003 (posters), AVI 2006, VISUAL 2007, Pervasive 2007 (posters)

Made “Classification Datasets” available for IEEE InfoVis Contest 2003: Visualization and pairwise comparisons of trees

Microsoft Research (MSR) Redmond Worldwide Intern Program (WIP) Technical Sponsor for Korean Interns, Apr. 2009 –

PROFESSIONAL MEMBERSHIP

Association for Computing Machinery (ACM)

Institute of Electrical and Electronics Engineers (IEEE)

SKILLS

Languages/Tools: **C#**, **C/C++**, Java, Java Servlet, JSP, Perl, CGI, ASP, VB/Java Script, Pascal, Basic, Python, **Visual Studio .NET**, **Visual C++ (MFC)**, Eclipse, Embedded Visual C++, Microsoft Expression Blend, Visual Basic, Flash, Macromedia Director

Operating System: Windows 7, Vista, Windows 98/ME/2000/NT/XP, UNIX, Linux, DOS

Database: Oracle, Microsoft SQL Server, MySQL, mSQL, PostgreSQL, Microsoft Access

Other: **WPF**, **Silverlight**, Piccolo, SGML/XML, VoiceXML, ActiveX, COM, SQL, Win32 API, HTML, CSS, OpenGL, VRML, Microsoft Transaction Server

REFERENCES

Available upon request.