Jian Zhao, *Ph.D.*

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I am passionate about data, and novel ways of analyzing, presenting, and interacting with it.

Summary

My research lies in the intersection of *Information Visualization (InfoVis)*, *Human-Computer Interaction (HCI)*, and *Data Science*. I develop advanced interactive visualizations that promote the interplay of *human*, *machine*, and *data* within the general data science workflow: from initial exploration, to model development, and to insight storytelling. I design both *exploratory* and *explanatory* visualizations that leverage or support complex analytical processes and models, tightly integrating *the flexibility and creativity of users* with *the scalability of algorithms and machine learning*. I possess the following credentials:

- Extensive experience of developing *cutting-edge visualizations* at world-class institutions and laboratories.
- Comprehensive practice of conducting *user-centered design* of visualization tools in various applications.
- Track record of award-winning *publications*, *scientific contributions*, and *technological inventions*.
- Active involvement of *teaching* and *mentoring* talents.
- DataVis geek with hands-on multiple *development platforms* and *programing languages*.

Education

2015.7 **Ph.D. in Computer Science**, *University of Toronto*, Canada.
Thesis: Interactive Visual Data Exploration—A Multi-Focus Approach
Committee: Drs. Ravin Balakrishnan (Supervisor), Karan Singh, Khai Turong, John Stasko (External)

2009.6 **B.Eng. in Computer Science**, *Zhejiang University*, China.
Thesis: Invariant Image Features Extraction
Supervisor: Dr. Yizhou Yu

Professional Experience

2019.10- **Assistant Professor**, *Cheriton School of Computer Science, University of Waterloo*, Waterloo, ON.
Leading the WatVis lab that is dedicated to the reserach on advanced visualiation and interaction techniques for promoting the interplay between data, machine, and human in data science applications. [B1, J17, C14, S4].

2019.4-2019.10 **Senior Research Scientist**, *Enterprise AI, FXPAL*, Palo Alto, CA.

2016.11-2019.3 **Research Scientist**, *Enterprise AI, FXPAL*, Palo Alto, CA.
Conducted the design and development of visual analytics techniques in the application domains of enterprise communication and collabration for smart workplace. [J12-16, C29-13, 15, S2-3, P7-19].

2015.7-2016.10 **Postdoctoral Researcher**, *Autodesk Research*, Toronto, ON.
Designed and implemented visualization techniques for dynamic network analysis, time-series annotation, and knowledge transfer in collaborative sense-making. [J7-11, C8, P4-6].

2009.9-2015.6 **Research Assistant**, *DGP Lab, University of Toronto*, Toronto, ON.
Investigated the theoretical foundation of multi-focus visual data exploration and designed novel multi-focus visualization techniques. Developed and validated mathematical models to deeply understand user interactions on touch displays. [J1-6, C1-4, 6].

2014.12-2015.3 **Research Intern**, *Microsoft Research*, Redmond, WA.
Worked with machine learning experts, designed and developed a web-based visualization to facilitate data labelling and exploration in building classifiers for large text corpus.

2014.6-2014.9 **Research Intern**, *Adobe Research*, San Francisco, CA.
Worked with researchers and analysts, designed and developed a web-based visual analytics tool for interactive exploration of user traffic data on websites. [C7, P3].

2013.5-2013.8 **Research Intern**, *IBM Almaden Research Center*, San Jose, CA.
Designed and developed a web-based visualization for analyzing personal emotion profile timelines inferred from tweets. Worked with engineers to integrate the technique into the IBM SystemU. [C5, P2].

2011.6-2011.9 **Research Intern**, *Microsoft Research*, Redmond, WA.
Worked with researchers and the product team, developed a web application for exploring multi-faceted temporal events data. [S1, P1].

2008.6-2008.8 **Visiting Student**, *Knowledge Discovery Lab, North Carolina State University*, Raleigh, NC.
Designed and developed a visualization system for summarizing patterns and relationships of user profiles on social networks such as Facebook.

2007.9-2009.9 **Research Assistant**, *Computer Vision Lab, Zhejiang University*, Hangzhou, China.
Developed a new image feature matching algorithm to track objects in videos. Developed a non-photorealistic image rendering pipeline to generate cartoon-like images.

Awards & Honors

2019 **Best Paper, top 1 out of 158**, *ACM MobileHCI Conference, for [C14].*

2017 **Best Paper Honorable Mention, top 3 out of 173**, *IEEE VAST Conference, for [J11].*

2017 **Distinguished Reviewer**, *ACM TiiS.*

2016-2017 **Postdoctoral Fellowship, $45,000/year**, *Natural Sciences and Engineering Research Council Canada (NSERC)*, (declined).

2016 **Accelerate Postdoctoral Award, $60,000**, *Mitacs.*

2016 **Best Paper Honorable Mention, top 5%**, *ACM CHI Conference, for [C8].*

2015 **Robert E. Lansdale/Okino Graduate Fellowship, $2,000**, *University of Toronto.*

2015 **Best Paper Honorable Mention, top 5%**, *ACM CHI Conference, for [C7].*

2014 **Best Paper Honorable Mention, top 3 out of 148**, *IEEE VAST Conference, for [J5].*

2013 **Dataset Challenge Grand Prize Winner, $5,000**, *Yelp Inc..*

2012 **Wolfond Fellowship, $10,000**, *University of Toronto.*

2010-2011 **Wolfond Scholarship, $5,000 (year 2010), $6,000 (year 2011)**, *University of Toronto.*

2009-2015 **Art & Science Graduate Fellowship, ≈ $30,000/year**, *University of Toronto.*

2006-2008 **Academic Scholarship, ¥5,000/year**, *Zhejiang University.*

2006, 2008 **Chinese National Scholarship, ¥8,000/year**, *Ministry of Education of China.*

Student Supervision

Supervision

Graduate

2020.1- **Xingjun Li, M.Math.**, *University of Waterloo.*

2019.6-2019.9 **Takanori Fujiwara, Research Intern**, *FXPAL*, from UC Davis.
On contrastive layout of large graphs.

2018.5-2018.8 **John Wenskovitch, Research Intern**, *FXPAL*, from Virginia Tech.
On visualizing computational notebooks to support self-examination and collaboration [C27, P14].

2017.6-2017.9 **Siwei Fu, Research Intern**, *FXPAL*, from HKUST.
On visually summarizing massive conversations on team communication platforms such as Slack [C20, P10].

Undergraduate

2019.9-2019.12 **Chengcheng Hu**, *Research Assistant*, University of Waterloo.

2019.9-2019.12 **Melanie Ren**, *Research Assistant*, University of Waterloo.

2019.2-2019.6 **Shenyu Xu, Intern**, *FXPAL*, from UC Davis.

2018.6-2018.9 **Lawrence Ngo, Intern**, *FXPAL*, from UC Santa Cruz.

Mentoring

Gradudate

2017.8-2018.4 **Zhicong Lu, Ph.D.**, *University of Toronto*, co-advised with Dr. Daniel Wigdor.
On visual storytelling with intelligent interactive diagramming [J15]

2015.11-2016.3 **Siwei Fu, Research Intern**, *Microsoft Research Asia*, co-advised with Dr. Weiwei Cui.
On MOOC forum visualization [J8]

2015.1-2015.5 **Yanhong Wu, Ph.D.**, *Hong Kong University of Science and Technology*, co-advised with Dr. Huamin Qu.
On dynamic egocentric network visualization [J7]

2014.5-2014.9 **Fan Du, Research Intern**, *IBM T. J. Watson Research Center*, co-advised with Dr. Nan Cao.
On object movement trajectory bundling in animated transitions [C10]

Undergraduate

2017.8-2017.12 **Shenyu Xu, Research Assistant**, *University of California Davis*, co-advised with Dr. Kwan-Liu Ma.

2013.5-2013.8 **Phoebe Chang, Intern**, *University of Toronto*, co-advised with Dr. Ravin Balakrishnan.

Thesis Committees & Examiners

2020 **Po Ming Law**, *Ph.D., Georgia Institute of Technology*.
External member of adisory committee. Thesis topic: Automated Insights for Visual Data Analysis.

2019 **Sang Ho Suh**, *Ph.D., University of Waterloo*.
Member of adisory committee. Thesis topic: using comic strips for computer science education.

2018 **Takanori Fujiwara**, *Ph.D., University of California Davis*.
Member of examination committee. Thesis topic: visual analytics methods for multidimensional data in network applications.

2017 **Christopher Bryan**, *Ph.D., University of California Davis*.
Member of examination committee. Thesis topic: advanced techniques and cognitive considerations for explanatory visualization and data storytelling.

2019 **Nikhita Joshi**, *M.Math., University of Waterloo*.
Thesis examiner. Thesis topic: Evaluating the speed and accuracy of touch input at the edge of a table.

Teaching Experience

Courses

CS889 - Advanced Topics in Human Computer Interaction: Information Visualization, *University of Waterloo*.
Winter 2020. Graduate course on special topics of visualization.

Guest Lectures

2018.12 **The Future of Work: Using Advanced Data Visualization Techniques for Communication and Collaboration**, *Peking University*.
The 9th Advanced Lectures on Image and Graphics (IGAL) by China Society of Image and Graphics (CSIG).

2018.10 **Design Visualization for the Data Science Workflow**, *University of San Francisco*.
CS686 - Reproducible Data Visualization, taught by Dr. Alark Joshi. Cross-listed graduate and 4th year course on visualization.

2017.2 **Design for Interactive Visualization: Illustrated with Graph Visualization**, *University of California Davis*.
ECS277 - Advanced Visualization, taught by Dr. Kwan-Liu Ma. Graduate course on visualization.

Teaching Assistantships

CSC108 - Introduction to Computer Programming, *University of Toronto*.
Fall 2009, Winter 2010, Fall 2011, Winter 2015. 1st year course introducing Python.

CSC148 - Introduction to Computer Science, *University of Toronto*.
Fall 2010, Fall 2013 1st year course introducing Python and OOP.

CSC318 - Design of Interactive Computational Media, *University of Toronto*.
Winter 2011, Winter 2012, Winter 2013. 3rd year course on HCI.

CSC309 - Programming on the Web, *University of Toronto*.
Fall 2012. 3rd year undergraduate course on web development.

CSC428/2514 - Human Computer Interaction, *University of Toronto*.
Winter 2014. Cross-listed graduate and 4th year course on HCI and advanced topics.

Publications

Book Chapter

[B1] J. Zhao, F. Chevalier, and C. Collins. **Designing Tree Visualization Techniques for Discourse Analysis.** LingVis: Visual Analytics for Linguistics, M. Butt, A. Hautli-Janisz, and V. Lyding (Editors), Chapter 3, Center for the Study of Language and Information, 2020.

Refereed Journal Articles

[J17] M. Fan, K. Wu, J. Zhao, Y. Li, W. Wei, and K. Truong. **VisTA: Integrating Machine Intelligence with Visualization to Support the Investigation of Think-Aloud Sessions.** IEEE Transactions on Visualization and Computer Graphics (Proceedings of InfoVis'19), 26(1), pp. 343-352, 2020.

Acceptance rate: 25%

[J16] M. Sun, J. Zhao, H. Wu, K. Luther, C. North, and N. Ramakrishnan. **The Effect of Edge Bundling and Seriation on Sensemaking of Biclusters in Bipartite Graphs.** IEEE Transactions on Visualization and Computer Graphics, 25(10), pp. 2983-2998, 2019.

Impact factor: 3.780

[J15] Z. Lu, M. Fan, Y. Wang, J. Zhao, M. Annett, and D. Wigdor. **InkPlanner: Supporting Prewriting via Intelligent Visual Diagramming.** IEEE Transactions on Visualization and Computer Graphics (Proceedings of VAST'18), 25(1), pp. 277-287, 2019.

Acceptance rate: 25%

[J14] S. Xu, C. Bryan, K. Li, J. Zhao, and K.-L. Ma. **Chart Constellations: Effective Chart Summarization for Collaborative and Multi-User Analyses.** Computer Graphics Forum (Proceedings of EuroVis'18), 37(3), pp. 75-86, 2018.

Acceptance rate: 29%

[J13] W. Zhong, W. Xu, K. Yager, G. Doerk, J. Zhao, Y. Tian, S. Ha, C. Xie, Y. Zhong, K. Mueller, and K. van Dam. **MultiSciView: Multivariate Scientific X-ray Image Visual Exploration with Cross-Data Space Views.** Visual Informatics (Proceedings of PacificVAST 2018), 2(1), pp. 14-25, 2018.

Acceptance rate: 37%

[J12] J. Zhao, M. Sun, F. Chen, and P. Chiu. **BiDots: Visual Exploration of Weighted Coordinated Relationships.** IEEE Transactions on Visualization and Computer Graphics (Proceedings of VAST'17), 24(1), pp. 195-204, 2018.

Acceptance rate: 21%

[J11] J. Zhao, M. Glueck, P. Isenberg, F. Chevalier, and A. Khan. **Supporting Handoff in Asynchronous Collaborative Sensemaking Using Knowledge-Transfer Graphs.** IEEE Transactions on Visualization and Computer Graphics (Proceedings of VAST'17), 24(1), pp. 340-350, 2018 (*Best Paper Honorable Mention, top 3 out of 173*).

Acceptance rate: 21%

[J10] S. Fu, H. Dong, W. Cui, J. Zhao, and H. Qu. **How Do Ancestral Traits Shape Family Trees over Generations?** IEEE Transactions on Visualization and Computer Graphics (Proceedings of VAST'17), 24(1), pp. 205-214, 2018.

Acceptance rate: 21%

[J9] J. Zhao, M. Glueck, S. Breslav, F. Chevalier, and A. Khan. **Annotation Graphs: A Graph-Based Visualization for Meta-Analysis of Data based on User-Authored Annotations.** IEEE Transactions on Visualization and Computer Graphics (Proceedings of VAST'16), 23(1), pp. 261-270, 2017.

Acceptance rate: 21%

[J8] S. Fu, J. Zhao, W. Cui, and H. Qu. **Visual Analysis of MOOC Forums with iForum.** IEEE Transactions on Visualization and Computer Graphics (Proceedings of VAST'16), 23(1), pp. 201-210, 2017.

Acceptance rate: 21%

[J7] Y. Wu, N. Pitipornvivat, J. Zhao, S. Yang, G. Huang, and H. Qu. **egoSlider: Visual Analysis of Egocentric Network Evolution.** IEEE Transactions on Visualization and Computer Graphics (Proceedings of VAST'15), 22(1), pp. 260-269, 2016.

Acceptance rate: 22%

[J6] J. Zhao, W. Soukoreff, and R. Balakrishnan. **Exploring and Modeling Unimanual Object Manipulation on Multi-Touch Displays.** International Journal of Human-Computer Studies, 78(0), pp. 68-80, 2015.

Five-year impact factor: 2.517

[J5] J. Zhao, N. Cao, Z. Wen, Y. Song, Y.-R. Lin, and C. Collins. **#FluxFlow: Visual Analysis of Anomalous Information Spreading on Social Media.** IEEE Transactions on Visualization and Computer Graphics (Proceedings of VAST'14), 20(12), pp. 1773-1782, 2014 (*Best Paper Honorable Mention, top 3 out of 148*).

Acceptance rate: 23%

[J4] J. Zhao, W. Soukoreff, X. Ren, and R. Balakrishnan. **A Model of Scrolling on Touch-Sensitive Displays.** International Journal of Human-Computer Studies, 72(12), pp. 805-821, 2014.

Five-year impact factor: 2.517

[J3] J. Zhao, C. Collins, F. Chevalier, and R. Balakrishnan. **Interactive Exploration of Implicit and Explicit Relations in Faceted Datasets.** IEEE Transactions on Visualization and Computer Graphics (Proceedings of VAST'13), 19(12), pp. 2080-2089, 2013.

Acceptance rate: 26%

[J2] J. Zhao, F. Chevalier, C. Collins, and R. Balakrishnan. **Facilitating Discourse Analysis with Interactive Visualization.** IEEE Transactions on Visualization and Computer Graphics (Proceedings of InfoVis'12), 18(12), pp. 2639-2648, 2012.

Acceptance rate: 24%

[J1] J. Zhao, F. Chevalier, E. Pietriga, and R. Balakrishnan. **Exploratory Analysis of Time-series with ChronoLenses.** IEEE Transactions on Visualization and Computer Graphics (Proceedings of InfoVis'11), 17(12), pp. 2422-2431, 2011.

Acceptance rate: 26%

Refereed Full-Length Conference Papers

[C15] J. Wenskovitch, J. Zhao, S. Carter, M. Cooper, and C. North. **Albireo: An Interactive Tool for Visually Summarizing Computational Notebook Structure.** Proceedings of the Symposium on Visualization in Data Science, pp. 1-10, 2019.

Acceptance rate: 29%

[C14] M. Loorak, W. Zhou, H. Trinh, J. Zhao, and W. Li. **Hand-Over-Face Input Sensing for Interaction with Smartphones through the Built-in Camera.** Proceedings of the ACM International Conference on Human-Computer Interaction with Mobile Devices and Services, 32:1–32:12, 2019 (*Best Paper, top 1 of 158*).

Acceptance rate: 26%

[C13] H.-F. Cheng, B. Yu, S. Fu, J. Zhao, B. Hecht, J. Konstan, L. Terveen, S. Yarosh, and H. Zhu. **Teaching UI Design at Global Scales: A Case Study of the Design of Collaborative Capstone Projects for MOOCs.** Proceedings of the ACM Conference on Learning at Scale, pp. 11:1-11:11, 2019.

Acceptance rate: 25%

[C12] C. Bhatt, M. Cooper, and J. Zhao. **SeqSense: Video Recommendation Using Topic Sequence Mining.** Proceedings of the International Conference on Multimedia Modeling, pp. 252-263, 2018.

Acceptance rate: 29%

[C11] J. Zhao, C. Bhatt, M. Cooper, and D. Shamma. **Flexible Learning with Semantic Visual Exploration and Sequence-Based Recommendation of MOOC Videos.** CHI'18: Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems, pp. 329:1–329:13, 2018.

Acceptance rate: 25%

[C10] S. Fu, J. Zhao, H. Cheng, H, Zhu, and J. Marlow. **T-Cal: Understanding Team Conversation Data with Calendar-based Visualization.** CHI'18: Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems, pp. 500:1-500:13, 2018.

Acceptance rate: 25%

[C9] M. Zhao, Y. Su, J. Zhao, S. Chen, and H. Qu. **Mobile Situated Analytics of Ego-centric Network Data.** SA'17: Proceedings of the SIGGRAPH Asia Symposium on Visualization, pp. 14:1-14:8, 2017.

[C8] J. Zhao, M. Glueck, F. Chevalier, Y. Wu, and A. Khan. **Egocentric Analysis of Dynamic Networks with EgoLines.** CHI'16: Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems, pp. 5003-5014, 2016 (*Best Paper Honorable Mention, top 5%*).

Acceptance rate: 20%

[C7] J. Zhao, Z. Liu, M. Dontcheva, A. Hertzmann, and A. Wilson. **MatrixWave: Visual Comparison of Event Sequence Data.** CHI'15: Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems, pp. 259-268, 2015 (*Best Paper Honorable Mention, top 5%*).

Acceptance rate: 25%

[C6] F. Du, N. Cao, J. Zhao, and Y.-R. Lin. **Trajectory Bundling for Animated Transitions.** CHI'15: Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems, pp. 289-298, 2015.

Acceptance rate: 25%

[C5] J. Zhao, L. Gou, F. Wang, and M. Zhou. **PEARL: An Interactive Visual Analytic Tool for Understanding Personal Emotion Style Derived from Social Media.** VAST'14: Proceedings of the IEEE Conference on Visual Analytics Science and Technology, pp. 203-212, 2014.

Acceptance rate: 37%

[C4] J. Wang, J. Zhao, S. Guo, C. North, and N. Ramakrishnan. **ReCloud: Semantics-Based Word Cloud Visualization of User Reviews.** GI'14: Proceedings of the Graphics Interface Conference, pp. 151-158, 2014.

Acceptance rate: 37%

[C3] J. Zhao, D. Wigdor, and R. Balakrishnan. **TrailMap: Facilitating Information Seeking in a Multi-Scale Digital Map via Implicit Bookmarking.** CHI'13: Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems, pp. 3009-3018, 2013.

Acceptance rate: 20%

[C2] R. W. Soukoreff, J. Zhao, and X. Ren. **The Entropy of a Rapid Aimed Movement: Fitts' Index of Difficulty versus Shannon's Entropy.** INTERACT'11: Proceedings of the 13th IFIP TC13 International Conference on Human Computer Interaction, Part 4, LNCS 6949, pp. 222-239, 2011.

Acceptance rate: 27%

[C1] J. Zhao, F. Chevalier, and R. Balakrishnan. **KronoMiner: Using Multi-Foci Navigation for the Visual Exploration of Time-Series Data.** CHI'11: Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems, pp. 1737-1746, 2011.

Acceptance rate: 26%

Refereed Short-Length Conference Papers

[S4] C. Park, I. Na, Y. Jo, S. Shin, J. Yoo, B. C. Kwon, J. Zhao, H. Noh, Y. Lee, and J. Choo. **SANVis: Visual Analytics for Understanding Self Attention Networks.** Proceedings of IEEE VIS Conference, pp. 146-150, 2019.

Acceptance rate: 31%

[S3] J. Zhao, M. Sun, F. Chen, and P. Chiu. **MissBiN: Visual Analysis of Missing Links in Bipartite Networks.** Proceedings of IEEE VIS Conference, pp. 71-75, 2019.

Acceptance rate: 31%

[S2] M. Sun, D. Koop, J. Zhao, C. North, and N. Ramakrishnan. **Interactive Bicluster Aggregation in Bipartite Graphs.** Proceedings of IEEE VIS Conference, pp. 71-75, 2019.

Acceptance rate: 31%

[S1] J. Zhao, S. Drucker, D. Fisher, and D. Brinkman. **TimeSlice: Interactive Faceted Browsing of Timeline Data.** AVI'12: Proceedings of the International Working Conference on Advanced Visual Interfaces, pp. 433-436, 2012.

Acceptance rate: 28%

Work-in-Progress and Others

[W7] C. Bhatt, J. Zhao, H. Oda, F. Chen, M. Lee. **OPaPi: Optimized Parts Pick-up Routing for Efficient Manufacturing.** HILDA'19: Proceedings of the ACM SIGMOD Workshop on Human-In-the-Loop Data Analytics, 2019.

[W6] J. Zhao, F. Chen, and P. Chiu. **A Generic Visualization Framework for Understanding Missing Links in Bipartite Networks.** SA'18: Proceedings of the ACM SIGGRAPH Asia Conference (Poster), 2018.

[W5] M. Cooper, J. Zhao, C. Bhatt, D. Shamma. **Using Recommendation to Explore Educational Video.** ICMR'18: Proceedings of the ACM International Conference on Multimedia Retrieval (Demo), 2018.

[W4] J. Zhao, R. Jota, D. Wigdor, and R. Balakrishnan. **Augmenting Mobile Phone Interaction with Face-Engaged Gestures.** arXiv:1610.00214, 2016.

[W3] J. Wang, J. Zhao, S. Guo, and C. North. **Clustered Layout Word Cloud for User Generated Review.** Yelp Dataset Challenge, 2013 (Grand Prize Winner).

[W2] J. Zhao. **A Particle Filter Based Approach of Visualizing Time-varying Volume.** LDAV'12: Proceedings of the IEEE Symposium on Large-Scale Data Analysis and Visualization (Poster), 2012.

[W1] J. Zhao, R. W. Soukoreff, and R. Balakrishnan (Poster). **A Model of Multi-touch Manipulation.** GRAND'11: Proceedings of the 2nd Annual Grand Conference, 2011.

Patents

[P19] T. Fujiwara, J. Zhao, and C. Chen. **System and Method for Contrastive Network Analysis and Visualization.** Filed in 2020.

[P18] J. Zhao. **System and Method for Summarizing and Steering Multi-User Collaborative Data Analysis.** Filed in 2019.

[P17] J. Zhao, and C. Chen. **System and Method for Automatically Sorting Ranked Items and Generating a Visual Representation of Ranked Results.** Filed in 2019.

[P16] H. Oda, C. Bhatt, J. Zhao. **Optimized Parts Pickup List and Routes for Efficient Manufacturing using Frequent Pattern Mining and Visualization.** Filed in 2019.

[P15] J. Zhao, F. Chen, P. Chiu. **A Visual Analysis Framework for Understanding Missing Links in Bipartite Networks.** Filed in 2018.

[P14] J. Wenskovitch, J. Zhao, M. Cooper, S. Catter. **System and Method for Computational Notebook Interface.** Filed in 2018.

[P13] F. Chen, J. Zhao, Y. Chen. **System and Method for Generating Titles for Summarizing Conversational Documents.** Filed in 2018.

[P12] J. Zhao, Y. Chen, F. Chen. **System and Method for Creating Visual Representation of Data based on Generated Glyphs.** Filed in 2018.

[P11] J. Zhao, C. Bhatt, M. Cooper, A. Shamma. **System and Method for Visualizing and Recommending Media Content Based on Sequential Context.** Filed in 2018.

[P10] J. Zhao and S. Fu. **System and Method for Analyzing and Visualizing Team Conversational Data.** Filed in 2017.

[P9] J. Zhao, F. Chen, and P. Chiu. **System and Method for Visual Exploration of Sub-Network Patterns in Two-Mode Networks.** Filed in 2017.

[P8] J. Zhao, F. Chen, and P. Chiu. **System for Visually Exploring Coordinated Relationships in Data.** Filed in 2017.

[P7] F. Chen, J. Zhao, and Y.-Y. Chen. **System and Method for User-Oriented Topic Selection and Browsing.** Filed in 2017.

[P6] M. Glueck, A. Khan, and J. Zhao. **Handoff Support in Asynchronous Analysis Tasks using Knowledge Transfer Graphs.** Filed in 2017.

[P5] J. Zhao, M. Glueck, A. Khan, and S. Breslay. **Techniques For Mixed-Initiative Visualization of Data.** Filed in 2017.

[P4] J. Zhao, M. Glueck, and A. Khan. **Node Centric Analysis of Dynamic Networks.** US Patent US10142198 B2, 2018.

[P3] M. Dontcheva, J. Zhao, A. Hertzmann, A. Wilson, and Z. Liu. **Providing Visualizations of Event Sequence Data.** US Patent US9577897 B2, 2017.

[P2] L. Gou, F. Wang, J. Zhao, and M. Zhou. **Personal Emotion State Monitoring from Social Media.** US Patent 20150213002 A1, 2015.

[P1] J. Zhao, S. Drucker, D. Fisher, and D. Brinkman. **Relational Rendering of Multi-Faceted Data.** US Patent 20130194294 A1, 2013.

Services

Cherition School of Computer Science

2019 Graduate Committee: General Subcomittee Member

Organizing Committees

2020 ISVC: Visualization Area Co-Chair

2019-2020 IEEE VAST: Fast Forward and Video Co-Chair

2019 IEEE PacificVis: Visual Data Storytelling Contest Co-Chair

2019 ChinaVis: Poster Co-Chair

Program Committees

2020 Graphics Interface Conference (GI)

2019-2020 ACM Conference on Human Factors in Computing Systems (CHI)

2017-2019 IEEE Conference on Visual Analytics Science & Technology (VAST)

2017 International Symposium on Graph Drawing and Network Visualization (GD)

2017-2018 China Visualization and Visual Analytics Conference (ChinaVis)

2016-2018 IEEE Pacific Visualization Symposium (PacificVis)

2016 ACM Conference on Human Factors in Computing Systems (CHI) - Late Breaking Work

2016-2019 International Symposium of Chinese CHI (Chinese CHI)

2014-2015 International Symposium on Visual Computing (ISVC)

Conference Session Chairs

2019 ACM CHI: Storytelling with Visualization

2018 IEEE VIS: VAST - Text

Invited Conference Reviewers

IEEE VIS Conference (VAST, InfoVis, and SciVis)

IEEE Pacific Visualization Symposium (PacificVis)

IEEE Eurographics/VGTC Symposium on Visualization (EuroVis)

ACM Conference on Designing Interactive Systems (DIS)

ACM Conference on Human Factors in Computing Systems (CHI)

ACM Conference on User Interface Software and Technology (UIST)

ACM Graphics Interface Conference (GI)

ACM World Wide Web Conference (WWW)

ACM Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI)

ACM Nordic Conference on Human-Computer Interaction (NordiCHI)

ACM Asia Pacific Conference on Computer Human Interaction (APCHI)

International Conference on the Learning Sciences (ICLS)

International Symposium of Chinese CHI (Chinese CHI)

Invited Journal Reviewers

Information Visualization

International Journal of Human-Computer Interaction (IJHCI)

Informatics

Human-Centric Computing and Information Sciences (HCIS)

ACM Transactions on Interactive Intelligent Systems (TiiS)

IEEE Transactions on Visualization and Computer Graphics (TVCG)

IEEE Transactions on Knowledge and Data Engineering (TKDE)

Journal of Visual Languages and Computing

Professional Organization

2018 ICACHI (International Chinese Association of Computer Human Interaction) Council Member

Student Volunteers

2014 ACM Conference on Human Factors in Computing Systems (CHI)

2010-2011 IEEE VIS (VAST, InfoVis, and SciVis) Conference

Talks

Invited Talks

2019.11 **Towards an Integrated Environment of Data, Machines, and Humans using Visualization**, *Adobe Research*, San Jose, CA.

2019.8 **Connecting Data, Models, and Users with Visualization**, *Brookhaven National Laboratory*, Upton, NY.

2019.8 **Connecting Data, Models, and Users with Visualization**, *Stonybrook University*, Stonybrook, NY.

2018.12 **Design Visualization for the Data Science Workflow**, *Jilin University*, Changchun, China.

2018.9 **Design Visualization for the Data Science Workflow**, *Google AI China Center*, Beijing, China.

2018.9 **Design Visualization for the Data Science Workflow**, *Peking University*, Beijing, China.

2018.7 **Design Visualization for the Data Science Workflow**, *Zhejiang University*, Hangzhou, China.

2015.11 **Visualization and Design: What I Did and What I Learned**, *Mnubo Inc.*, Montreal, QC.

2015.6 **Supporting Data Analytics with Interactive Visualization**, *CaseWare International Inc.*, Toronto, ON.

2015.5 **Bridging Data and User with Interactive Visualization**, *Peking University*, Bejing, China.

2014.11 **Bridging Data and User with Interactive Visualization**, *Autodesk Research*, Toronto, ON.

2014.9 **Visual Comparison of Event Sequence Data**, *Adobe Research*, San Francisco, CA.

2013.12 **Visual Data Exploration: A Multi-Focus Approach**, *University of Ontario Institute of Technology*, Oshawa, ON.

2013.9 **Visual Analytics of Online Social Media with PEARL**, *IBM Almaden Research Center*, San Jose, CA.

2013.4 **TrailMap: Facilitating Information Seeking in a Multi-Scale Digital Map via Implicit Bookmarking**, *ToRCHI Seminar*, Toronto, ON.

2011.8 **TimeSlice: Interactive Faceted Browsing of Timeline Data**, *Microsoft Research*, Redmond, WA.

2010.12 **Modeling Scrolling Interactions on Touch Screens**, *Jilin University*, Changchun, China.

2010.9 **KronoMiner: Using Multi-Foci Navigation for the Visual Exploration of Time-Series Data**, *KMDI Seminar, University of Toronto.*

Conference Presentations

2019.10 **The Effect of Edge Bundling and Seriation on Sensemaking of Biclusters in Bipartite Graphs**, *IEEE VIS*, Vancouver, BC.

2019.10 **MissBiN: Visual Analysis of Missing Links in Bipartite Networks**, *IEEE VIS*, Vancouver, BC.

2017.10 **BiDots: Visual Exploration of Weighted Coordinated Relationships**, *IEEE VIS*, Phoenix, AZ.

2017.10 **Supporting Handoff in Asynchronous Collaborative Sensemaking Using Knowledge-Transfer Graphs**, *IEEE VIS*, Phoenix, AZ.

2016.11 **Annotation Graphs: A Graph-Based Visualization for Meta-Analysis of Data based on User-Authored Annotations**, *IEEE VIS*, Baltimore, MA.

2016.5 **Egocentric Analysis of Dynamic Networks with EgoLines**, *ACM CHI*, San Jose, CA.

2015.4 **Visual Comparison of Event Sequence Data**, *ACM CHI*, Seoul, South Korea.

2014.11 **#FluxFlow: Visual Analysis of Anomalous Information Spreading on Social Media**, *IEEE VIS*, Paris, France.

2014.11 **PEARL: An Interactive Visual Analytic Tool for Understanding Personal Emotion Style Derived from Social Media**, *IEEE VIS*, Paris, France.

2013.5 **TrailMap: Facilitating Information Seeking in a Multi-Scale Digital Map via Implicit Bookmarking**, *ACM CHI*, Paris, France.

2012.10 **Facilitating Discourse Analysis with Interactive Visualization**, *IEEE VisWeek*, Seattle, WA.

2011.10 **Exploratory Analysis of Time-series with ChronoLenses**, *IEEE VisWeek*, Providence, RI.

2011.5 **KronoMiner: Using Multi-Foci Navigation for the Visual Exploration of Time-Series Data**, *ACM CHI*, Vancouver, BC.

2011.5 **A Model of Multi-touch Manipulation**, *GRAND*, Vancouver, BC.