

XIAOLONG (LUKE) ZHANG

Associate Professor of Information Sciences and Technology
Courtesy Appointment, Department of Industrial and Manufacturing Engineering
The Pennsylvania State University, University Park
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EDUCATION

- University of Michigan, Ann Arbor, Michigan
Ph.D., Information Science: Human-Computer Interaction (HCI), 2003
- Tsinghua University, Beijing, China
M.E. in Mechano-Electronic Control and Automation, 1994
- Tsinghua University, Beijing, China
B.E. in Machine design and Manufacturing, 1992

PROFESSIONAL HISTORY

- Associate Professor July, 2011– present
The Pennsylvania State University, University Park, Pennsylvania
College of Information Sciences and Technology
- Member, Science Steering Committee October, 2014– present
Penn State Center for Advanced Data Assimilation and Predictability Techniques
The Pennsylvania State University, University Park
- Visiting Professor November, 2012 – present
Taiyuan University of Technology, Taiyuan, China
- Courtesy Appointment November, 2012 – present
The Pennsylvania State University, University Park
Department of Industrial and Manufacturing Engineering
- Visiting Researcher July, 2012 – July 2013
Institute of Software, Chinese Academy of Sciences, Beijing, China
- Visiting Researcher June 2012 – August 2012
XEROX Research Centre Europe, Meylan, France.
- Assistant Professor July, 2005 – June, 2011
The Pennsylvania State University, University Park, Pennsylvania
College of Information Sciences and Technology
- Assistant Professor August, 2003 – June, 2005
University of Arizona, Tucson, Arizona
School of Information Resources and Library Science

GENERAL RESEARCH INTERESTS

- Multiscale information visualization, 3D virtual environments, spatial cognition and wayfinding, visualization-based knowledge acquisition and sensemaking, social network analysis and visualization, mobile user interfaces.

PUBLICATIONS

Refereed Journal Papers (Supervised graduate students in *italic*)

- J-24 Wu, H, Wang, J., & **Zhang, X.** (2015) "Combining hidden Markov model and fuzzy neural network for continuous recognition of complex dynamic gestures," *The Visual Computer*, Accepted for Publication, DOI: 10.1007/s00371-015-1147-2.
- J-23 Wu, H, Wang, J., & **Zhang, X.** (2014) "User-centered Gesture Development in TV Viewing Environment," *Multimedia Tools and Applications*, Accepted for Publication, DOI: 10.1007/s11042-014-2323-5.
- J-22 Li, B., Zhu, K., Zhang, W., Wu, A., & **Zhang, X.** (2014) "A Comparative Study of Two Wayfinding Aids for Simulated Driving Tasks - Single-Scale and Dual-Scale GPS Aids," *Behaviour & Information Technology*, Vol. 33, No. 4, pp. 361-371.
- J-21 Qiang, Y., Pei, B., Wu, W., Zhao, J., **Zhang, X.**, Li, Y., & Wu, L. (2014) "Improvement of Path Analysis Algorithm in Social Networks based on HBase," *Journal of Combinatorial Optimization*. Vol. 28, No. 3, pp. 588-599.
- J-20 Zhao, J., Wu, W., **Zhang, X.**, Qiang, Y., Liu, T., & Wu, L. (2014) "A Short-Term Trend Prediction Model of Topic over Sina Weibo Dataset," *Journal of Combinatorial Optimization*. Vol. 28, No. 3, pp. 613-625.
- J-19 Song, H., Fu, Y., Zhang, L., & **Zhang, X.** (2013). "Cursor Caging: Enhancing Focus Targeting in Interactive Fisheye Views," *SCIENCE CHINA Information Sciences*. Vol. 56, No. 5, pp. 1-16.
- J-18 Li, B., Zhu, K., Zhang, W., Wu, A., & **Zhang, X.** (2013). "A Comparative Study of Two Wayfinding Aids with Simulated Driving Tasks - GPS and a Dual-Scale Exploration Aid," *International Journal of Human Computer Interaction*. Vol. 29, No. 3, pp. 169-177.
- J-17 Wu, A., Convertino, G., Ganoë, C., Carroll, J., & **Zhang, X.** (2013). "Supporting Collaborative Sense-making in Emergency Management through Geo-visualization," *International Journal of Human Computer Studies*. Vol. 71, No. 1, pp. 4-23.
- J-16 Zhang, L., Song, H., Ou, Z., Fu, Y., & **Zhang, X.** (2013). "Image Retargeting with Multifocus Fisheye Transformation," *Visual Computer*. Vol. 29, No. 5, pp. 407-420.
- J-15 Ren, L., Zhang, L., Tao, F., **Zhang, X.**, Luo Y., & Zhang, Y. (2012). "A Methodology Towards Virtualisation-based High Performance Simulation Platform Supporting Multidisciplinary Design of Complex Products," *Enterprise Information Systems*. Vol. 6, No. 3, pp. 267-290. DOI: 10.1080/17517575.2011.592598. Available online on June 27, 2011.
- J-14 Tian, F., Lv, F., Jiang, Y., **Zhang, X.**, Cao, X., Dai, G., & Wang, H. (2012) "An Exploration of Pen Tail Gestures for Interactions," *International Journal of Human-Computer Studies*, Vol. 71, No. 5, pp. 551-569.
- J-13 Gou, L., & **Zhang, X.** (2011). "TreeNetViz: Revealing Patterns of Networks over Tree Structures," *IEEE Transactions on Visualization and Computer Graphics*. Vol. 17, No. 12, pp. 2449-2458.

- J-12 **Zhang, X.**, Simpson, T., Frecker, M., & Lesieutre, G. (2012). "Supporting Knowledge Exploration and Discovery in Multi-Dimensional Data with Interactive Multiscale Visualization," *Journal of Engineering Design*. Vol. 23, No. 1, pp. 23-47. DOI: 10.1080/09544828.2010.487260. Available Online June 23, 2010.
- J-11 Jiang, Y., Tian, F., Wang, X., **Zhang, X.**, Dai, G., & Wang, H. (2011). "Understanding, Manipulating and Searching Hand-Drawn Concept Maps," *ACM Transactions on Intelligent Systems and Technology*. Vol. 3, No.1, Article 11 (22 pages).
- J-10 Wolf, D., Hyland, J., Simpson, T., & **Zhang, X.** (2011). "The Importance of Training for Interactive Trade Space Exploration: A Preliminary Study of Novice and Expert Users," *Journal of Computing and Information Science in Engineering*. Vol. 11, No. 3, Article 031009-1 (11 pages).
- J-9 Gupta, S., Xu, H., & **Zhang, X.** (2011). "Balancing Privacy Concerns in the Adoption of Location-Based Services: An Empirical Analysis," *International Journal of Electronic Business*. Vol. 9, No. 1/2, pp. 118-137.
- J-8 Gou, L., Zhang, S., Wang, J., Chen, K. Giles, C. L., & **Zhang, X.** (2011). "TagNet: Supporting the Exploration of Knowledge Structures of Social Tags with Multiscale Network Visualization," *International Journal of Advanced Intelligence*, Vol. 3, No. 1, pp. 67-93
- J-7 Squicciarini, C. A., Xu, H., & **Zhang, X.** (2011). "CoPE: Enabling Collaborative Privacy Management in Online Social Networks," *Journal of the American Society for Information Science and Technology*, Vol. 62, No. 3, pp. 521-534.
- J-6 Ren, L., Tian, F., **Zhang, X.**, & Zhang, L. (2010). "DaisyViz: A Model-based User Interface Toolkit for Interactive Information Visualization Systems," *Journal of Visual Languages and Computing*, Vol. 21, No. 4, pp. 209-229.
- J-5 **Zhang, X.** (2009). "Multiscale Traveling: Crossing the Boundary between Space and Scale," *Virtual Reality*, Vol. 13, No. 2, pp. 101-115.
- J-4 Wu, A., Zhang, W., & **Zhang, X.** (2009). "Evaluation of Wayfinding Aids in Virtual Environment," *International Journal of Human-Computer Interaction*, Vol. 25, No. 1, pp. 1-21.
- J-3 **Zhang, X.** (2008). "A Multiscale Progressive Model on Virtual Navigation," *International Journal of Human-Computer Studies*, Vol. 66, No. 4, pp. 243-256.
- J-2 **Zhang, X.** (2007). "M²S Maps: Supporting Real-World Navigation with Mobile VR," *Virtual Reality*, Vol. 11, No. 2-3, pp. 161-173.
- J-1 **Zhang, X.**, & Furnas, G. W. (2005). "mCVEs: Using Cross-Scale Collaboration To Support User Interaction With Multiscale Structures," *PRESENCE: Teleoperators and Virtual Environments*, Vol. 14, No. 1, pp. 31-46.

Peer Reviewed Conference Proceedings (Supervised graduate students in *italic*)

- C-43 Chen, S., Yuan, X., Wang, Z., Guo, C., Liang, J., Wang, Z., **Zhang, X.** & Zhang, J. (2015) "Interactive Visual Discovering of Movement Patterns from Sparsely Sampled Geo-tagged Social Media Data," In *Proceedings of IEEE Conference on Visual Analytics Science and Technology* (Chicago, USA, October 25 - 30, 2015). VAST'15.
- C-42 Chen, Y., Tian, F., Zeng, X., Jiang, C., **Zhang, X.**, Zhu, Y., Wang, H. (2014) "UbiSpoon: Pervasive Monitoring of Nervous System Diseases through Daily Life," In *Extended*

- Abstracts of ACM Conference on Human Factors in Computing Systems (Toronto, Canada, April 26 – May 1, 2014). CHI'14, pp. 2395-2400.
- C-41 Zeng, X., Tian, F., Jiang, Y., **Zhang, X.**, Dai, G., & Wang, H. (2013) "Thumb Widgets: Apply Thumb-tracking to Enhance Capabilities of Multi-touch on Mobile Devices," In Extended Abstracts of ACM Conference on Human Factors in Computing Systems (Paris, France, April 27 - May 2, 2013). CHI'13, pp. 1281-1286.
- C-40 Zhao, J., Wu, W., **Zhang, X.**, Qiang, Y., Liu, T., & Wu, L. (2013) "A Short-Term Prediction Model of Topic Popularity on Microblogs," In Proceedings of 19th International Conference on Computing and Combinatorics (Hangzhou, China, June 21 - 23, 2013). COCOON'13, pp. 759-769.
- C-39 Qiang, Y., Lu, J., Wu, W., Zhao, J., **Zhang, X.**, Li, Y., & Wu, L. (2013). "Social Network Path Analysis Based on HBase," In Proceedings of 19th International Conference on Computing and Combinatorics (Hangzhou, China, June 21 - 23, 2013). COCOON'13, pp. 770-779
- C-38 Pan, L., Tian, F., Lv, F., **Zhang, X.**, Liu, Y., Feng, W., Dai, G., & Wang, H. (2013). "An Exploration on Long-Distance Communications between Left-behind Children and Their Parents in China," In Proceedings of ACM Conference on Computer Supported Cooperative Work (San Antonio, Texas, USA, February 23 – 27, 2013). CSCW'13, pp. 1147-1156.
- C-37 Gou, L., & **Zhang, X.**, Luo, A., & Anderson, P. (2012). "SocialNetSense: Supporting Sensemaking of Social and Structural Features in Networks with Interactive Visualization," In Proceedings of IEEE Conference on Visual Analytics Science and Technology (Seattle, Washington, USA, October 14 - 19, 2012). VAST'12, pp. 133-142.
- C-36 Chen, H., Gou, L., **Zhang, X.**, & Giles, C. L. (2012). "Predicting Recent Links in FOAF Networks," In Proceedings of the 5th International Conference on Social Computing, Behavioral – Cultural Modeling and Prediction (College, Maryland, USA, April 3 – 5, 2012). SBP'12, pp. 156-163.
- C-35 Chen, H., Gou, L., **Zhang, X.**, & Giles, C. L. (2012). "Discovering Missing Links in Networks Using Vertex Similarity Measures," In Proceedings of the ACM Symposium on Applied Computing (Riva, Trento, Italy, March 26 – 30, 2012). SAC'12, pp. 138 – 143.
- C-34 Jiang, Y., Tian, F., **Zhang, X.**, Dai, G., & Wang, H. (2012). "Recognition of Flexible Multi-Touch Gestures with Key Stroke Extraction," In Proceeding of the 15th International Conference on Intelligent User Interfaces (Lisbon, Portugal, February 14 - 17, 2012). IUI '12. ACM, New York, NY.
- C-33 Yan, X., Qiao, M., Li, J., Simpson, T., Stump, G., & **Zhang, X.** (2012). "A Work-Centered Visual Analytics Model to Support Engineering Design with Interactive Visualization and Data-Mining," In Proceedings of the 2011 45th Hawaii International Conference on System Sciences (Maui, Hawaii, USA, January 04 – 07, 2012). HICSS 45. IEEE Computer Society, Washington, DC, pp. 1845 – 1854. (Best Paper Award Nomination).
- C-32 Gou, L., You, F., Guo, J., Wu, L., & **Zhang, X.** (2011). "SFViz: Interest-based Friends Exploration and Recommendation in Social Networks," In Proceedings of the 2011

- Visual Information Communication - International Symposium (Hong Kong, China, August 04 – 05, 2011). VINCI '11. ACM, New York, NY, Article 15.
- C-31 Tian, F., Cao, X., Lv, F., Dai, G., **Zhang, X.**, & Wang, H. (2011). "Empirical Studies of Pen Tilting Performance in Pen-based User Interfaces," In Proceedings of the 2011 Visual Information Communication - International Symposium (Hong Kong, China, August 04 – 05, 2011). VINCI '11. ACM, New York, NY, Article 8.
- C-30 Wu, A., Yan, X., & **Zhang, X.** (2011). "Geo-Tagged Mobile Photo Sharing In Collaborative Emergency Management," In Proceedings of the 2011 Visual Information Communication - International Symposium (Hong Kong, China, August 04 – 05, 2011). VINCI '11. ACM, New York, NY, Article 7.
- C-29 Chen, H., Gou, L., **Zhang, X.**, & Giles, C. L. (2011). "Capturing Missing Edges in Social Networks Using Vertex Similarity," In Proceedings of the 6th International Conference on Knowledge Capture (Banff, Alberta, Canada, June 26 - 29, 2011). K-CAP 2011. ACM, New York, NY, pp. 195-196
- C-28 Chen, H., Gou, L., **Zhang, X.**, & Giles, C. L. (2011). "CollabSeer: A Search Engine for Collaboration Discovery," In Proceedings of the 11th ACM/IEEE-CS Joint Conference on Digital Libraries (Ottawa, ON, Canada, June 13 - 17, 2011). JCDL '11. ACM, New York, NY, pp. 231-240.
- C-27 Lv, F., Tian, F., Jiang, Y., Cao, X., Luo, W., Li, G., **Zhang, X.**, Dai, G., Wang, H. (2011). "ShadowStory: Creative and Collaborative Digital Storytelling Inspired by Cultural Heritage," In Proceedings of the 29th ACM Conference on Human Factors in Computing Systems (Vancouver, Canada, May 07 - 12, 2011). CHI '11. ACM, New York, NY, pp. 1919-1928.
- C-26 Shi, P., Xu, H., & **Zhang, X.** (2011). "Informing Security Indicator Design in Web Browsers," In Proceedings of the iSchools 2011 Conference (Seattle, Washington, USA, February 08 – 01, 2010). iConference '11, pp. 569-575.
- C-25 Gou, L., Zhang, S., Wang, J., Chen, K. Giles, C. L., & **Zhang, X.** (2010). "TagNetLens: Visualizing Knowledge Structures with Social Tags," In Proceedings of the 2010 Visual Information Communication - International Symposium (Beijing, China, September 28 - 29, 2010). VINCI '10. ACM, New York, NY, pp. 97-105.
- C-24 Wu, A., **Zhang, X.**, & Cai, G. (2010). "An Interactive Sensemaking Framework for Mobile Visual Analytics," In Proceedings of the 2010 Visual Information Communication - International Symposium (Beijing, China, September 28 - 29, 2010). VINCI '10. ACM, New York, NY, pp. 133-141.
- C-23 Gou, L., **Zhang, X.**, Chen, H., Kim, J., & Giles, C. L. (2010). "Social Network Document Ranking," In Proceedings of the 10th ACM/IEEE-CS Joint Conference on Digital Libraries (Surfers Paradise, Australia, June 21 - 25, 2010). JCDL '10. ACM, New York, NY, pp. 313-322.
- C-22 Gou, L., Chen, H., Kim, J., **Zhang, X.**, & Giles, C. L. (2010). "SNDocRank: Document Ranking based on Social Networks," In Proceedings of the 19th International Conference on World Wide Web (Raleigh, North Carolina, USA, April 26 - 30, 2010). WWW '10. ACM, New York, NY, pp. 1103-1104.
- C-21 Gou, L., Kim, J., Chen, H., **Zhang, X.**, & Giles, C. L. (2010). "SNDocRank: a Social Network-Based Search Ranking," In Proceedings of the International Conference on

- Multimedia Information Retrieval (Philadelphia, Pennsylvania, USA, March 29 - 31, 2010). MIR '10. ACM, New York, NY, pp. 367-376.
- C-20 Jiang, Y., Tian, F., Wang, H., **Zhang, X.**, & Dai, G. (2010). "Intelligent Understanding of Handwritten Geometry Theorem Proving," In Proceeding of the 14th International Conference on Intelligent User Interfaces (Hong Kong, China, February 07 - 10, 2010). IUI '10. ACM, New York, NY, pp. 119-128.
- C-19 Wu, A., **Zhang, X.**, Carroll, J. M., & Klippel, A. (2010). "Sensemaking in the Space: An Alternative Design Perspective for Mobile Navigation Systems," In Proceedings of the iSchools 2010 Conference (Urbana-Champaign, Illinois, USA, February 03 - 06, 2010). iConference '10, pp. 570-571.
- C-18 Wolf, D., Simpson, T., & **Zhang, X.** (2009). "A Preliminary Study of Novice and Expert Users' Decision-Making Procedures during Visual Trade Space Exploration," In Proceedings of the ASME Design Engineering Technical Conferences-Design Automation Conference (San Diego, California, USA, August 30 - September 2, 2009). DETC2009/DAC-87294.
- C-17 **Zhang, X.**, Simpson, T., Frecker, M., & Lesieutre, G. (2009). "Supporting Trade Space Exploration of Multi-Dimensional Data with Interactive Multi-Scale Nested Clustering and Aggregation," In Proceedings of the ASME Design Engineering Technical Conferences-Design Automation Conference (San Diego, California, USA, August 30 - September 2, 2009). DETC2009/DAC-87045.
- C-16 Gou, L., Kim, J., Chen, H., Collins, J., Goodman, M., **Zhang, X.**, & Giles, C. L. (2009). "MobiSNA: A Mobile Video Social Network Application," In Proceedings of the 8th ACM International Workshop on Data Engineering for Wireless and Mobile Access (Providence, Rhode Island, June 29, 2009). MobiDE '09. ACM, New York, NY, pp. 53-56.
- C-15 Wu, A., & **Zhang, X.** (2009). "Identifying Proper Scales on Digital Maps for In-Vehicle Navigation Systems," In Proceedings of the 5th International Conference on Universal Access in Human-Computer Interaction. Part III: Applications and Services (San Diego, California, USA, July 19 - 24, 2009). C. Stephanidis, Ed. Lecture Notes in Computer Science, Vol. 5616. Springer-Verlag, Berlin, Heidelberg, pp. 262-270.
- C-14 Wu, A., **Zhang, X.**, Convertino, G., & Carroll, J. M. (2009). "CIVIL: Support Geocollaboration with Information Visualization," In Proceedings of the ACM 2009 International Conference on Supporting Group Work (Sanibel Island, Florida, USA, May 10 - 13, 2009). GROUP '09. ACM, New York, NY, pp. 273-276.
- C-13 Jiang, Y., Tian, F., Wang, X., **Zhang, X.**, Dai, G., & Wang, H. (2009). "Structuring and Manipulating Hand-Drawn Concept Maps," In Proceedings of the 13th International Conference on Intelligent User Interfaces (Sanibel Island, Florida, USA, February 08 - 11, 2009). IUI '09. ACM, New York, NY, pp. 457-462.
- C-12 Wu, A., **Zhang, X.**, & Zhang, W. (2008). "GPS - Secure Against Getting Lost, or More Danger," In Proceedings of the 2008 International Conference on Cyberworlds (Hangzhou, China, September 22 - 24, 2008). IEEE Computer Society, Washington, DC, pp. 501-505.
- C-11 Klippel, A., Li, R., Wu, A., & **Zhang, X.** (2008). "Interactive, Multiscale YAH Maps," In Proceedings of the Workshop of "You-Are-Here Maps: Creating a Sense of Place

- through Map-like Representations”, held in conjunction with the International Conference Spatial Cognition 2008 (Freiburg, Germany, September 15 – 19, 2008), pp. 11-20.
- C-10 **Zhang, X.**, Qu, Y., Giles, C., & Song, P. (2008). “CiteSense: Supporting Sensemaking of Research Literature,” In Proceeding of the 26th ACM Conference on Human Factors in Computing Systems (Florence, Italy, April 05 - 10, 2008). CHI '08. ACM, New York, NY, pp. 677-680.
- C-9 Tian, F., Xu, L., Wang, H., **Zhang, X.**, Liu, Y., Setlur, V., & Dai, G. (2008). “Tilt Menu: Using the 3D Orientation Information of Pen Devices to Extend the Selection Capability of Pen-Based User Interfaces,” In Proceeding of the 26th ACM Conference on Human Factors in Computing Systems (Florence, Italy, April 05 - 10, 2008). CHI '08. ACM, New York, NY, pp. 1371-1380.
- C-8 Convertino, G., Wu, A., **Zhang, X.**, Ganoë, C., Hoffman, B., & Carroll, J. M. (2008). “Designing Group Annotations and Process Visualizations for Role-Based Collaboration,” In Proceedings of the 1st International Workshop on Social Computing, Behavioral Modeling, and Prediction (Phoenix, Arizona, USA, April 01 – 02, 2008). SBP '08. Springer-Verlag, New York, pp.197-206.
- C-7 Carroll, J. M., Haynes, S. R., Ritter, F. E., Rosson, M. B., & **Zhang, X.** (2008). “The d-School in the i-School: HCI and Design Research,” In Proceedings of the iSchools 2008 Conference (Los Angeles, California, USA, February 28 – March 01, 2008). iConference '08.
- C-6 Wu, A., Zhang, W., Hu, B., & **Zhang, X.** (2007). “Evaluation of Wayfinding Aids Interface in Virtual Environment,” In Proceedings of the 12th International Conference on Human-Computer Interaction: Interaction Platforms and Techniques (Beijing, China, July 22 – 27 2007). J. A. Jacko, Ed. Lecture Notes in Computer Science. Springer-Verlag, Berlin, Heidelberg, pp. 700-709.
- C-5 **Zhang, X.** (2005). “Space-Scale Animation: Enhancing Cross-Scale Understanding of Multiscale Structures in Multiple Views,” In Proceedings of the 3rd International Conference on Coordinated and Multiple Views in Exploratory Visualization (London, UK, July 05, 2005). CMV '05. IEEE Computer Society, Washington, DC, pp. 109-120.
- C-4 **Zhang, X.**, & Furnas, G. W. (2003). “The Effectiveness of Multiscale Collaboration in Virtual Environments,” In Extended Abstract of the 21st ACM Conference on Human Factors in Computing Systems (Ft. Lauderdale, Florida, USA, April 05 - 10, 2003). CHI '03. ACM, New York, NY, pp. 790-791.
- C-3 **Zhang, X.**, & Furnas, G. W. (2002). “Social Interactions in Multiscale CVEs,” In Proceedings of the 4th International Conference on Collaborative Virtual Environments (Bonn, Germany, September 30 - October 02, 2002). CVE '02. ACM, New York, NY, pp. 31-38.
- C-2 Furnas, G. W., & **Zhang, X.** (2000). “Illusions of Infinity: Feedback for Infinite Worlds,” In Proceedings of the 13th Annual ACM Symposium on User interface Software and Technology (San Diego, California, USA, November 06 - 08, 2000). UIST '00. ACM, New York, NY, pp. 237-238.

- C-1 Furnas, G. W., & **Zhang, X.** (1998). "MuSE: Multiscale Editor," In Proceedings of the 11th Annual ACM Symposium on User interface Software and Technology (San Francisco, California, USA, November 01 - 04, 1998). UIST '98. ACM, New York, NY, pp. 107-116.

Peer Reviewed Book Chapters

- **Zhang, X.,** & Furnas, G. W. (2005). "Multiscale Space and Multiscale Place," In E. Davenport, & P. Turner, Eds., *Spaces, Spatiality and Technologies*. Springer, Netherlands, pp. 261-280.

Technical Reports

- Giles, C. L., **Zhang, X.,** *Gou, L.,* Kim, J., & Chen, H. (2009). "MobiSNA: a Mobile Video Social Network Application," White Paper for Alcatel-Lucent.

PRESENTATIONS, TALKS, PANELS, AND WORKSHOPS

- Invited talk on "Multiscale and Cross-scale Analysis of Attribute-Rich Social Networks" at the Forum on Visual Analytics of Security Data, Peking University, Beijing, China, June, 2015.
- Invited attendee at the NSF Workshop on Theories of Systems Engineering, Arlington, VA, November, 2014.
- Invited lecture on "Evaluation Methods in HCI Research" at the Software Engineering Summer School, Nanjing University, China, August, 2014.
- Invited talk on "Collaborative Visual Analytics in Emergency Management" at the First China Visual Analytics Conference, Beijing, China, July, 2014.
- Invited talk on "Using Visualization to Supporting Sensemaking in Collaborative Emergency Management" at the China HCI Summit, Linyi University, China, July, 2014.
- Invited lecture on "Information Visualization" at the Software Engineering Summer School, Nanjing University, China, August, 2013.
- Invited lecture on "Tree and Network Visualization" at the Visualization Summer School, Zhejiang University, China, July, 2013.
- Invited talk on "Actor Similarity in Attribute-Rich Social Networks: A Visual Analytic Approach" in Visualization Symposium, Peking University, China, July, 2013.
- Invited talk on "Relation Strength Similarity and Its Applications" in Lecture Series in the Frontier of Engineering Science, College of Engineering, Chongqing University, China, April, 2013.
- Invited talk on "Data Mining, Clustering and Cyberinfrastructure: An Information Science and Engineering Perspective" at the NSF Workshop on Workshop on Shaping the Development of EarthCube to Enable Advances in Data Assimilation and Ensemble Prediction, Boulder, CO, December, 2012.
- Keynote talk on "The Integration of User-Centered Interactive Design and Data-Oriented Algorithms in Interactive Analytics of Complex Data" at the 8th Joint Conference on Harmonious Human Machine Environment, Guangzhou, China, November, 2012.

- Invited talk on “Visual Analytics of Attribute-Rich Social Networks” at the Advanced Disciplines Lectures (Visual Analytics) of China Computer Federation, Beijing, China, August 2012.
- Invited lecture on “Using Geo-Visualization to Support Sensemaking” at the Visualization Summer School, Peking University, Beijing, China, August, 2012.
- Invited talk on “Using Visualization to Enhance Sensemaking” at the XEROX Research Centre Europe, Meylan, France, July, 2012.
- Invited talk on “Visual Analytics of Social Networks” at the Visualization and Visual Computing Group, Peking University, Beijing, China, September, 2011.
- Invited talk on “Design in HCI: Bridging Technology and People” at the Forum on the Frontiers on Interaction Design, SIGCHI China, Sun Yat-Sen (Zhongshan) University, China, June, 2011.
- Talk on “Social Network-based Document Ranking and Recommendation” at the Workshop of Smart Health and Wellbeing, held in the Penn State - Peking University Multi Workshops, May, 2011.
- Invited talk on “The Integration of Interaction Design and Data-Processing Algorithms in Interactive Social Network Analysis” at the College of Information Science and Technology, Beijing Normal University, Beijing, China, March, 2011.
- Invited talk on “Interactive Visualization of Large Data Sets” at the Intelligence Engineering Lab, Institute of Software, Chinese Academy of Sciences, China, May, 2010.
- Invited talk on “Social Network Analysis and Application: An i-School Perspective” at the School of Information Science and Technology, Sun Yat-Sen (Zhongshan) University, Guangzhou, China, May, 2010.
- Invited talk on “Social Network Analysis and Application: An i-School Perspective” at the School of Information Management, Wuhan University, Wuhan, China, May, 2010.
- Panel Talk on “Interactive Visualization of Large Data Sets: Challenges and Some Preliminary Answers” in the Panel of “Visualization and Rich Data Sets” in the 2010 Annual Workshop of Human-Computer Interaction Consortium (HCIC '10), Fraser, Colorado, USA, February, 2010.
- Invited talk on “ScaleNetVis: Towards Social Duality with Content-based Multiscale Social Network Visualization” at NATO Research Task Working Group Workshop on Network Visualization, University Park, Pennsylvania, USA, October, 2009.
- Invited talk on “Support Sensemaking with Visualization and Advanced User Interfaces” at the HCI group, Microsoft Research Asia (MSRA), Beijing, China, June, 2009.
- Invited talk on “Visualization to Support Knowledge Exploration, Acquisition, and Sensemaking” at School of Mass Communication and Design, Sun Yat-Sen (Zhongshan) University, Guangzhou, China, June, 2009.
- Invited talk on “Visualization to Support Knowledge Exploration, Acquisition, and Sensemaking” at College of Informatics, South China Agricultural University, Guangzhou, China, June, 2009.
- Invited talk on “Supporting Interaction with Large Information Structures” at the School of Information Resources and Library Science, University of Arizona, Tucson, Arizona, USA, April, 2008.

- Invited talk on “Making Sense of Complex Information Resources” at the College of Information Science and Technology, Beijing Normal University, Beijing, China, January, 2008.
- Invited talk on “Making Sense of Complex Information Resources” at the Sino-European Usability Center, Dalian Maritime University, Dalian, China, July, 2007.
- Invited talk on “Making Sense of Complex Information Resources” at the Intelligence Engineering Lab, Institute of Software, Chinese Academy of Sciences, China, July, 2007.
- Panel talk on “Visualization-Enabled Information Exploration and Knowledge Acquisition” in the Panel of “Interaction: Beyond Retrieval”, the Annual Meeting of the American Society for Information Science & Technology (ASIS&T), Austin, Texas, USA, November, 2006.
- Invited talk on “Multiscale Navigation in Virtual Environments” at the Virtual Reality and Human Interface Technology Lab, Tsinghua University, Beijing, China, May 2006.
- Invited talk on “Multiscale Collaboration in Virtual Environments: Concepts, Implications, and Evaluations” at the Lab of Engineering Psychology and Human Factors, Institute of Psychology, Chinese Academy of Sciences, Beijing, China, July, 2004.
- Invited talk on “Using Multiscale Technology to Support User Interactions with Large Information Structures” at the AI Lab, University of Arizona, Tucson, Arizona, USA, May, 2004.
- Invited talk on “Using Multiscale Collaboration to Support Cross-Scale Scientific Research” at Internet Technology Commerce and Design Institute (ITCDI) Collaboration Symposium, University of Arizona, Tucson, Arizona, USA, January, 2004.

RESEARCH GRANTS

External Grants

- National Science Foundation. “IGERT: Big Data Social Science - An Integrative Education and Research Program in Social Data Analytics”. Core Faculty , July 2012 – June 2017.
- National Science Foundation. “New Geometric Methods of Mixture Models for Interactive Visualization”. Co-principal investigator, September 2009 – June 2011; Principal investigator, July 2011 – August 2013.
- Alcatel-Lucent University Innovation Program. “Video Social Network”. Principal investigator (with Lee Giles), September, 2008 – August, 2011.
- National Science Foundation. “EAGER: Spatial Awareness through Sapiient Interfaces”. Co-principal investigator, September, 2009 – August, 2012.
- National Science Foundation. “CI-TEAM Implementation Project - A National Engineering Dissection Cyber-Collaboratory”. Co-principal investigator, January, 2007 – December, 2009.

HONORS OR AWARDS

- Faculty Marshall for College of Information Sciences and Technology, Penn State University, University Park, 2011.
- Faculty Fellow, Penn State Institute for CyberScience, 2011.

- Nominee, Professor of the Year 2010 for the College of Information Sciences and Technology, Penn State University, University Park.

TEACHING AND CURRICULUM DEVELOPMENT

Teaching

The Pennsylvania State University, University Park, Pennsylvania

- IST 210: Organization of Data (Database) (2006, 2007, 2008, 2009, 2010, 2012).
- IST 220: Networking and Telecommunications (2008, 2011, 2012, 2013, 2014, 2015).
- IST 402: Emerging Issues and Technologies: Visualization and Visual Analytics (2010)
- IST 489H: Research Methods in Information Sciences and Technology (2010, 2014).
- IST 526: Information Visualization (2006, 2008, 2009, 2011, 2013, 2015).
- IST 590: Doctoral Colloquium (2011).
- IST 594: Social Network and Network Science (2009).
- IST 597L: Foundations of Research Design in Information Sciences and Technology (2015)

The University of Arizona, Tucson, Arizona

- IRLS 506: Research Methods for Information and Library Science (2005).
- IRLS 588-002/791: Introduction to Information Technologies (2004, 2005).
- IRLS 588-003: Collaborative Information Retrieval (2004).

Curriculum Development

The Pennsylvania State University, University Park, Pennsylvania

- Contributed to the Development of the Data Sciences Degree Program in IST.
- Led the Redesign of an Undergraduate Honors Course (IST 489H)
- Proposed and Created a Graduate Course on HCI Technologies (IST 526)
- Contributed and Completed the Development of Quantitative and Computational Research Method Course for Graduate Students in IST.
- Contributed to the Development of the Usability Engineering Track in IST.
- Contributed to the Reform of the First-Year Engagement Course in IST.

The University of Arizona, Tucson, Arizona

- Developed a technology curriculum for the Master's Program in Library and Information Science (LIS) at the School of Information Resources and Library Science.
- Proposed and Created a Graduate Course of the Introduction to Information Technologies for LIS Master's Students.
- Proposed and Created a Graduate Course of Database Management for LIS Master's Students.
- Proposed and Created a Graduate Seminar of Collaborative Information Retrieval for LIS Doctoral Students.

SERVICE ACTIVITIES

Review Activities

- International Journal of Human Computer Studies, Elsevier (2006, 2009, 2015).
- Transactions on Intelligent Transportation Systems, IEEE (2015).

- Applied Ergonomics, Elsevier (2009, 2014, 2015).
 - Transactions on Visualization and Computer Graphics, IEEE (2009, 2010, 2012, 2014).
 - Transactions on Interactive Intelligent Systems, ACM (2014).
 - Science China (2013, 2014).
 - Journal of Cognitive Engineering and Decision Making, Human Factors and Ergonomics Society (2013).
 - Information Visualization, Palgrave (2012).
 - Transactions on Knowledge Discovery from Data, ACM (2011).
 - International Journal of Geographical Information Science (2011).
 - Data & Knowledge Engineering, Elsevier (2010).
 - Spatial Cognition and Computation, Taylor & Francis (2009).
 - Journal of the American Society for Information Science and Technology (2005).
 - The Electronic Library, Emerald (2004).
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- ACM Conference on Human Factors in Computing Systems, 2014 (CHI '14).
 - ACM Conference on Human Factors in Computing Systems, 2013 (CHI '13).
 - Eurographics Visualization Symposium (EuroVis 2012)
 - ACM Conference on Human Factors in Computing Systems, 2012 (CHI '12).
 - International Conference on Intelligent User Interfaces, 2012 (IUI '12).
 - ACM Conference on Human Factors in Computing Systems, 2011 (CHI '11).
 - IEEE Conference on Visual Analytics Software and Technology, 2010 (VAST '10).
 - IEEE Conference on Information Visualization, 2010 (InfoVis '10).
 - ACM Conference on Computer Supported Cooperative Work, 2010 (CSCW '10).
 - ACM Conference on Human Factors in Computing Systems, 2010 (CHI '10).
 - International Conference on Intelligent User Interfaces, 2010 (IUI '10).
 - ACM Conference on Human Factors in Computing Systems, 2009 (CHI '09).
 - IFIP TC13 Conference in Human Computer Interaction, 2009 (INTERACT '09).
 - International Conference on Complex, Intelligent and Software Intensive Systems, 2009 (CISIS '09).
 - ACM Conference on Human Factors in Computing Systems, 2008 (CHI '08).
 - ACM Symposium on User Interface Software and Technology, 2007 (UIST '07).
 - ACM Conference on Human Factors in Computing Systems, 2006 (CHI '07).
 - Graphics Interface Conference, 2007 (GI '07).
 - ACM Conference on Human Factors in Computing Systems, 2005 (CHI '05).
 - ACM Conference on Human Factors in Computing Systems, 2004 (CHI '04).
 - ACM Symposium on User Interface Software and Technology, 1998 (UIST '98).
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- Book Proposal Review for SAGE Publications Inc., 2010.
 - Book Proposal Review for CRC Press, Taylor & Francis, 2009.
 - Book Proposal Review for Cambridge University Press, 2005.

Service to University

- Member, Promotion and Tenure Committee, College of Information Sciences and Technology, the Pennsylvania State University, University Park, 2015 – present.

- Member, Graduate Recruitment Committee, College of Information Sciences and Technology, the Pennsylvania State University, University Park, 2015 – present.
- Chair, IST 489H (Research Methods) Course Committee, 2010 – present.
- Member, SRA 468 Course Committee, 2010– present.
- Member, Faculty Council, College of Information Sciences and Technology, the Pennsylvania State University, University Park, 2014 – 2015.
- Member, Data Analytics Taskforce, College of Information Sciences and Technology, the Pennsylvania State University, University Park, 2014 – 2015
- Member, Promotion and Tenure Committee, College of Information Sciences and Technology, the Pennsylvania State University, University Park, 2013 – 2015.
- Member, Faculty Search Committee, College of Information Sciences and Technology, the Pennsylvania State University, University Park, 2013 – 2014.
- Member, Graduate Advisory Committee, College of Information Sciences and Technology, the Pennsylvania State University, University Park, 2011 – 2012.
- Member, Graduate Recruiting Committee, College of Information Sciences and Technology, the Pennsylvania State University, University Park, 2011 – 2012
- Chair, IST 210 (Organization of Data) Course Committee, 2010 – 2012.
- Member and the Leader of the “Interactive Environments for Analysis” quad, CyberScience Taskforce, 2010-2011.
- IST 210 Representative, College of Information Sciences and Technology, the Pennsylvania State University, University Park, 2008 - 2012.
- Alternate Representative of the College of IST in Graduate Council, the Pennsylvania State University, University Park, 2008-2011.
- Member, Faculty Advisory Committee, College of Information Sciences and Technology, the Pennsylvania State University, University Park, 2008 – 2010.
- Member, Research Advisory Committee, College of Information Sciences and Technology, the Pennsylvania State University, University Park, 2008 – 2009.
- Member, First Engagement Committee, College of Information Sciences and Technology, the Pennsylvania State University, University Park, 2009.
- Member, Graduate Advisory Committee, College of Information Sciences and Technology, the Pennsylvania State University, University Park, 2006 – 2008.
- Member, Graduate Recruiting Committee, College of Information Sciences and Technology, the Pennsylvania State University, University Park, 2007.
- Member, Colloquium Committee, School of Information Sciences and Technology, the Pennsylvania State University, University Park, 2005 – 2006.
- Member, Advisory Board of Social & Behavioral Sciences Research Institute, College of Social and Behavioral Sciences, University of Arizona, 2004 – 2005.
- Member, Taskforce for the Education and Research Program on Information, Technology and Society, University of Arizona, 2003- 2005.
- Chair, Research Committee, School of Information Resources & Library Science, University of Arizona, 2005.
- Member, Curriculum Committee, School of Information Resources & Library Science, University of Arizona, 2003 – 2005.

- Member, Research Committee, School of Information Resources & Library Science, University of Arizona, 2003 – 2004.
- Member, Doctoral Committee, School of Information Resources & Library Science, University of Arizona, 2003 – 2005.

Service to Discipline and Profession

- Guest Co-Editor, Special Issue for ChinaVis 2015, Journal of Visualization, Springer, 2015.
- General Chair, the Second China Human-Computer Interaction Summit, Taiyuan, China, August, 2015
- Program Co-Chair, the Second China Visualization Conference (ChinaVis), 2015, Tianjin, China, 2015.
- Review, the Initiation into Research Program, the National Fund for Scientific and Technological Development of Chile, 2013 – present.
- Associate Chair, International Chinese Association of Computer Human Interaction, 2012 – present.
- Member, the Advisory Board, the Databrary Project, the New York University, 2012-present.
- Reviewer, the National Basic Research Program, the Ministry of Science and Technology, China, 2012 - 2014.
- Reviewer, the START Programme, the Austrian Science Foundation, 2013.
- Member, NSF Panel, Faculty Early Career Development Program, 2013.
- Member, the Work-in-Progress Program Committee, ACM SIGCHI 2012, May, 2012, Austin, Texas, USA.
- Member, NSF Panel for Social-Computational Systems program, 2012
- Member, Program Committee, the 2012 Visual Information Communication - International Symposium (VINCI '12), September, 2012, Hangzhou, China.
- Member, Program Committee, the 10th Asia Pacific Conference on Computer Human Interaction (APCHI 2012), August, 2012, Matsue, Japan.
- Program Co-Chair, the 2011 Visual Information Communication - International Symposium (VINCI '11), August, 2011, Hong Kong.
- Co-Organizer, the Workshop on “Collaborative Privacy Practices in Social Media” in the 2011 ACM Conference on Computer-Supported Cooperative Work (CSCW '11), March, 2011.
- Reviewer, NSF CNIC (Catalyzing New International Collaborations) program, 2011
- Member, NSF Panel for Social-Computational Systems program, 2011
- Organization Chair, the 2010 Visual Information Communication - International Symposium (VINCI '10), September, 2010, Beijing, China.
- Member, Program Committee, You-Are-Here 2: 2nd Workshop on Spatial Awareness and Geographic Knowledge Acquisition with Small Mobile Devices (YAH2 2010), Workshop held in conjunction with the International Conference Spatial Cognition 2010, August, 2010, Mt. Hood/Portland, Oregon, USA.
- Member, Program Committee, the 2010 IEEE International Conference on Information and Automation (ICIA 2010), June, 2010, Harbin, China.

- Member, Program Committee, You-Are-Here Maps: Creating a Sense of Place through Map-like Representations, Workshop held in conjunction with the International Conference Spatial Cognition 2008, September, 2008, Freiburg, Germany.
- Member, Program Committee, Virtual Reality for Safety and Security, Workshop held in conjunction with the International Conference on Cyberworlds 2008, September, 2008, Hangzhou, China.
- Co-Chair of the Registration Committee, Conference Committee, the 20th ACM Symposium on User Interface and Technology (UIST '07), October, 2007, Newport, Rhode Island, USA.
- Chair of the Registration Committee, Conference Committee, the 19th ACM Symposium on User Interface and Technology (UIST '06), October, 2006, Montreux, Switzerland.
- Co-Chair of the Registration Committee, Conference Committee, the 18th ACM Symposium on User Interface and Technology (UIST 2005), October, 2005, Seattle, Washington, USA.
- Member, the Research Grant Committee of Online Computer Library Center (OCLC), 2005 – 2006.
- Member, NSF Panel for Human-Computer Interaction program, 2004
- Chair, Arizona Chapter, American Society for Information Science and Technology, 2004 – 2005.
- Chair-Elect, Arizona Chapter, American Society for Information Science and Technology, 2003 – 2004.

Other Service

- Judge, International Science and Engineering Fair, 2005.

PROFESSIONAL AFFILIATIONS

- Association for Computing Machinery (ACM)
- International Electrical and Electronics Engineers (IEEE)