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RESEARCH INTERESTS

Information Visualization and Visual Analytics

- Personal Data Visualization
- Data-Driven Storytelling
- Pen- and Touch-based Data Exploration and Presentation
- Mobile Information Visualization

Human-Computer Interaction

- Self-monitoring
- Machine Teaching
- Mobile User Interfaces and Interaction
- 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**
Senior Researcher
Current Manager: Ken Kinckley
Former Managers:
Kori Inkpen, Desney S. Tan, George Robertson, and Mary Czerwinski

- Nov. 14 – Aug. 15 **Seoul National University**, Seoul, Korea
Adjunct Professor
Department of Computer Science and Engineering, College of Engineering
- 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 (VIBE) Group
Mentors: Mary Czerwinski and George Robertson
- Jun. 03 – Aug. 03 **Microsoft Research**, WA
Research Intern, Visualization and Interaction Research (VIBE) 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

- Winter 2016 Instructor, Seoul National University, Seoul, Korea
Foundations in **Human-Computer Interaction**
(Co-taught with Prof. Eun Kyoung Choe from Pennsylvania State University)
- Winter 2015 Instructor, Yonsei University, Seoul, Korea
Human-Computer Interaction and Design Thinking
(Co-taught with Prof. Eun Kyoung Choe from Pennsylvania State University)
- 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

Jun. 2017 IDC 2017 Best Paper Nominee (for Plan & Play)
ACM IDC

Jun. 2016 Distinguished Contribution (for ModelTracker)
Spring 2016 MLADS, Microsoft, Redmond, WA

Apr. 2015 PacificVis 2015 Best Paper Award (for SketchInsight)
IEEE PacificVis

Apr. 2014 CHI 2014 Honorable Mention Paper (for Understanding Quantified-Selfers)
ACM SIGCHI

Nov. 2013 AMIA 2013 Student Paper Competition Finalist (for Performance Feedback)
AMIA

Nov. 2012 ITS 2012 Best Paper Nominee (for TouchWave)
ACM ITS

May 2011 CHI 2011 Honorable Mention Paper (for CueT)
ACM SIGCHI

May 2011 CHI 2011 Honorable Mention Paper (for Copy-Aware Computing Ecosystem)
ACM SIGCHI

Jun. 2010 Golden Volcano Award, Engineering Forum Pavilion (for AllocRay)
Microsoft, Redmond, WA

Mar. 2010 Thought Leadership Award, Productivity Science Fair
(for Copy-Aware Computing Ecosystem)
Microsoft, Redmond, WA

Apr. 2008 Gold Star Bonus Award
Microsoft Research, Redmond, WA

May 2005	Department Award (in recognition of the First Place Tie IEEE InfoVis Contest 2004) Computer Science Department, University of Maryland, College Park, MD
Dec. 2004	Finalist, Microsoft Research PhD Fellowship 2005-2006
Aug. 2004	1 st place in IEEE InfoVis Contest 2004
May 2001	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

Isenberg, P., Lee, B., Qu, H., Cordeil, M. (2018) **Immersive Visual Data Stories**, *Immersive Analytics*, Springer, In press.

Lee, B., Dwyer, T., Baur, D., Veira, X.G. (2018) **Watches to Augmented Reality: Devices and Gadgets for Data-Driven Storytelling**, *Data-Driven Storytelling*, CRC Press, 135–149.

Stolper, C.D., Lee, B., Henry Riche, N., Stasko, J. (2018) **Data-Driven Storytelling Techniques: Analysis of a Curated Collection of Visual Stories**, *Data-Driven Storytelling*, CRC Press, 85–105.

Chevalier, F., Tory, M., Lee, B., Dörk, M., van Wijk, J., Santucci, G., Hullman, J. (2018) **From Analysis to Communication: Supporting the Lifecycle of a Story**, *Data-Driven Storytelling*, CRC Press, 151–183.

Borgo, R., Lee, B., Bach, B., Fabrikant, S., Jianu, R., Kerren, A., Kobourov, S., McGee, F., Micallef, L., von Landesberger, T., Ballweg, K., Diehl, S., Simonetto, P., Zhou, M. (2017) **Crowdsourcing for Information Visualization: Promises and Pitfalls**, *Evaluation in the Crowd. Crowdsourcing and Human-Centered Experiments: Dagstuhl Seminar 15481*, Springer, 109–155.

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*, 41–81.

Peer-reviewed journal papers

Choe, E.K., Lee, B., Andersen, T.O., Wilcox, L., Fitzpatrick, G. (2018) **Harnessing the Power of Patient-Generated Data**, *IEEE Pervasive Computing*, In press. (Conferences)

Borgo, R., Micallef, L., Bach, B., McGee, F., Lee, B. (2018) **Information Visualization Evaluation using Crowdsourcing**, *Computer Graphics Forum (EuroVis 2018 STAR)*, Accepted for publication.

Kim, Y.-H., Jeon, J.H., Lee, B., Choe, E.K., Seo, J. (2017) **OmniTrack: A Flexible Self-Tracking Approach Leveraging Semi-Automated Tracking**, *PACM IMWUT (UbiComp 2017)*, 1 (3), Article No. 67.

Ren, D., Lee, B., Höllerer, T. (2017) **Stardust: Accessible and Transparent GPU Support for Information Visualization Rendering**, *Computer Graphics Forum (EuroVis 2017)*, 36 (3), 179–188.

McKenna, S., Henry Riche, N., Lee, B., Boy, J., Meyer, M. (2017) **Visual Narrative Flow: Exploring Factors Shaping Data Visualization Story Reading Experiences**, *Computer Graphics Forum (EuroVis 2017)*, 36 (3), 377–387.

Brehmer, M., Lee, B., Bach, B., Henry Riche, N., Munzner, T. (2017) **Timelines Revisited: A Design Space and Considerations for Expressive Storytelling**, *IEEE TVCG*, 23 (9), 2151–2164.

Thudt, A., Lee, B., Choe, E.K., Carpendale, S. (2017) **Expanding Research Methods for a Realistic Understanding of Personal Visualization**, *IEEE CG&A*, 37 (2), 12–18. (Visualization Viewpoints)

Choe, E.K., Abdullah, S., Rabbi, M., Thomaz, E., Epstein, D.A., Kay, M., Cordeiro, F., Abowd, G.D., Choudhury, T., Fogarty, J., Lee, B., Matthews, M., Kientz, J.A. (2017) **Semi-Automated Tracking: A Balanced Approach for Self-Monitoring Applications**, *IEEE Pervasive Computing*, 16 (1), 74–84.

Ren, D., Amershi, S., Lee, B., Suh, J., Williams, J.D. (2017) **Squares: Supporting Interactive Performance Analysis for Multiclass Classifiers**, *IEEE TVCG (VAST 2016)*, 23 (1), 61–70.

Amini, F., Henry Riche, N., Lee, B., Monroy-Hernández, A., Irani, P. (2017) **Authoring Data-Driven Videos with DataClips**, *IEEE TVCG (InfoVis 2016)*, 23 (1), 501–510.

Edge, D., Yang, X., Kotturi, Y., Wang, S., Feng, D., Lee, B., Drucker, S. (2016) **SlideSpace: Heuristic Design of a Hybrid Presentation Medium**, *ACM ToCHI*, 23 (3), 16:1–16:30.

Jo, J., Lee, B., Seo, J. (2015) **WordlePlus: Expanding Wordle’s Use through Natural Interaction and Animation**, *IEEE CG&A Special Issue on Human-Centered Data Visualization*, 35 (6), 20–28.

Lee, B., Henry Riche, N., Isenberg, P., Carpendale, S. (2015) **More than Telling a Story: Transforming Data into Visually Shared Stories**, *IEEE CG&A*, 35 (5), 84–90. (Visualization Viewpoints) [[Noted in the Magazine Roundup section of the *IEEE ComputingEdge*](#)]

Choe, E.K., Lee, B., schraefel, m.c. (2015) **Characterizing Visualization Insights from Quantified-Selfers’ Personal Data Presentations**, *IEEE CG&A Special Issue on Personal Visualization and Visual Analytics*, 35 (4), 28–37.

Morris, M.R., Danielescu, A., Drucker, S., Fisher, D., Lee, B., schraefel, m.c., Wobbrock, J.O. (2014) **Stuck in a Rut: Reducing Legacy Bias in Gesture Elicitation Studies**, *ACM Interactions*, 21 (3), 40–45.

- Lee, B., Kazi, R.H., Smith, G. (2013) **SketchStory: Telling More Engaging Stories with Data through Freeform Sketching**, *IEEE TVCG (InfoVis 2013)*, 19 (12), 2416–2425.
- Hullman, J., Drucker, S., Henry Riche, N., Lee, B., Fisher, D., Adar, E. (2013) **A Deeper Understanding of Sequence in Narrative Visualization**, *IEEE TVCG (InfoVis 2013)*, 19 (12), 2406–2415.
- Isenberg, P., Isenberg, T., Hesselmann, T., Lee, B., von Zadow, U., Tang, A. (2013) **Data Visualization on Interactive Surfaces: A Research Agenda from the DEXIS Workshop**, *IEEE CG&A*, 33 (2), 16–24. (Visualization Viewpoints)
- Lee, B., Isenberg, P., Henry Riche, N., Carpendale, S. (2012) **Beyond Mouse and Keyboard: Expanding Design Considerations for Information Visualization Interactions**, *IEEE TVCG (InfoVis 2012)*, 18 (12), 2689–2698.
- Walny, J., Lee, B., Johns, P., Henry Riche, N., Carpendale, S. (2012) **Understanding Pen and Touch Interaction for Data Exploration on Interactive Whiteboards**, *IEEE TVCG (InfoVis 2012)*, 18 (12), 2779–2788.
- Kandel, S., Heer, J., Plaisant, C., van Ham, F., Henry Riche, N., Weaver, C., Lee, B., Brodbeck, D., Buono, P. (2011) **Research Directions for Data Wrangling: Visualizations and Transformations for Usable and Credible Data**, *Information Visualization*, 10, 271–288.
- Lee, B., Henry Riche, N., Karlson, A.K., Carpendale, S. (2010) **SparkClouds: Visualizing Trends in Tag Clouds**, *IEEE TVCG (InfoVis 2010)*, 16 (6), 1182–1189.
- Koh, K., Lee, B., Kim, B., Seo, J. (2010) **ManiWordle: Providing Flexible Control over Wordle**, *IEEE TVCG (InfoVis 2010)*, 16 (6), 1190–1197.
- Henry Riche, N., Lee, B., Plaisant, C. (2010) **Understanding Interactive Legends: A Comparative Evaluation with Standard Widgets**, *Computer Graphics Forum (EuroVis 2010)*, 29 (3), 1193–1202.
- Skeels, M., Lee, B., Smith, G., Robertson, G.G. (2010) **Revealing Uncertainty for Information Visualization**, *Information Visualization*, 9 (1), 70–81. (Extended version of the AVI paper)
- Dwyer, T., Lee, B., Fisher, D., Quinn, K.I., Isenberg, P., Robertson, G., North, C. (2009) **A Comparison of User-Generated and Automatic Graph Layouts**, *IEEE TVCG (InfoVis 2009)*, 15 (6), 961–968.
- Kim, B., Lee, B., Knoblach, S., Hoffman, E., Seo, J. (2009) **GeneShelf: A Web-based Visual Interface for Large Gene Expression Time-Series Data Repositories**, *IEEE TVCG (InfoVis 2009)*, 15 (6), 905–912.
- Lee, B., Nachmanson, L., Robertson, G., Carlson, J.M., Heckerman, D. (2009) **PhyloDet: A Scalable Visualization Tool for Mapping Multiple Traits to Large Evolutionary Trees**, *Bioinformatics*, 25 (19), 2611–2612. (Applications Note)
- Robertson, G.G., Fernandez, R., Fisher, D., Lee, B., Stasko, J. (2008) **Effectiveness of Animation in Trend Visualization**, *IEEE TVCG (InfoVis 2008)*, 14 (6), 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., Allen, T.M. (2008) **Naturally Occurring Dominant Resistance Mutations to HCV Protease and Polymerase Inhibitors in Treatment-naïve Patients**, *Hepatology*, 48 (6), 1769–1778.

Lee, B., Brown, K., Hathout, Y., Seo, J. (2008) **GOTreePlus: An Interactive Gene Ontology Browser**, *Bioinformatics*, 24 (7), 1026–1028. (Applications Note)

Lee, B., Robertson, G.G., Czerwinski, M., Parr, C.S. (2007) **CandidTree: Visualizing Structural Uncertainty in Similar Hierarchies**, *Information Visualization*, 6, 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)*, 13 (6), 1113–1120.

Kim, B., Lee, B., Seo, J. (2007) **Visualizing Set Concordance with Permutation Matrix and Fan Diagram**, *Interacting with Computers*, 19 (5-6), 630–643.

Parr, C.S., Lee, B., Bederson, B.B. (2007) **EcoLens: Integration and Interactive Visualization of Ecological Datasets**, *Ecological Informatics*, 2 (1), 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*, 6, 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*, 12 (6), 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*, 23 (3), 274–292.

Parr, C.S., Lee, B., Campbell, D., Bederson, B.B. (2004) **Visualizations for Taxonomic and Phylogenetic Trees**, *Bioinformatics*, 20 (17), 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**, *J. KIPS*, 6 (12). (in Korean)

Peer-reviewed conference/workshop papers

Amini, F., Henry Riche, N., Lee, B., Leboe-Mcgowen, J., Irani, P. (2018) **Hooked on Data Videos: Assessing the Effects of Animation and Pictographs on Viewer Engagement**, *Proc. AVI 2018*, to appear.

Srinivasan, A., Brehmer, M., Lee, B., Drucker, S. (2018) **What's the Difference?: Evaluating Variations of Multi-Series Bar Charts for Visual Comparison Tasks**, *Proc. CHI 2018*, Paper No. 304.

Luo, Y., Lee, B., Wohn, D.Y., Rebar, A., Conroy, D., Choe, E.K. (2018) **Time for Break: Understanding Information Workers' Sedentary Behavior Through a Break Prompting System**, *Proc. CHI 2018*, Paper No. 127.

- Hiniker, A., Lee, B., Kientz, J., Radesky, J. (2018) **Let's Play!: Digital and Analog Play between Preschoolers and Parents**, *Proc. CHI 2018*, Paper No. 659.
- Hiniker, A., Lee, B., Sobel, K., Choe, E.K. (2017) **Plan & Play: Supporting Intentional Media Use in Early Childhood**, *Proc. IDC 2017*, 85–95. [\[Best Paper Nominee\]](#)
- Choe, E.K., Lee, B., Zhu, H., Henry Riche, N., Baur, D. (2017) **Understanding Self-Reflection: How People Reflect on Personal Data Through Visual Data Exploration**, *Proc. PervasiveHealth 2017*, 173–182.
- Jo, J., L'Yi, S., Lee, B., Seo, J. (2017) **TouchPivot: Blending WIMP & Post-WIMP Interfaces for Data Exploration on Tablet Devices**, *Proc. CHI 2017*, 2660–2671.
- Jung, D., Kim, W., Song, H., Hwang, J.-I., Lee, B., Kim, B., Seo, J. (2017) **ChartSense: Interactive Data Extraction from Chart Images**, *Proc. CHI 2017*, 6706–6717.
- Kelley, C., Lee, B., Wilcox, L. (2017) **Self-tracking for Mental Wellness: Understanding Expert Perspectives and Student Experiences**, *Proc. CHI 2017*, 629–641.
- Hiniker, A., Sobel, K., Lee, B. (2017) **Co-Designing with Preschoolers Using Fictional Inquiry and Comicboarding**, *Proc. CHI 2017*, 5767–5772. (Note)
- Ren, D., Brehmer, M., Lee, B., Höllerer, T., Choe, E.K. (2017) **ChartAccent: Annotation for Data-Driven Storytelling**, *Proc. PacificVis 2017*, 230–239.
- Kim, Y.-H., Jeon, J.H., Choe, E.K., Lee, B., Kim, K., Seo, J. (2016) **TimeAware: Leveraging Framing Effects to Enhance Personal Productivity**, *Proc. CHI 2016*, 272–283.
- Kwon, B.C., Lee, B. (2016) **A Comparative Evaluation on Online Learning Approaches using Parallel Coordinate Visualization**, *Proc. CHI 2016*, 993–997. (Note)
- Brooks, M., Amershi, S., Lee, B., Drucker, S., Kapoor, A., Simard, P. (2015) **FeatureInsight: Visual Support for Error-Driven Feature Ideation in Text Classification**, *Proc. VAST 2015*, 105–112.
- Nachmanson, L., Prutkin, R., Lee, B., Henry Riche, N., Holroyd, A.E., Chen, X. (2015) **GraphMaps: Browsing Large Graphs as Interactive Maps**, *Proc. GD 2015*, 3–15.
- Choe, E.K., Lee, B., Kay, M., Pratt, W., Kientz, J.A. (2015) **SleepTight: Low-burden, Self-monitoring Technology for Capturing and Reflecting on Sleep Behaviors**, *Proc. UbiComp 2015*, 121–132.
- Amini, F., Henry Riche, N., Lee, B., Hurter, C., Irani, P. (2015) **Understanding Data Videos: Looking at Narrative Visualization through the Cinematography Lens**, *Proc. CHI 2015*, 1459–1468.
- Amershi, S., Chickering, M., Drucker, S.M., Lee, B., Simard, P., Suh, J. (2015) **ModelTracker: Redesigning Performance Analysis Tools for Machine Learning**, *Proc. CHI 2015*, 337–346.
- Lee, B., Smith, G., Henry Riche, N., Karlson, A., Carpendale, S. (2015) **SketchInsight: Natural Data Exploration on Interactive Whiteboards Leveraging Pen and Touch Interaction**, *Proc. PacificVis 2015*, 199–206. [\[Best Paper Award\]](#)
- Brehmer, M., Carpendale, S., Lee, B., Tory, M. (2014) **Pre-Design Empiricism for Information Visualization: Scenarios, Methods, and Challenges**, *Proc. BELIV 2014*, 147–151.

- Choe, E.K., Lee, N.B., Lee, B., Pratt, W., Kientz, J.A. (2014) **Understanding Quantified Selfers' Practices in Collecting and Exploring Personal Data**, *Proc. CHI 2014*, 1143–1152. [[Honorable Mention Paper](#)]
- Chi, P.-Y., Lee, B., Drucker, S.M. (2014) **DemoWiz: Re-Performing Software Demonstrations for a Live Presentation**, *Proc. CHI 2014*, 1581–1590.
- Choe, E.K., Lee, B., Munson, S., Pratt, W., Kientz, J.A. (2013) **Persuasive Performance Feedback: The Effect of Framing on Self-Efficacy**, *Proc. AMIA 2013*. [[Student Paper Competition Finalist](#)]
- Choe, E.K., Jung, J., Lee, B., Fisher, K. (2013) **Nudging People Away From Privacy-Invasive Mobile Apps Through Visual Framing**, *Proc. INTERACT 2013*, 74–91.
- Baur, D., Lee, B., Carpendale, S. (2012) **TouchWave: Kinetic Multi-touch Manipulation for Hierarchical Stacked Graphs**, *Proc. ITS 2012*, 255–264. [[Best Paper Nominee](#)]
- Lee, S., Kim, B., Lee, B., Kim, B., Han, B., Anderson, N.K., Bruun, R.A., Shusterman, S., Seo, J. (2012) **FaceReview: Supporting Interactive Exploration of Linked Heterogeneous Datasets for Unilateral Cleft Lip and Palate**, *Proc. AMIA 2012*.
- Kapoor, A., Lee, B., Tan, D, Horvitz, E. (2012) **Performance and Preferences: Interactive Refinement of Machine Learning Procedures**, *Proc. AAAI 2012*.
- Kapoor, A., Lee, B., Tan, D, Horvitz, E. (2012) **Learning to Learn: Algorithmic Inspirations from Human Problem Solving**, *Proc. AAAI 2012*.
- Song, H., Lee, B., Kim, B., Seo, J. (2012) **DiffMatrix: Matrix-based Interactive Visualization for Comparing Temporal Trends**, *Proc. EuroVis 2012*. (Short Paper)
- Henry Riche, N., Dwyer, T., Lee, B., Carpendale, S. (2012) **Exploring the Design Space of Interactive Link Curvature in Network Diagrams**, *Proc. AVI 2012*, 506–513.
- Metoyer, R, Lee, B., Henry Riche, N., Czerwinski, M. (2012) **Understanding the Verbal Language and Structure of End-User Descriptions of Data Visualizations**, *Proc. CHI 2012*, 1659–1662. (Note)
- Kumar, A., Paek, T., Lee, B. (2012) **Voice Typing: A New Speech Interaction Model for Dictation on Touchscreen Devices**, *Proc. CHI 2012*, 2277–2286.
- Dunne, C., Henry Riche, N., Lee, B., Metoyer, R.A., Robertson, G.G. (2012) **GraphTrail: Analyzing Large Multivariate, Heterogeneous Networks while Supporting Exploration History**, *Proc. CHI 2012*, 1663–1672. [[Invited to CHI 2012 Interactivity](#)]
- Dixon, C., Mahajan, R., Agarwal, S., Brush, A.J., Lee, B., Saroiu, S., Bahl, P. (2012) **An Operating System for the Home**, *Proc. NSDI 2012*, 337–352.
- Browne, J., Lee, B., Carpendale, S., Riche, N., Sherwood, T. (2011) **Data Analysis on Interactive Whiteboards through Sketch-based Interaction**, *Proc. ITS 2011*, 154–157. (Note)
- Amershi, S., Lee, B., Kapoor, A., Mahajan, R., Christian, B. (2011) **Human-Guided Machine Learning for Fast and Accurate Network Alarm Triage**, *Proc. IJCAI 2011*, 2564–2569. (Revised version of the CHI paper)

- Sirkin, D., Venolia, G., Tang, J., Robertson, G., Kim, T., Inkpen, K., Sedlins, M., Lee, B., Sinclair, M. (2011) **Motion and Attention in a Kinetic Videoconferencing Proxy**, *Proc. INTERACT 2011*, 162–180.
- Byun, B., Awasthi, A., Chou, P.A., Kapoor, A., Lee, B., Czerwinski, M. (2011) **Honest Signals in Video Conferencing**, *Proc. ICME 2011*.
- Amershi, S., Lee, B., Kapoor, A., Mahajan, R., Christian, B. (2011) **CueT: Human-Guided Fast and Accurate Network Alarm Triage**, *Proc. CHI 2011*, 157–166. [[Honorable Mention Paper](#)] [[Invited to a Best Paper Track at IJCAI 2011](#)]
- Karlson, A.K., Smith, G., Lee, B. (2011) **Which Version is This?: Improving the Desktop Experience within a Copy-Aware Computing Ecosystem**, *Proc. CHI 2011*, 2669–2678. [[Honorable Mention Paper](#)]
- Brush, A.J., Lee, B., Mahajan, R., Agarwal, S., Saroiu, S., Dixon, C. (2011) **Home Automation in the Wild: Challenges and Opportunities**, *Proc. CHI 2011*, 2115–2124.
- Liu, Z., Lee, B., Kandula, S., Mahajan, R. (2010) **NetClinic: Interactive Visualization to Enhance Automated Fault Diagnosis in Enterprise Networks**, *Proc. VAST 2010*, 131–138.
- Robertson, G.G., Chilimbi, T., Lee, B. (2010) **AllocRay: Memory Allocation Visualization for Unmanaged Languages**, *Proc. SoftVis 2010*, 43–52.
- Dixon, C., Mahajan, R., Agarwal, S., Brush, A.J., Lee, B., Saroiu, S., Bahl, V. (2010) **The Home Needs an Operating System (and an App Store)**, *Proc. HotNets 2010*.
- Henry Riche, N., Lee, B., Chevalier, F. (2010) **iChase: Supporting Exploration and Awareness of Editing Activities on Wikipedia**, *Proc. AVI 2010*, 59–66.
- Kapoor, A., Lee, B., Tan, D.S., Horvitz, E. (2010) **Interactive Optimization for Steering Machine Classification**, *Proc. CHI 2010*, 1343–1352.
- Song, H., Kim, B., Lee, B., Seo, J. (2010) **A Comparative Evaluation on Tree Visualization Methods for Hierarchical Structures with Large Fan-outs**, *Proc. CHI 2010*, 223–232.
- Venolia, G., Tang, J., Cervantes, R., Bly, S., Robertson, G., Lee, B., Inkpen, K. (2010) **Embodied Social Proxy: Mediating Interpersonal Connection in Hub-and-Satellite Teams**, *Proc. CHI 2010*, 1049–1058.
- Smith, G., Tan, D., Lee, B. (2009) **iSee: Interactive Scenario Explorer for Online Tournament Games**, *Proc. ACE 2009*, 190–197.
- Paek, T., Lee, B., Thiesson, B. (2009) **Designing Phrase Builder: A Mobile Real-Time Query Expansion Interface**, *Proc. MobileHCI 2009*.
- North, C., Dwyer, T., Lee, B., Fisher, D., Isenberg, P., Robertson, G., Inkpen, K. (2009) **Understanding Multi-touch Manipulation for Surface Computing**, *Proc. INTERACT 2009*, 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**, *Proc. CHI 2009*, 1293–1302.
- Talbot, J., Lee, B., Kapoor, A., Tan, D.S. (2009) **EnsembleMatrix: Interactive Visualization to Support Machine Learning with Multiple Classifiers**, *Proc. CHI 2009*, 1283–1292.

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

Skeels, M., Lee, B., Smith, G., Robertson, G.G. (2008) **Revealing Uncertainty for Information Visualization**, *Proc. AVI 2008*, 376–379. (Short Paper)

Robbins, D.C., Lee, B., Fernandez, R. (2008) **TapGlance: Designing a Unified Smartphone Interface**, *Proc. DIS 2008*, 386–394.

Nachmanson, L., Robertson, G., Lee, B. (2007) **Drawing Graphs with GLEE**, *Proc. GD 2007, LNCS*, Vol. 4875, 389–394. (Short Paper)

Lee, B., Robertson, G.G., Czerwinski, M., Parr, C.S. (2007) **CandidTree: Visualizing Structural Uncertainty in Similar Hierarchies**, *Proc. INTERACT 2007*, 250–263.

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

Lee, B., Plaisant, C., Parr, C.S., Fekete, J.-D., Henry, N. (2006) **Task Taxonomy for Graph Visualization**, *Proc. BELIV 2006*, 1–5. (Workshop Paper)

Lee, B., Czerwinski, M., Robertson, G., Bederson, B.B. (2005) **Understanding Research Trends in Conferences using PaperLens**, *Ext. Abs. CHI 2005*, 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**, *Proc. AVI 2004*, 133–140.

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

Bederson, B.B., Lee, B., Sherman, R.M., Herrnson, P.S., Niemi, R.G. (2003) **Electronic Voting System Usability Issues**, *Proc. CHI 2003*, 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**, *Proc. AVIOS 2002*, 349–356.

Lee, B., Choy, Y.-C. (1997) **An Information Retrieval System for Structured Documents**, *Proc. KISS*, 357–360. (in Korean)

Ko, Y., Lee, B., Choy, Y.-C. (1997) **An Implementation of SGML Parser using Multiple LALR(1) Parsing Table**, *Proc. KISS*, 73–76. (in Korean)

Peer-reviewed demo/poster/video papers

Smolyak, D., Lee, B., Choe, E.K. (2018) **TandemTrack: Promoting Consistent Exercise Leveraging Multimodal Training and Tracking**, *Ext. Abs. CHI 2018*. (Late Breaking Work)

Brehmer, M., Lee, K., Viola, I., Seo, J., Lee, B. (2017) **Demonstrating the Value of Visualization: Highlights from the PacificVis 2017 Visual Data Storytelling Contest**, *Posters Compendium of VIS 2017*. (Poster)

- Bach, B., Henry Riche, N., Fernandez, R., Giannidakis, E., Lee, B., Fekete, J.-D. (2015) **NetworkCube: Bringing Dynamic Network Visualizations to Domain Scientists**, *Posters Compendium of VIS 2015*. (Poster)
- Henry Riche, N., Bach, B., Fernandez, R., Lee, B., Grabowski, T., Madhyastha, T. (2015) **ConnectoScope: Interactive Data Visualization to Explore Functional Brain Connectivity**, *Organization of Human Brain Mapping (OHBM) 2015*. (Poster)
- Kwon, B.C., Stoffel, F., Jäckle, D., Lee, B., Keim, D. (2014) **VisJockey: Enriching Data Stories through Orchestrated Interactive Visualization**, *Computation+Journalism Symposium 2014*. (Poster)
- Dunne, C., Henry Riche, N., Lee, B., Metoyer, R.A., Robertson, G.G. (2012) **GraphTrail: Analyzing Large Multivariate, Heterogeneous Networks while Supporting Exploration History**, *Ext. Abs. CHI 2012*. (Interactivity-Research)
- Browne, J., Lee, B., Riche, N., Carpendale, S., Sherwood, T. (2011) **iSketchVis: Data Exploration through Sketch-based Charting**, *EuroVis 2011 Conference Supplement*. (Poster)
- Venolia, G., Tang, J., Cervantes, R., Bly, S., Robertson, G., Lee, B., Inkpen, K., Drucker, S. (2010) **Embodied Social Proxy: Connecting Hub-and-Satellite Teams**, *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*, 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*, 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**, *Proc. JCDL 2006*, 372. (Demo)
- Lee, B., Parr, C.S., Plaisant, C., Bederson, B.B. (2005) **Visualizing Graphs as Trees: Plant a Seed and Watch It Grow**, *Proc. GD 2005*, 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*, 53–54. (Poster) [[Winner of InfoVis Contest 2004](#)]
- Lee, B., Bederson, B.B. (2003) **Favorite Folders: A Configurable, Scalable File Browser**, *UIST 2003 Conference Supplement*, 45–46. (Demo)

Technical reports, etc.

- Choe, E.K., Lee, B., Hwang, S.-W. (2018) **Personal Data Exploration with Speech on Mobile Devices**, Multimodal Interaction for Data Visualization Workshop at AVI 2018.
- Srinivasan, A., Lee, B., Stasko, J. (2018) **Facilitating Spreadsheet Manipulation on Mobile Devices Leveraging Speech**, Data Visualization on Mobile Devices Workshop at CHI 2018.

- Blascheck, T., Bezerianos, A., Besançon, L., Lee, B., Isenberg, P. (2018) **Preparing for Perceptual Studies: Position and Orientation of Wrist-worn Smartwatches for Reading Tasks**, Data Visualization on Mobile Devices Workshop at CHI 2018.
- Subramonyam, H., Lee, B., O’Modhrain, S., Adar, E. (2017) **Data Dialog: Facilitating Collaborative Decision Making through Data-Driven Conversations**, LPGD Workshop at Pervasive Health 2017.
- Stolper, C.D., Lee, B., Henry Riche, N., Stasko, J. (2016) **Emerging and Recurring Data-Driven Storytelling Techniques: Analysis of a Curated Collection of Recent Stories**, Tech Report MSR-TR-2016-14, Microsoft Research, Redmond, WA.
- Gillies, M., Fiebrink, R., Tanaka, A., Garcia, J., Bevilacqua, F., Héloir, A., Nunnari, F., Mackay, W.E., Amershi, S., Lee, B., D’Alessandro, N., Tilmanne, J., Kulesza, T., Caramiaux, B. (2016) **Human-Centred Machine Learning**. *Ext. Abs. CHI 2016*, 3558–3565.
- Isenberg, P., Lee, B., Joshi, A., Isenberg, T., (2015) **DEXIS 2015: Visual Data Exploration on Interactive Surfaces**. *Proc. ITS 2015*, 491–494.
- Choe, E.K., Lee, B. (2015) **Visualized Self: Empowering People to Improve Their Lives Leveraging Self-Tracking Data**, Workshop on Small Data Experimentation (sdX): Opportunities, Challenges, and Infrastructure.
- Choe, E.K., Lee, B., Kientz, J.A. (2014) **Personal Visual Analytics for Self-monitoring**, PVA Workshop at DIS 2014.
- Isenberg, P., Carpendale, S., Hesselmann, T., Isenberg, T., Lee, B. (2012) **Proceedings of the Workshop on Data Exploration for Interactive Surfaces—DEXIS 2011**, Research Report, INRIA, France.
- Pattath, A., Lee, B., Robertson, G. (2010) **SafeTogether: Personal Safety and Situational Awareness using Mobile Devices**, Tech Report MSR-TR-2010-31, Microsoft Research, Redmond, WA.
- Mahajan, R., Agarwal, S., Bahl, V., Brush, A.J., Dixon, C., Lee, B., Saroiu, S. (2010) **HomeOS: Turning Developers Loose on the Home Technology Ecosystem**, ThinkWeek Paper, Microsoft, Redmond, WA.
- 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.
- Lee, B. (2006) **Interactive Visualizations for Trees and Graphs**, Ph.D. Dissertation, 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.
- 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. (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.

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. (in Korean)

Patents

34 patents are granted, and 21 patents are pending.

WORKSHOPS

Multimodal Interaction for Data Visualization, AVI 2018

Data Visualization on Mobile Devices, CHI 2018

Leveraging Patient-Generated Data for Collaborative Decision Making in Healthcare, PervasiveHealth 2017

Immersive Analytics: Exploring Future Visualization and Interaction Technologies for Data Analytics, VIS 2017

Immersive Analytics: Exploring Future Interaction and Visualization Technologies for Data Analytics, ISS 2016

Human-Centered Machine Learning, CHI 2016

DEXIS 2015: Visual Data Exploration on Interactive Surfaces, ITS 2015

DEXIS 2011: Visual Data Exploration on Interactive Surfaces, ITS 2011

PROFESSIONAL SERVICE

Conference Committees

Organizing Committees:

- Conference Co-Chair: ISS 2019
- Papers Co-Chair: PacificVis 2018
- Symposium Co-Chair: PacificVis 2017
- Doctoral Symposium Co-Chair: ISS 2016
- Papers Co-Chair: InfoVis 2016, 2015
- Workshops Co-Chair: CHI 2015

- Posters Co-Chair: VIS 2014, 2013
- Organizing Committee: GD 2012
- Posters Co-Chair: PacificVis 2012
- Panels Co-Chair: VisWeek 2012
- Tutorials Co-Chair: VisWeek 2011
- Discovery Exhibition Co-Chair: VisWeek 2009
- Contest Co-Chair: InfoVis 2008
- Print Publications Co-Chair: CHI 2009, 2008

Editorial Boards:

- IEEE Transactions on Visualization and Computer Graphics (October, 2015 ~)

Program Committees:

- IEEE Information Visualization Conference (InfoVis 2018, 2014~2012, 2010~2008)
- IEEE Conference on Visual Analytics Science and Technology (VAST 2017)
- EG/VGTC Conference on Data Visualization (EuroVis 2016)
- ACM Conference on Human Factors in Computing Systems (CHI 2017, 2015)
- ACM International Conference on Interactive Surfaces and Spaces (ISS 2018~2016)
- International Symposium on Big Data Visual and Immersive Analytics (BDVA 2018)
- BELIV Workshop (BELIV 2016)
- Graphics Interface (GI 2015)
- Advanced Visual Interfaces (AVI 2018, 2016, 2014, 2012, 2010)
- IEEE Pacific Visualization Symposium (PacificVis 2017, 2013~2011)
- IEEE Working Conference on Software Visualization (VISSOFT 2013)
- Conference on Visualization and Data Analysis (VDA 2012, 2011)
- Workshop on Social Media Visualization (SocMedVis 2012)
- International Conference on Information Visualization Theory and Applications (IVAPP 2010)
- International Conference on Visual Information Systems (VISUAL 2007)

Reviewer

Journals:

- ACM Transactions on Computer-Human Interaction (TOCHI)
- ACM Transactions on Intelligent Systems and Technology (TIST)
- ACM Transactions on Interactive Intelligent Systems (TiiS)
- PACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)
- IEEE Transactions on Visualization and Computer Graphics (TVCG)
- IEEE Computer Graphics and Applications (CG&A)
- IEEE Pervasive Computing
- Information Visualization (IVS)
- International Journal of Human-Computer Studies (IJHCS)
- Journal of the American Society for Information Science and Technology (JASIST)

Conferences:

- ACM Conference on Human Factors in Computing Systems (CHI 2018~2007)
- ACM Symposium on User Interface Software and Technology (UIST 2018, 2015~2012, 2008~2006, UIST Posters 2003)
- ACM Special Interest Group on Computer Graphics and Interactive Techniques (SIGGRAPH 2015)
- ACM International Conference on Interactive Surfaces and Spaces (ISS 2018~2016)
- ACM International Conference on Interactive Tabletops and Surfaces (ITS 2015~2013)
- IEEE Information Visualization Conference (InfoVis 2017, 2014~2006, 2004)
- EG/VGTC Conference on Data Visualization (EuroVis 2017, 2016, 2014, 2012, 2011)
- Advanced Visual Interfaces (AVI 2016, 2014, 2012, 2010, 2006)
- Conference on Visualization and Data Analysis (VDA 2012)
- IEEE Conference on Visual Analytics Science and Technology (VAST 2010)
- IEEE Pacific Visualization Symposium (PacificVis 2017, 2015, 2013~2011)
- IEEE Working Conference on Software Visualization (VISSOFT 2013)
- Graphics Interface (GI 2015, 2013, 2011)
- EAI International Conference on Pervasive Computing Technologies for Healthcare (PervasiveHealth 2016)
- International Symposium on Graph Drawing (GD 2015, 2014)
- International Conference on Intelligent User Interfaces (IUI 2013)
- International Conference on Ubiquitous Computing (UbiComp 2016, 2015, 2011)
- International Conference on Information Visualization Theory and Applications (IVAPP 2010)
- International Conference on Visual Information Systems (VISUAL 2007)
- International Conference on Pervasive Computing (Pervasive 2007 Posters)

Workshops:

- International Workshop on Evaluation in Visualization (BELIV 2016)
- Workshop on Social Media Visualization (SocMedVis 2012)

Grants:

- Natural Sciences and Engineering Research Council of Canada (2016 Discovery Grants Competition)

Etc.

Poster PC: ITS 2014

Video Showcase Jury: CHI 2015, 2014

Discovery Exhibition Awards Committee: VisWeek 2011, 2010

Made “Classification Datasets” available for IEEE InfoVis Contest 2003, Visualization and Pairwise Comparisons of Trees

PROFESSIONAL MEMBERSHIP

Association for Computing Machinery (ACM)

Institute of Electrical and Electronics Engineers (IEEE)

SKILLS

Languages/Tools: Java Script, Java, Java Servlet, JSP, C#, C/C++, Objective-C, Perl, Python, CGI, ASP, Processing, Pascal, Basic, Visual Studio .NET, Visual C++ (MFC), IronPython, Xcode, Eclipse, Embedded Visual C++, Microsoft Expression Blend, Visual Basic, Flash

Operating Systems: Windows, Mac, UNIX, Linux

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

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

REFERENCES

Available upon request.