

Resume

Personal Information

Name Shixia Liu Gender Female
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Education

1998.9-(2002.4) Ph.D in Department of Computer Science and Technology, Tsinghua University; Major: Computer Aided Design and Computer Graphics
1996.9-1998.7 MS in Department of Mathematics, Harbin Institute of Technology; Major: Computing Mathematics
Research interest: Computer Graphics
1992.9-1996.7 BS in Department of Mathematics, Harbin Institute of Technology; Major: Computing Mathematics (In the first place of the Department)
1993.9-1996.7 BS in Department of Automation, Harbin Institute of Technology; Major: Automation (Double major)

Working Experiences

2014.12 - now Tsinghua University
2010.6-2014.12 Microsoft Research Asia
Position: Lead Researcher
2002.4-2010.5 IBM China Research Lab

Professional Activities

Steering committee VINCI 2012~2013
Program co-chair Organizing Committee (Tutorials Chair): IEEE VIS 2015
PacificVis 2015
Organizing Committee (Meetup Chair): IEEE VIS 2014
Workshop Co-Chair: IEEE VIS 2013 Workshop on Interactive Visual Text Analytics
Poster Co-chair: PacificVis 2013
Workshop Co-chair: IEEE VisWeek 2012 Workshop on Interactive Visual Text Analytics
Program Co-chair: Visual Information Communication - International Symposium 2012
Workshop Co-chair: IEEE VisWeek 2011 Workshop on Interactive Visual Text Analytics for Decision Making
Workshop Co-chair: Intelligent Visual Interfaces for Text Analysis, 2010
Editorial board Information Visualization, 2015~
Guest editor Tsinghua Science and Technology: Special issue on visualization and computer graphics, 2012
ACM Transactions on Intelligent Systems and Technology: Special Issue on Intelligent Visual Interfaces for Text Analysis, 2012
Program committee InfoVis 2015, 2014
VAST 2015, 2014
KDD 2015, 2014, 2013
PAKDD 2013
PacificVis 2013, 2012, 2011, 2010, 2009, 2008
ACM IUI 2011, 2009

Reviewer VISAPP 2012, 2011
VINCI 2011
ACM Multimedia 2009
SDM 2008
IEEE TVCG, IEEE TKDE, ACM TOCHI, ACM TIST, The Visual
Computer, Computers & Graphics, CHI, UIST, EuroVis

Research Interests

Information Visualization and Visual Analytics

Visual text analytics, visual social analytics, visual behavior analytics, graph visualization

Selected Publications

Journal Papers

- 1 Y. Song, **S. Liu**, X. Liu, H. Wang. Automatic Taxonomy Construction from Keywords via Scalable Bayesian Rose Trees. IEEE Transactions on Knowledge and Data Engineering (accepted).
- 2 **S. Liu**, X. Wang, Y. Song, B. Guo. Evolutionary Bayesian Rose Trees. IEEE Transactions on Knowledge and Data Engineering (accepted).
- 3 W. Cui, **S. Liu**, Z. Wu, H. Wei. How Hierarchical Topics Evolve in Text Streams. IEEE Transactions on Visualization and Computer Graphics (IEEE InfoVis'14). 20(12): 2281-2290.
- 4 Y. Wu, **S. Liu**, K. Yan, M. Liu. OpinionFlow: Visual Analysis of Opinion Diffusion on Social Media. IEEE Transactions on Visualization and Computer Graphics (IEEE VAST'14), 20 (12): 1763-1772.
- 5 G. Sun, Y. Wu, **S. Liu**, T. Peng, J. Zhu, R. Liang. EvoRiver: Visual Analysis of Topic Competition on Social Media. IEEE Transactions on Visualization and Computer Graphics (IEEE VAST'14). 20 (12): 1753-1762.
- 6 C. Shi, Y. Wu, **S. Liu**, H. Zhou, H. Qu. LoyalTracker: Visualizing Loyalty Dynamics in Search Engines. IEEE Transactions on Visualization and Computer Graphics (IEEE VAST'14). 20 (12): 1733-1742 (**Honorable Mention**).
- 7 **S. Liu**, W. Cui, Y. Wu, M. Liu. A Survey on Information Visualization: Recent Advances and Challenges. The Visual Computer (2014): 1-21.
- 8 **S. Liu**, Y. Chen, H. Wei, J. Yang, K. Zhou, S. Drucker. Exploring Topical Lead-Lag across Corpora. IEEE Transactions on Knowledge and Data Engineering (accepted).
- 9 **S. Liu**, Y. Wu, E. Wei, M. Liu, Y. Liu. StoryFlow: Tracking the Evolution of Stories. IEEE Transactions on Visualization and Computer Graphics (IEEE InfoVis'13) 19(12):2436-45, 2013.
- 10 Y. Song, S. Pan, **S. Liu**, F. Wei, M. X. Zhou, W. Qian. Constrained Text Clustering with Supervised and Unsupervised Constraints. IEEE Transactions on Knowledge and Data Engineering. 25(6): 1227-1239, 2013.
- 11 Y. Wu, X. Liu, **S. Liu**, K. Ma. ViSizer: A Visualization Resizing Framework. IEEE Transactions on Visualization and Computer Graphics. 19(2): 278-290, 2013.
- 12 P. Xu, Y. Wu, E. Wei, T.Q. Peng, **S. Liu**, J. J. H. Zhu, H. Qu. Visual Analysis of Topic Competition on Social Media. IEEE Transactions on Visualization and Computer Graphics. 19(12): 2012-2021, 2013 (IEEE VAST'13).
- 13 J. Yang, Y. Liu, X. Zhang, X. Yuan, Y. Zhao, S. Barlowe, **S. Liu**. PIWI: Visually Exploring Graphs Based on Their Community Structure. IEEE Transactions on Visualization and Computer Graphics. 19(6): 1034-1047, 2013.

- 14 G. Sun, Y. Wu, R. Liang, **S. Liu**. A Survey of Visual Analytics Techniques and Applications: State-of-the-Art Research and Future Challenges. *JCST*, 28(5): 852-867, 2013.
- 15 C. Shi, W. Cui, **S. Liu**, P. Xu, W. Chen, H. Qu. RankExplorer: Visualization of Ranking Changes in Large Time Series Data. *IEEE Transactions on Visualization and Computer Graphics (IEEE InfoVis'12)*. 18(12): 2669-2678, 2012.
- 16 N. Cao, Y. Lin, X. Sun, D. Lazer, **S. Liu**, H. Qu. Whisper: Tracing the Spatiotemporal Process of Information Diffusion in Real Time. *IEEE Transactions on Visualization and Computer Graphics*. 18(12): 2649-2658, 2012 (IEEE InfoVis'12).
- 17 **S. Liu**, M. X. Zhou, S. Pan, Y. Song, W. Qian, W. Cai, X. Lian. TIARA: Interactive, Topic-Based Visual Text Summarization and Analysis. *ACM Transactions on Intelligent Systems and Technology* 3(2): 25, 2012 (**Impact factor: 9.39**).
- 18 J. Alsakran, Y. Chen, D. Luo, Y. Zhao, J. Yang, W. Dou, **S. Liu**. Real-Time Visualization of Streaming Text with a Force-Based Dynamic System. *IEEE Computer Graphics and Applications* 32(1): 34-45, 2012.
- 19 L. Tan, Y. Song, **S. Liu**, L. Xie. ImageHive: Interactive Content-Aware Image Summarization. *IEEE Computer Graphics and Applications* 32(1): 46-55, 2012.
- 20 W. Cui, **S. Liu**, L. Tan, C. Shi, Y. Song, Z. Gao, H. Qu, X. Tong. TextFlow: Towards Better Understanding of Evolving Topics in Text. *IEEE Transactions on Visualization and Computer Graphics*. 17(12): 2412-2421, 2011 (IEEE InfoVis'11).
- 21 Y. Wu, T. Provan, F. Wei, **S. Liu**, Kwan-Liu Ma. Semantic-Preserving Word Clouds by Seam Carving. *Computer Graphics Forum* 30(3): 741-750 (2011) (EuroVis 2011).
- 22 Y. Wu, F. Wei, **S. Liu**, N. Au, W. Cui, H. Zhou, and H. Qu. OpinionSeer: Interactive Visualization of Hotel Customer Feedback. *IEEE Transactions on Visualization and Computer Graphics*. 16(6): 1109-1118, 2010 (IEEE InfoVis'10).
- 23 N. Cao, J. Sun, Y. Lin, D. Gotz, **S. Liu**, H. Qu. FacetAtlas: Multifacet Visualization for Rich Text Corpora. *IEEE Transactions on Visualization and Computer Graphics (InfoVis'10)*. 16(6): 1172-1181, 2010.
- 24 F. Wei, W. Li, **S. Liu**. iRANK: A rank-learn-combine framework for unsupervised ensemble ranking. *Journal of the American Society for Information Science and Technology*. 61(6): 1232-1243 (2010).
- 25 W. Cui, Y. Wu, **S. Liu**, F. Wei, M. Zhou, H. Qu. Context-Preserving, Dynamic Word Cloud Visualization. *IEEE Computer Graphics & Applications*, Vol. 30, No. 6, pp. 42 – 53, 2010.
- 26 L. Zhang, T. Li, **S. Liu**, Y. Pan. An Integrated System for Building Enterprise Taxonomies. *Information Retrieval*, 10(4-5): 365-391, 2007.
- 27 **S. Liu**, S. Hu, Y. Chen, J. Sun. Reconstruction of Curved Solids from Engineering Drawings. *Computer-aided design*, 33(14): 1059-1072, 2001.
- 28 **S. Liu**, S. Hu, J. Sun. Two Accelerated Techniques for 3D Reconstruction. *Journal of Computer Science and Technology*, 2000.

Conference Papers

- 29 **S. Liu**, X. Wang, J. Chen, J. Zhu, B. Guo. TopicPanorama: a Full Picture of Relevant Topics. *IEEE VAST'14* (Accepted).
- 30 W. Cui, X. Wang, **S. Liu**, N. H. Riche, T. M. Madhyastha, K. Ma, B. Guo. Let It Flow: a Static Method for Exploring Dynamic Graphs. *PacificVis* 2014.
- 31 X. Wang, **S. Liu**, Y. Song, B. Guo. Mining evolutionary multi-branch trees from text streams. *KDD*: 722-730, 2013 (Research Track).
- 32 Suin. Kim, J. Zhang, Z. Chen, A. H. Oh, **S. Liu**. A Hierarchical Aspect-Sentiment Model for Online Reviews. *AAAI* 2013.
- 33 F. Wu, Y. Song, **S. Liu**, Y. Huang, Z. Liu. Lead-lag analysis via sparse co-projection in correlated text streams. *CIKM* 2013: 2069-2078, 2013.
- 34 S. Pan, M. X. Zhou, Y. Song, W. Qian, F. Wang, **S. Liu**. Optimizing temporal topic segmentation for intelligent text visualization. *IUI* 2013: 339-350.

- 35 X. Liu, Y. Song, **S. Liu**, H. Wang. Automatic taxonomy construction from keywords. KDD 2012: 1433-1441, 2012 (Research Track).
- 36 M. Hu, **S. Liu**, F. Wei, Y. Wu, J. T. Stasko, K. Ma. Breaking news on twitter. CHI 2012: 2751-2754.
Media report: MSNBC; Washington Times; ReadWriteWeb; LA Times; Poynter; GT news
- 37 Z. Gao, Y. Song, **S. Liu**, H. Wang, H. Wei, Y. Chen, W. Cui. Tracking and Connecting Topics via Incremental Hierarchical Dirichlet Processes. ICDM 2011: 1056-1061.
- 38 L. Shi, N. Cao, **S. Liu**, W. Qian, L. Tan, G. Wang, J. Sun, C. Lin. HiMap: Adaptive visualization of large-scale online social networks. IEEE PacificVis, 41-48, 2011.
- 39 J. Zhang, Y. Song, C. Zhang, **S. Liu**. Evolutionary hierarchical dirichlet processes for multiple correlated time-varying corpora. KDD 2010: 1079-1088 (Research Track).
- 40 F. Wei, **S. Liu**, Y. Song, S. Pan, M. X. Zhou, W. Qian, L. Shi, L. Tan, Q. Zhang. TIARA: a visual exploratory text analytic system. KDD 2010: 153-162 (Industry Track).
- 41 Y. Song, S. Pan, **S. Liu**, F. Wei, M. X. Zhou, W. Qian. Constrained Co-clustering for Textual Documents. AAAI, 2010.
- 42 L. Shi, F. Wei, **S. Liu**, L. Tan, X. Lian, M. X. Zhou. Understanding text corpora with multiple facets. IEEE VAST 2010: 99-106.
- 43 Y. Lin, J. Sun, N. Cao, **S. Liu**. ContexTour: Contextual Contour Visual Analysis on Dynamic multi-Relational Clustering. SDM 2010: 418-429.
- 44 W. Cui, Y. Wu, S. Liu, F. Wei, M. X. Zhou, H. Qu. Context preserving dynamic word cloud visualization. PacificVis 2010: 121-128.
- 45 J. Sun, S. Papadimitriou, C.Y. Lin, N. Cao, **S. Liu**, W. Qian. MultiVis: Content-Based Social Network Exploration through Multi-way Visual Analysis. SDM, 1063-1074, 2009.
- 46 **S. Liu**, M. X. Zhou, S. Pan, W. Qian, W. Cai, X. Lian. Interactive, Topic-based Visual Text Summarization and Analysis. CIKM, 543-552, 2009. (**Candidate of the best paper award**)
- 47 X. Lou, **S. Liu**, T. Wang. FanLens: A Visual Toolkit for Dynamically Exploring the Distribution of Hierarchical Attributes. *IEEE PacificVis 2008*, 51-158.
- 48 Y. Wang, **S. Liu**, J. Feng, and L. Zhou. Mining Naturally Smooth Evolution of Clusters from Dynamic Data. *SDM 2007*, 125-134, 2007.
- 49 **S. Liu**, Y. Pan, L. Yang, W. Liu. An LOD Model for Graph Visualization and its Application in Web Navigation. *APWEB05*, 441-452, 2005.
- 50 **S. Liu**, S. Hu, C. Tai, J. Sun. A Matrix-Based Approach to Reconstruction of 3D Objects from Three Orthographic Views. PG 2000: 254~261.

Selected Inventions

52 granted patents, including 25 US patents and 27 Chinese and international patents.

- ◆ US patent 8788494, Method, device and system for processing, browsing and searching an electronic documents, granted Jul. 22, 2014.
- ◆ US patent 8650483. Method and apparatus for improving the readability of an automatically machine-generated summary, granted Feb. 11, 2014.
- ◆ US patent 8621359, Method and apparatus for generating 3D carousel tree data visualization and related device, granted Dec. 31, 2013.
- ◆ US patent 8554720, Processing, browsing and extracting information from an electronic document, granted Oct. 8, 2013.
- ◆ US patent 8244734. Apparatus and method for transmitting file and apparatus and method for receiving file, granted Aug. 14, 2012.
- ◆ US patent 8245135. Producing a visual summarization of text documents, granted Aug. 14, 2012.

- ♦ US patent 7865530. Constructing and maintaining a personalized category tree, displaying documents by category and personalized categorization system, granted Jan. 4, 2011.
- ♦ US patent 7899017. Switching between two communication modes in a WLAN, granted Mar. 1, 2011.
- ♦ US patent 7895195. Method and apparatus for constructing a link structure between documents, granted Feb. 22, 2011.
- ♦ US patent 7870509. Method and apparatus for improving the visibility of a treemap, granted Jan. 11, 2011.
- ♦ US patent 7831910. Computer aided authoring, electronic document browsing, retrieving, and subscribing and publishing, granted Nov. 9, 2010.
- ♦ US patent 7685088. System and method for generating new concepts based on existing ontologies, granted Mar. 23, 2010.
- ♦ US patent 7519528. Building concept knowledge from machine-readable dictionary, granted Apr. 14, 2009.
- ♦ US patent 7502786. Visual method and apparatus for enhancing search result navigation, granted Mar. 10, 2009.
- ♦ US patent 7499934. Method for linking documents, granted Mar. 3, 2009.
- ♦ US patent 7376634. Method and apparatus for implementing Q&A function and computer-aided authoring, granted May 20, 2008.
- ♦ US patent 7366715. Processing, browsing and extracting information from an electronic document, granted Apr. 29, 2008.
- ♦ US patent 7305406. Computer aided authoring, electronic document browsing, retrieving, and subscribing and publishing, granted Dec. 4, 2007.
- ♦ ZL200810149341.X, Method and device for transforming between dynamic diagram sequences shown by cartoons, N. Cao, S. Liu, W. Cai, L. Tan. Granted May 8, 2013.
- ♦ 5063418. Method, interaction method and apparatus for visualizing hierarchy data with angular chart. X. Lou, **S. Liu**, H. Su, H. Young, granted Aug. 17, 2012.
- ♦ ZL200810109803.5. An interactive method to generate personal and maintain personal bookmarks. **S. Liu**, N. Cao, X. Lou, T. Wang, W. Cai, granted May 30, 2012.
- ♦ 1104039. A tag-path based method for automatically managing file exchange in computer networks. M. Qiu, **S. Liu**, H. Ding, J. Dong, granted Jan. 2, 2012.
- ♦ ZL200810108432.9. A method of visualizing huge amount of information on a sphere. N. Cao, **S. Liu**, granted Nov. 9, 2011.
- ♦ ZL200710107720.8. Method for generating 3d carousel tree data visualization and related device. N. Cao, **S. Liu**, Hui SU, granted May 4, 2011.
- ♦ ZL200710160532.1. Method and apparatus for visualizing hierarchical data. N., **S. Liu**, T. Wang, granted Apr. 20, 2011.
- ♦ 1013052. An approach to tree visualization with nodes cascading. H. Lv, **S. Liu**, M. Wattenberg, X. Ma, N. Cao, granted Jan. 28, 2011.
- ♦ ZL200610115195.X. Method and computer system for displaying a weighted tree based on hyperbolic geometry. **S. Liu**, T. Li, granted Jul. 7, 2010.
- ♦ ZL200410004288.6. Method of constructing progressive model for visualizing semantic network. **S. Liu**, Z., Y. Pan, L. Zhang, Granted May 26, 2010.
- ♦ ZL200610079019.5. An approach to tree visualization with nodes cascading. H. Lv, **S. Liu**, M. Wattenberg, X. Ma, N. Cao, granted May 12, 2010.

- ♦ ZL200610076095.0. Method and system for constructing a labeled treemap with balanced layout. H. Lv, **S. Liu**, M. Wattenberg, X. Ma, granted Jan. 13, 2010.
- ♦ ZL200510088825.4. An iterative method of construction a web-like link structure for the enterprise search. **S. Liu**, L. Yang, granted Apr. 29, 2009.
- ♦ ZL200610001267.8. A visual method and system for enhancing search result navigation. **Sh. Liu**, Z. Su, granted Apr. 22, 2009.
- ♦ ZL200410054631.8. A method for constructing and maintaining a personalized category tree. **S. Liu**, L. Yang, granted Sep. 9, 2009.
- ♦ ZL200310123108.1. Authoring for search engines. **S. Liu**, L. Yang, granted Nov. 26, 2008.
- ♦ ZL02160013.9. A computer-aided method for building concept knowledge from machine readable dictionaries. **S. Liu**, L. Yang, granted Dec. 13, 2006.

Awards

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|-------------|---|
| 2012 | Microsoft Ship-It award |
| 2011 | Microsoft Ship-It award |
| 2010 | Microsoft star award |
| 2010 | IBM Research accomplishment |
| 2009 | Retention award |
| 2008 | Retention award |
| 2007 | IBM Research accomplishment |
| 2007 | GTO special contribution award |
| 2006 | IBM master inventor |
| 2005 | Retention award |
| 2005 | Smith college leadership training |
| 2002-now | 30+ patent awards |
| 2004 | CRL member of the third quarter in 2004 |
| 2003 | The special contribution team award |

Technology Transfer

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|------|---|
| 2012 | BingFLIP: Bing |
| 2012 | FastRank Debugging Tool: Bing |
| 2012 | Graph visualization: Microsoft Academic Search |
| 2011 | Visual interleaving analysis toolkit: Bing |
| 2010 | TIARA (Visual Analytics): IBM Cognos Including content analytics, eDiscovery analyzer, Cognos consumer insight http://researcher.watson.ibm.com/researcher/view_pic.php?id=143 http://www.performance-ideas.com/2011/10/13/cognos-consumer-insight/ |
| 2008 | Corporate Brand and Reputation Analysis (COBRA): IBM global service |