Yao-Yi Chiang, Ph.D.

Computer Science & Engineering Department
University of Minnesota, Twin Cities
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Current Positions

University of Minnesota (Minneapolis, MN, USA)

Faculty Appointments
2021 –	Associate Professor, Computer Science & Engineering Department

Other Affiliations
2022 –	Scholar, Center for Transportation Studies (CTS)
2022 –	Affiliated Faculty, Data Science Initiative

GeoInformatica – An International Journal on Advances of Computer Science for Geographic Information Systems (Springer)

2017 –	Action Editor

Transactions in GIS (Wiley)

2020 –	Editorial Board Member

Journal of Information Science and Engineering (Institute of Information Science, Academia Sinica)

2021 –	Associate Editor

Education

2007 – 2010	Ph.D., Computer Science, University of Southern California, USA
	Dissertation: Harvesting Geographic Features from Heterogeneous Raster Maps
2003 – 2004	M.S., Computer Science, University of Southern California, USA
1996 – 2000	B.B.A., Information Management, National Taiwan University, Taiwan

Professional Experience

Facebook (Spatial Computing, Boston, MA, USA)

2019 – 2021	Machine Learning Consultant

University of Southern California (Los Angeles, CA, USA)

Faculty Appointments
2021 – 2022	Adjunct Associate Professor (Research), Spatial Sciences Institute
2017 – 2021	Associate Professor (Research), Spatial Sciences Institute
2015 – 2021	Faculty of Data Science, Computer Science Department
2013 – 2017	Assistant Professor (Research), Spatial Sciences Institute
2011 – 2013	Lecturer, Spatial Sciences Institute

Other Appointments

2018 – 2021	Data Science Faculty Fellow, Center for Knowledge-Powered Interdisciplinary Data Science
2017 – 2021	Associate Director, Integrated Media Systems Center
2013 – 2021	Director, Spatial Computing Lab, Spatial Sciences Institute
2013 – 2021	Visiting Computer Scientist, Information Sciences Institute
2010 – 2013	Postdoctoral Fellow, Information Sciences Institute
2007 – 2010	Graduate Research Assistant, Information Sciences Institute
2005 – 2006	Research Programmer, Information Sciences Institute
2004 – 2005	Graduate Research Assistant, Information Sciences Institute

Google AI (New York, NY, USA)

2019 – 2020	Visiting Researcher

AirMap (Santa Monica, CA, USA)

2015 – 2017	Chief Scientist

InferLink Corporation (El Segundo, CA, USA)

2013 – 2014	Research Scientist

Geosemble Technologies (El Segundo, CA, USA)

2006 – 2007	Senior Software Engineer

Fetch Technologies (El Segundo, CA, USA)

2006 – 2007	Senior Software Engineer

TLJ Intertech (Taipei, Taiwan)

2002 – 2003	Software Engineer

Honors & Awards

Professional

2022	**First Place**, **Map Feature Extraction Challenge**, AI for Critical Mineral Assessment Competition, the Defense Advanced Research Projects Agency (DARPA) (Duan, W., Li, Z., Lin, F., Lin, Y., Shrotriya, T., Knoblock, C. A., Chiang, Y.-Y.)
2022	**Second Place**, **Ordnance Survey Award** (for excellence in the application of Ordnance Survey data), British Cartographic Society (Lin, Z. and Chiang, Y.-Y.)
2017	**First Place**, **Best Paper Award**, the IAPR 8th International Conference on Pattern Recognition Systems, Madrid, Spain (Uhl, J. H., Leyk, S., Chiang, Y.-Y., Duan, W., and Knoblock, C. A.)
2015	**First Place, Best Vision Paper Award,** the 2015 ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Seattle, WA, USA (award sponsored by the Computing Research Association's Computing Community Consortium under the CCC Blue Sky Initiative) (Chiang, Y.-Y.)

Graduate

2009	**Second Place, Best Paper Award**, the 4th Annual Intelligent Systems Division Graduate Student Symposium, USC Information Sciences Institute, Marina del Rey, CA, USA
2008	**Second Place, Best Paper Award**, the 3rd Annual Intelligent Systems Division Graduate Student Symposium, USC Information Sciences Institute, Marina del Rey, CA, USA
2007 – 2010	**The Viterbi School Doctoral Fellowship**, University of Southern California, Los Angeles, CA, USA

Direct Supervised Student Researchers

2022   **First Place, Student Poster Competition, University Consortium for Geographic Information Science**, Kim, J., Chiang, Y.-Y. Generating Geospatial Linked Data from Text Labels on Maps, Syracuse, NY, USA

2021   **First Place, ACM SIGSPATIAL Student Research Competition (Undergraduate)**, Jiao, Y., & Chiang, Y.-Y. SRC: Incorporating Geographic Information for Building a Location-based Recommendation System, online

2019   **Third Place, ACM SIGSPATIAL Student Research Competition (Graduate)**, Cheng, Y., & Chiang, Y.-Y. Automatic intersection extraction and building arrangement with StarCraft II maps, Chicago, IL, USA

2017   **First Place, ACM SIGSPATIAL Student Research Competition (Undergraduate)**, Lin, H. and Chiang Y.-Y. Automatic Extraction of Phrase-level Map Labels from Historical Maps, Redondo Beach, CA, USA

Patent

2010   System and Method for Fusing Geospatial Data, Chen, C.-C., Knoblock, C. A., Shahabi, C., and **Chiang, Y.-Y.** US Patent No. 7660441

Publications

Book & Book Edited

Santosh, KC, Goyal, A., Auoada, D., Makkar, A., **Chiang, Y.-Y.**, Singh, S. K. (eds.) (2022) Recent Trends in Image Processing and Pattern Recognition, Springer (ISBN: 978-3-031-23598-6)

Werner, M. and **Chiang, Y.-Y.** (eds.) (2021) Handbook of Big Geospatial Data, Springer (ISBN 978 3-030-55461-3)

Chiang, Y.-Y., Duan, W., Leyk, S., Uhl, J. H., and Knoblock, C. A. (2020). Using Historical Maps in Scientific Studies: Applications, Challenges, and Best Practices, Springer (ISBN 978-3-319-66908-3)

Book Chapters

Chiang, Y-Y. and Lin, Y. (2020). Design, Development, Testing, and Deployment of GIS Applications. *The Geographic Information Science & Technology Body of Knowledge* (4th Quarter 2020 Edition), John P. Wilson (Ed.). doi: 10.22224/gistbok/2020.4.2

Chiang, Y.-Y. (2017). Unlocking Textual Content from Historical Maps – Potentials & Applications, Trends, and Outlooks. In S. K.C., H. Mallikarjun, B. Vitoantonio, and N. Atul (eds.), *Recent Trends in Image Processing and Pattern Recognition. Communications in Computer and Information Science, volume 709 (pp. 111–124).* Singapore: Springer

Park, W., **Chiang, Y.-Y.**, Lee, S. J., and Yu, K. (2016). Hot Spots of Tweets Related to Food, Entertainment, Work, and Study in Gangnam Area of Seoul, Korea. In *Esri Map Book, volume 31: GIS – Enabling a Smarter World*. Redlands, CA, USA: Esri

Chiang, Y.-Y., Leyk, S., and Knoblock, C. A. (2013). Efficient and Robust Graphics Recognition from Historical Maps. In Y.-B. Kwon and J.-M. Ogier (eds.), *Graphics Recognition. New Trends and Challenges. Lecture Notes in Computer Science, volume 7423 (pp. 25–35)*. Berlin, Germany: Springer

Chiang, Y.-Y. and Knoblock, C. A. (2012). Generating Named Road Vector Data from Raster Map. In N. Xiao, M. Kwan, M. Goodchild, and S. Shekhar (eds.), *Geographic Information Science. GIScience 2012. Lecture Notes in Computer Science, volume 7478 (pp. 57–71).* Berlin, Germany: Springer

Chiang, Y.-Y. and Knoblock, C. A. (2010). Extracting Road Vector Data from Raster Maps. In J.-M. Ogier, W. Liu, and J. Lladós (eds.), Graphics *Recognition: Achievements, Challenges, and Evolution.*

GREC 2009. Lecture Notes in Computer Science, volume 6020 (pp. 93–105). Berlin, Germany: Springer

Refereed Journal Articles

Shbita, B., Knoblock A. C., Duan, W., **Chiang, Y.-Y.**, Uhl, J., Leyk, S. (2022) Building Spatio-temporal Knowledge Graphs from Vectorized Topographic Historical Maps, *Semantic Web*, 1 – 23. IOS Press.

Zhang, Y., Li, M., Chen, Y., **Chiang, Y. -Y.**, Hua, Y. (2022) A Constraint-based Routing and Charging Methodology for Battery Electric Vehicles with Deep Reinforcement Learning. *IEEE Transactions on Smart Grid*. doi: 10.1109/TSG.2022.3214680

Gao, Y., **Chiang, Y.-Y**., Zhang, X., Zhang, M. (2022). Traffic volume prediction for scenic spots based on multi-source and heterogeneous data. *Transactions in GIS*, 26, 2415 – 2439. doi: 10.1111/tgis.12975

Uhl, J.H., Leyk, S., **Chiang, Y.-Y.,** Knoblock, C.A. (2022) Towards the Automated Large-scale Reconstruction of Past Road Networks from Historical Maps. *Computers, Environment and Urban Systems*. 94, 101794. doi: 10.1016/j.compenvurbsys.2022.101794

Uhl, J.H., Leyk, S., Li, Z., Duan, W., Shbita, B., **Chiang, Y.-Y.,** Knoblock, C.A. (2021) Combining Remote Sensing Derived Data and Historical Maps for Long-Term Back-Casting of Urban Extents. *Remote Sensing*. 13(18), 3672. doi:10.3390/rs13183672

Harn, P. W., Zhang, J., Shen, T., Wang, W., Jiang, X., Ku, W. S., ... & **Chiang, Y.-Y.** (2021). Multiple ground/aerial parcel delivery problem: a Weighted Road Network Voronoi Diagram based approach. *Distributed and Parallel Databases*, 1-21

Li, K., Deng, H., Morrison, J., Habre, R., Meredith, F., **Chiang, Y.-Y.**, Sward, K., Gilliland, F., Ambite, J. L., Eckel, S. P. (2021) W-TSS: Wavelet-based Discovery for Time Series Shapelets. *Sensors*. 21(17), 5801. doi:10.3390/s21175801

Gil, Y., Garijo, D., Khider, D., Knoblock, C. A., Ratnakar, V., Osorio, M., Vargas, H., Pham, M., Pujara, J., Shbita, B., Vu, B., **Chiang, Y.-Y.**, Feldman, D., Lin, Y., Song, H., Kumar, V., Khandelwal, A., Steinbach, M., Tayal, K., … Shu, L. (2021). Artificial Intelligence for Modeling Complex Systems: Taming the Complexity of Expert Models to Improve Decision Making. *ACM Trans. Interact. Intell. Syst.*, *11*(2), 1–49. doi.org/10.1145/3453172

Zhang, Y., Wu, B., **Chiang, Y.-Y.**, Zhang, X., Chen, Y., Li, M., Li, F. (2021) BiS4EV: A Fast Routing Algorithm Considering Charging Stations and Preferences for Electric Vehicles. *Engineering Applications of Artificial Intelligence*. 104(104378). doi:10.1016/j.engappai.2021.104378

Karroum, K., Lin, Y., Chiang, Y.-Y., Ben Maissa, Y., El Haziti, M., Sokolov, A., and Delbarre, H. (2020). A review of air quality modeling. *MAPAN*. doi:10.1007/s12647-020-00371-8

Zhang, Y., Wang, Y., Li, F., Wu, B., **Chiang, Y.-Y.**, and Zhang, X. (2020). Efficient Deployment of Electric Vehicle Charging Infrastructure: Simultaneous Optimization of Charging Station Placement and Charging Pile Assignment. *IEEE Transactions on Intelligent Transportation Systems*. PP. 1-6. doi:10.1109/TITS.2020.2990694

Duan, W., **Chiang, Y.-Y.**, Knoblock, C. A., Uhl, J. H., and Leyk, S. (2020) Automatic Alignment of Contemporary Vector Data and Georeferenced Historical Maps Using Reinforcement Learning. *International Journal of Geographical Information Science*, 34(4): 824-824

Zhang, Y., Ma, Q., **Chiang, Y.-Y.,** Knoblock, C., Zhang, X., Yang, P., ... & Hu, X. (2019). Extracting geographic features from the Internet: A geographic information mining framework. *Knowledge-Based Systems*, 174(15): 57–72. doi: 10.1016/j.knosys.2019.02.031

Wu, J., Wei, P., Yuan, X., Shu, Z., **Chiang, Y.-Y.**, Fu, Z., Deng, M. (2019). A New Gabor Filter-based Method for Automatic Recognition of Hatched Residential Areas. *IEEE Access,* 7(1): 40649–40662. doi: 10.1109/ACCESS.2019.2907114

Cheng, Y. & **Chiang, Y.-Y.** (2019). Automatic intersection extraction and building arrangement with StarCraft II maps. *SIGSPATIAL Special*, 10(3):4 – 5. doi: 10.1145/3307599.3307602

Li, K., Habre, R., Deng, H., Urman, R., Morrison, J., Gilliland, F. D., Ambite, J.-L., Stripelis, D., **Chiang, Y.-Y.**, Lin, Y., Bui, A. A. T., King, C., Hosseini, A., Van Vliet, E., Majid, S., Eckel, S. P. (2018). Applying Multivariate Segmentation Methods to Human Activity Recognition from Wearable Sensors Data. *JMIR mHealth and uHealth*, 7(2): e11201. doi: 10.2196/11201

Uhl, J. H., Leyk, S., **Chiang, Y.-Y.**, Duan, W., and Knoblock, C. A. (2018). Spatializing Uncertainty in Image Segmentation Using Weakly Supervised Convolutional Neural Networks: A Case Study from Historical Map Processing. *IET Image Processing*, 12(11), 2084-2091

VoPham, T., Hart, J. E., Laden, F., **Chiang, Y.-Y.** (2018). Emerging Trends in Geospatial Artificial Intelligence (geoAI): Potential Applications for Environmental Epidemiology. *Environmental Health,* 17(1):40. doi: 10.1186/s12940-018-0386-x

Uhl, J. H., Leyk, S., **Chiang, Y.-Y.**, Duan, W., and Knoblock, C. A. (2018). Map Archive Mining: Visual-Analytical Approaches to Explore Large Historical Map Collections. *ISPRS International Journal of Geo-Information*, 7(4), 148. doi: 10.3390/ijgi7040148

Wu, J., Wan, Y., **Chiang, Y.-Y.**, Fu, Z., Deng, M. (2018). A Matching Algorithm Based on Voronoi Diagram for Multi-Scale Polygonal Residential Areas. *IEEE Access*, 6: 4904 – 4915. doi: 10.1109/ACCESS.2018.2793302

Duan, W. and **Chiang Y.-Y.** (2017). SRC: A Fully Automatic Geographic Feature Recognition System. *SIGSPATIAL Special*, 9(3):6 – 7. doi: 10.1145/3178392.3178396

Lin, H. and **Chiang Y.-Y.** (2017). SRC: Automatic Extraction of Phrase-level Map Labels from Historical Maps. *SIGSPATIAL Special*, 9(3):14–15. doi: 10.1145/3178392.3178400

Chiang, Y.-Y., Leyk, S., Honarvar Nazari, N., Moghaddam, S., and Tan, T. X. (2016). Assessing Impact of Graphical Quality on Automatic Text Recognition in Digital Maps. *Computers & Geosciences*, 93:21–35. doi: 10.1016/j.cageo.2016.04.013

Wu, W., Meng, W., Su, W., Zhou, G., and **Chiang, Y.-Y.** (2015). Q2P: Discovering Query Templates via Autocompletion. *ACM Transactions on the Web*, 10(2):1–29. doi: 10.1145/2873061

Chiang, Y.-Y. and Knoblock, C. A. (2014). Recognizing Text in Raster Maps. *GeoInformatica*, 19(1):1–27. doi: 10.1007/s10707-014-0203-9

Chiang, Y.-Y., Leyk, S., and Knoblock, C. A. (2014). A Survey of Digital Map Processing Techniques. *ACM Computing Surveys*, 47(1):1–44. doi: 10.1145/2557423

Chiang, Y.-Y. and Knoblock, C. A. (2013). A General Approach for Extracting Road Vector Data from Raster Maps. *International Journal of Document Analysis and Recognition*, 16(1):55–81. doi:10.1007/s10032-011-0177-1

Chiang, Y.-Y., Knoblock, C. A., Shahabi, C., and Chen, C.-C. (2009). Automatic and Accurate Extraction of Road Intersections from Raster Maps. *GeoInformatica*, 13(2):121– 157. doi:10.1007/s10707-008-0046-3

Refereed Conference & Symposium Proceedings[1]

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[1] The computer science community traditionally considers scientific conferences as the primary venue for research dissemination and publication. In the computing community, top-tier conferences require a full-length paper submission, and the submissions are peer-reviewed by multiple reviewers. For example, the ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems has an acceptance rate around 20% over the years. More information can be found on http://cra.org/resources/best-practice-memos/evaluating-computer-scientists-and-engineers-for-promotion-and-tenure/ (Patterson, D., Snyder, L., Ullman, J. (1999). *Evaluating Computer Scientists and Engineers for Promotion and Tenure.* Best Practices Memo. Computing Research News, Computing Research Association.).

Hu, H., Lin, H., **Chiang, Y.-Y.** (December 2022). Clustering Human Mobility with Multiple Spaces. In *Proceedings of the 2022 IEEE International Conference on Big Data (accepted)*, Osaka, Japan

Lin, Y., **Chiang, Y.-Y.** (December 2022). A Semi-Supervised Learning Approach for Abnormal Event Prediction on Large Network Operation Time-Series Data. In *Proceedings of the 2022 IEEE International Conference on Big Data (accepted)*, Osaka, Japan

Li, Z., Kim, J., **Chiang, Y.-Y.,** Chen, M. (December 2022). SpaBERT: A Pretrained Language Model from Geographic Data for Geo-Entity Representation. In *Proceedings of the 2022 Conference on Empirical Methods in Natural Language Processing (EMNLP) - Findings (accepted)*, Abu Dhabi

Abou Ali Modad, B., Yu, X., Song, H., **Chiang, Y.-Y.**, Molisch, A. (December 2022) Cell-by-Cell Line-of-Sight Probability Models Based on Real-World Base Station Deployment. In *Proceedings of the IEEE Global Communications Conference (accepted)*, Rio de Janeiro, Brazil

Namgung, M., **Chiang, Y.-Y.** (November 2022). Incorporating Spatial Context for Post-OCR in Map Images. In *Proceedings of the 5th ACM SIGSPATIAL International Workshop on AI for Geographic Knowledge Discovery*pp. 14-17, Seattle, WA, USA

Duan, W., **Chiang, Y.-Y.**, Leyk, S., Uhl, J. H., and Knoblock, C. A. (December 2021). A Label Correction Algorithm Using Prior Information for Automatic and Accurate Geospatial Object Recognition. In *Proceedings of the 2021 IEEE International Conference on Big Data* (short paper), pp. 1604-1610, online

Duan, W., **Chiang, Y.-Y.**, Leyk, S., Uhl, J. H., and Knoblock, C. A. (December 2021). Guided Generative Models using Weak Supervision for Detecting Object Spatial Arrangement in Overhead Images. In *Proceedings of the 2021 IEEE International Conference on Big Data*, pp. 725-734, online

Li, Z., Guan, R., Yu, Q., **Chiang, Y.-Y**., & Knoblock, C. A. (November 2021). Synthetic Map Generation to Provide Unlimited Training Data for Historical Map Text Detection. In *Proceedings of the 4th ACM SIGSPATIAL International Workshop on AI for Geographic Knowledge Discovery*, pp. 17-26, online

Jiao, Y., & **Chiang, Y.-Y.** (November 2021). SRC: Incorporating Geographic Information for Building a Location-based Recommendation System. In *Proceedings of the 29th International Conference on Advances in Geographic Information Systems*, pp. 680-681, online

Yue, M., **Chiang, Y.-Y.**, Shahabi, C. (September 2021). VAMBC: A Variational Approach for Mobility Behavior Clustering. In Proceedings of the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD), pp. 453-469, online

Lin, Y., **Chiang, Y.-Y.**, Franklin, M., Eckel, P. S., and Ambite, J. L. (November 2020). Building Autocorrelation-Aware Representations for Fine-Scale Spatiotemporal Prediction, In *Proceedings of IEEE International Conference on Data Mining (ICDM)*, pp. 352-361, Sorrento, Italy (9.8% acceptance rate)

Li, Z., **Chiang, Y.-Y.**, Tavakkol, S., Shbita, B., Uhl, J. H., Leyk, S., and Knoblock, C. A. (August 2020). An Automatic Approach for Generating Rich, Linked Geo-Metadata from Historical Map Images, In *Proceedings of ACM Knowledge Discovery and Data Mining Conference (KDD)*, pp. 3290-3298, San Diego, CA, USA

Shbita, B., Knoblock, C. A., Duan, W., **Chiang, Y.-Y.**, Uhl, J. H. and Leyk, S. (June 2020). Building Linked Spatio-Temporal Data from Vectorized Historical Maps. In *Proceedings of the Extended Semantic Web Conference (ESWC)*, pp. 409-426, Heraklion, Greece

Tavakkol, S., Han, F., Mayer, B., Phillips, M., Shahabi, C., **Chiang, Y.-Y.**, & Kiveris, R. (January 2020). Kartta Labs: Collaborative Time Travel. *Hawaii International Conference on System Sciences*, online

Chiang, Y.-Y., Lin, Y., Franklin, M., Eckel, S. P., Ambite, J. L., and Ku, W., (December 2019). Building Explainable Prediction Analytics for Location-Dependent Time-Series Data. In *Proceedings of the First IEEE International Conference on Cognitive Machine Intelligence (CogMI)*, pp. 202–209, Los Angeles, CA, USA (invited paper)

Yue, M., Li, Y., Yang, H., Ahuja, R., **Chiang, Y.-Y.**, and Shahabi, C. (December 2019). DETECT: Deep Trajectory Clustering for Mobility-Behavior Analysis. In *Proceedings of the 2019 IEEE International Conference on Big Data (Big Data)*, pp. 988–997, Los Angeles, CA, USA

Anastasiou, C., Lin, J., He, C., Chiang, Y.-Y., and Shahabi, C. (November 2019). ADMSv2: A Modern Architecture for Transportation Data Management and Analysis. In *Proceedings of the 2nd ACM SIGSPATIAL International Workshop on Advances on Resilient and Intelligent Cities (ARIC 2019)*, pp. 25–28, Chicago, IL, USA

Tavakkol, S., **Chiang, Y.-Y.**, Waters, T., Feng, H., Prasad, K., and Kiveris, R. (November 2019). Kartta Labs: Unrendering Historical Maps. In *Proceedings of the Third GeoAI Workshop*, pp. 48–51, Chicago, IL, USA

Gao, Y., Duan, Z., Shi, W., Feng, J., and **Chiang, Y.-Y.** (October 2019) Personalized Recommendation Method of POI based on Deep Neural Network. In *Proceedings of the 6th International Conference on Behavioral, Economic, and Socio-Cultural Computing (BESC),* pp. 1–6, Beijing, China

Shbita, B., Vu, B., Feldman, D., Pham, M., Rajendran, A., Knoblock, C. A., Pujara, J., and **Chiang, Y.-Y.** (September 2019). Creating a FAIR Data Catalog to Support Scientific Modeling. In *Proceedings of the Workshop on Advanced Knowledge Technologies for Science in a FAIR World (AKTS) (Co-located with the IEEE eScience Conference)*, Marina del Ray, CA, USA

Zhang, J., Shen, T., Wang, W., Jiang, X., Ku, W., Sun, M., and **Chiang, Y.-Y.** (June 2019). A VLOS Compliance Solution to Ground/Aerial Parcel Delivery Problem. In *Proceedings of the 20th IEEE International Conference on Mobile Data Management (MDM)*, pp. 201–209, Hong Kong, China

Garijo, D., Khider, D., Ratnakar, V., Gil, Y., Cobourn, K., Deelman, E., Duffy, C., Ferreira da Silva, R., Kemanian, A., Knoblock, C. A., Kumar, V., Peckham, S., **Chiang, Y.-Y.**, Khandelwal, A., Pham, M., Pujara, J., Stoica, M., Tayal, K., Vu, B., Feldman, D., Shu, L., Dabrowski, A., Lewis, D. H., and Pierce, S. (March 2019). An Intelligent Interface for Integrating Climate, Hydrology, Agriculture, and Socioeconomic Models. In *Proceedings of the ACM International Conference on Intelligent User Interfaces '19 Companion*, pp. 111 – 112, Marina del Ray, CA, USA

Lin, Y., Mago, N., Gao, Y., Li, Y., **Chiang, Y.-Y.**, Shahabi, C., and Ambite, J. L. (November 2018). Exploiting Spatiotemporal Patterns for Accurate Air Quality Forecasting using Deep Learning. In *Proceedings of the 26th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, pp. 359 – 368, Seattle, WA, USA

Nguyen, K., Yang, J., Lin, Y., Lin, J., **Chiang, Y.-Y.** and Shahabi, C. (November 2018). Los Angeles Metro Bus Data Analysis Using GPS Trajectory and Schedule Data (Demo Paper) In *Proceedings of the 26th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems,* pp. 560 – 563, Seattle, WA, USA

Lin, H., **Chiang, Y.-Y.** (November 2018). An Uncertainty Aware Method for Geographic Data Conflation. In *Proceedings of the 5th ACM SIGSPATIAL International Workshop on Analytics for Big Geospatial Data*, pp. 20 – 27, San Francisco, CA, USA

Lin, C., Su, H., Knoblock, C. A., **Chiang, Y.-Y.**, Duan, W., Leyk, S., and Uhl, J. H. (October 2018). Building Linked Data from Historical Maps. In *Proceedings of the SemSci 2018: Enabling Open Semantic Science*, pp. 59 – 67, Monterey, CA, USA

Gil, Y., Cobourn, K., Deelman, E., Duffy, C., da Silva, R. F., Kemanian, A., Knoblock, C., Kumar, V., Peckham, S., Carvalho, L., **Chiang, Y.-Y.**, Garijo, D., Khider, D., Khandelwal, A., Pahm, M., Pujara, J., Ratnakar, V., Stoica, M., and Vu, B. (June 2018). MINT: Model Integration Through Knowledge-Powered Data and Process Composition. In *Proceedings of the Ninth International Congress on Environmental Modeling and Software*, Ft Collins, CO, USA

Duan, W., **Chiang, Y.-Y.**, Knoblock, C. A., Vinil, J., Feldman, D., Uhl, J. H., and Leyk, S. (November 2017). Automatic Alignment of Vector Data with Geographic Features for Feature Recognition in

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Historical Maps. In *Proceedings of the First GeoAI Workshop*, pp. 45 – 54, Redondo Beach, CA, USA

Lin, Y., **Chiang, Y.-Y.**, Pan F., Stripelis, D., Ambite, J. L., Eckel, S. P., and Habre, R. (November 2017). Mining Public Datasets for Modeling Intra-city PM2.5 Concentrations at a Fine Spatial Resolution. In *Proceedings of the 25th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, Article No. 25, Redondo Beach, CA, USA

Uhl, J. H., Leyk, S., **Chiang, Y.-Y.**, Duan, W., and Knoblock, C. A. (July 2017). Extracting Human Settlement Footprint from Historical Topographic Map Series Using Context-Based Machine Learning. In *Proceedings of the IAPR 8th International Conference on Pattern Recognition Systems*, pp. 15 – 21, Madrid, Spain **(best paper award)**

Stripelis, D., Ambite, J. L., **Chiang, Y.-Y.**, Eckel, S. P., and Habre, R. (April 2017). A Scalable Data Integration and Analysis Architecture for Sensor Data of Pediatric Asthma, In *Proceedings of the 2017 IEEE 33rd International Conference on Data Engineering (ICDE)*, pp. 1407-1408, San Diego, CA, USA

Duan, W. and **Chiang, Y.-Y.** (2016). Building Knowledge Graph from Public Data for Predictive Analysis - A Case Study on Predicting Technology Future in Space and Time. In *Proceedings of the 5th ACM SIGSPATIAL International Workshop on Analytics for Big Geospatial Data*, pp. 7–13, San Francisco, CA, USA

Yu, R., Luo, Z., and **Chiang, Y.-Y.** (2016). Recognizing Text on Historical Maps Using Maps from Multiple Time Periods. In *Proceedings of the 23rd IEEE International Conference on Pattern Recognition (ICPR)*, pp. 3993–3998, Cancun, Mexico

Honarvar Nazari, N., Tan, T. X., **Chiang, Y.-Y.** (2016) Integrating Text Recognition for Overlapping Text Detection in Maps. In *Proceedings of the Electronic Imaging, Document Recognition and Retrieval XXIII conference*, Society for Imaging Science and Technology, pp. 1–8(8), San Francisco, CA, USA

Zhang, Y., **Chiang, Y.-Y.**, Knoblock, C. A., Li, C., Du, L., Liu, S., and Singh, S. (2016) An Automatic Approach for Building Place-Name Datasets from the Web. In *Proceedings of the 19th AGILE International Conference on Geographic Information Science*, Helsinki, Finland

Chiang, Y.-Y. (2015) Querying Historical Maps as a Unified, Structured, and Linked Spatiotemporal Source (Vision Paper). In *Proceedings of the 23rd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, 16:1–16:4, Seattle, WA, USA **(best vision paper award)**

Narayanan, A., Jaiswal, A., **Chiang, Y.-Y.**, Geng, Y., Knoblock, C. A., and Szekely, P. (2014) Integration and *Automation* of Data Preparation and Data Mining. In *Proceedings of the 2015 IEEE International Conference on Data Mining Workshop (ICDMW)*, pp. 1076–1085, Shenzhen, China

Sathe, M., Knoblock, C. A., **Chiang, Y.-Y.**, and Harris, A. (2014) A Parallel Query Engine for Interactive Spatiotemporal Analysis. In *Proceedings of the 22nd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, pp. 429–432, Dallas, TX, USA

Chiang, Y.-Y., Moghaddam, S., Gupta, S., Fernandes, R., and Knoblock, C. A. (2014) From Map Images to Geographic Names. In *Proceedings of the 22nd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, pp. 581–584, Dallas, TX, USA

Chiang, Y.-Y., Wu, B., Anand, A., Akade, K., and Knoblock, C. A. (2014) A System for Efficient Cleaning and Transformation of Geospatial Data Attributes. In *Proceedings of the 22nd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, pp. 577–580, Dallas, TX, USA

Zhang, Y., **Chiang, Y.-Y.**, Szekely, P., and Knoblock, C. A. (2013) A Semantic Approach to Retrieving, Linking, and Integrating Heterogeneous Geospatial Data. In *Proceedings of the Workshop on*

Semantic Cities. International Joint Conference on Artificial Intelligence (IJCAI-13), ACM, pp. 31–37, Beijing, China

Chiang, Y.-Y. and Knoblock, C. A. (2011). Recognition of Multi-Oriented, Multi-Sized, and Curved Text. In *Proceedings of the 11th IEEE International Conference on Document Analysis and Recognition (ICDAR)*, pp. 1399–1403, Beijing, China

Chiang, Y.-Y. and Knoblock, C. A. (2010). Strabo: A System for Extracting Road Vector Data from Raster Maps. In *Proceedings of the 18th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, pp. 544–545, San Jose, CA, USA

Chiang, Y.-Y. and Knoblock, C. A. (2010). An Approach for Recognizing Text Labels in Raster Maps. In *Proceedings of the 20th IEEE International Conference on Pattern Recognition (ICPR)*, pp. 3199–3202, Istanbul, Turkey

Knoblock, C. A., Chen, C.-C., **Chiang, Y.-Y.**, Goel, A., Michelson, M., and Shahabi, C. (2010). A General Approach to Discovering, Registering, and Extracting Features from Raster Maps. In *Proceedings of the Conference on Document Recognition and Retrieval XVII of SPIE-IS&T Electronic Imaging*, SPIE, volume 7534, San Francisco, CA, USA

Chiang, Y.-Y. and Knoblock, C. A. (2009). Classification of Raster Maps for Automatic Feature Extraction. In *Proceedings of the 17th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, pp. 138–147, Seattle, WA, USA

Chiang, Y.-Y. and Knoblock, C. A. (2009). A Method for Automatically Extracting Road Layers from Raster Maps. In *Proceedings of the Tenth IEEE International Conference on Document Analysis and Recognition (ICDAR)*, pp. 838–842, Barcelona, Span

Chiang, Y.-Y. and Knoblock, C. A. (2008). Automatic Extraction of Road Intersection Position, Connectivity, and Orientations from Raster Maps. In *Proceedings of the 16th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, pp. 1–10, Irvine, CA, USA

Chiang, Y.-Y. and Knoblock, C. A. (2006). Classification of Line and Character Pixels on Raster Maps using Discrete Cosine Transformation Coefficients and Support Vector Machine. In *Proceedings of the 18th IEEE International Conference on Pattern Recognition (ICPR)*, pp. 1034–1037, Hong Kong, China

Shahabi, C., **Chiang, Y.-Y.**, Chung, K., Huang, K.-C., Khoshgozaran-Haghighi, J., Knoblock, C. A., Lee, S. C., Neumann, U., Nevatia, R., Rihan, A., Thakkar, S., and You, S. (2006). GeoDec: Enabling Geospatial Decision Making. In *Proceedings of the IEEE International Conference on Multimedia & Expo*, pp. 93–96, Toronto, Ontario, Canada

Chiang, Y.-Y., Knoblock, C. A., and Chen, C.-C. (2005). Automatic Extraction of Road Intersections from Raster Maps. In *Proceedings of the 13th ACM International Symposium on Advances in Geographic Information Systems*, pp. 267–276, Bremen, Germany

Desai, S., Knoblock, C. A., **Chiang, Y.-Y.**, Desai, K., and Chen, C.-C. (2005). Automatically Identifying and Georeferencing Street Maps on the Web. In *Proceedings of the 2nd ACM International Workshop on Geographic Information Retrieval*, pp. 35–38, Bremen, Germany

Chen, C.-C., Knoblock, C. A., Shahabi, C., **Chiang, Y.-Y.**, and Thakkar, S. (2004). Automatically and Accurately Conflating Orthoimagery and Street Maps. In *Proceedings of the 12th ACM International Symposium on Advances in Geographic Information Systems*, pp. 47–56, Washington, DC, USA

Selected Open-Source Software and Datasets

mapKurator: A Complete System for Text Recognition from Maps [Computer software]. (2022 -). MIT License, Version 2.0. Retrieved from https://github.com/machines-reading-maps/mapkurator-system

Machine Readable Map Labels [Data sets]. (2017 -). Open Database License (ODbL) v1.0. Retrieved from https://github.com/spatial-computing/map-ocr-ground-truth

Karma: A Data Integration Tool [Computer software]. (2017 -). Apache License, Version 2.0. Retrieved from http://usc-isi-i2.github.io/karma/

Presentations[2]

Conferences & Workshops with Peer Reviewed Abstracts/Short Papers

Kim, J., Namgung, M., **Chiang, Y.-Y.**, Uhl, J.H., Burghardt, K., Leyk, S., Lerman, K. (September 2022) Identifying Street Name Evolution in Semantic, Temporal, and Geographic Spaces. *Spatial Humanities*, Ghent, Belgium

Uhl, J.H., Leyk, S., Connor, S. D., **Chiang, Y.-Y.**, Knoblock C. A. (September 2022) Unmapped Terrain and Invisible Communities: Analyzing Topographic Mapping Disparities across Settlements in the United States from 1885 to 2015. *Spatial Humanities*, Ghent, Belgium

Chiang, Y.-Y., Holmes-Wong, D., Kim, J., Li, Z., McDonough, K., Simon, R., and Vitale, V. (September 2022) Machines Reading Maps: unlocking historical maps with machine learning and Semantic Web technologies. *Spatial Humanities*, Ghent, Belgium

Uhl, J.H., Leyk, S., Burghardt, K., **Chiang, Y.-Y.**, Lerman, K., Knoblock, C.A. (July 2022) Leveraging multi-source data integration for retrospective road network modelling and analysis. *International Geographic Union*, Paris, France

Kim, J., **Chiang, Y.-Y.** (June 2022) Generating Geospatial Linked Data from Text Labels on Maps, University Consortium for Geographic Information Science, Syracuse, NY, USA

Namgung, M., **Chiang, Y.-Y.** (June 2022) Incorporating Prior Knowledge to Forecast Fine-Grained Cloud-Top Temperature, University Consortium for Geographic Information Science, Syracuse, NY, USA

Birdwell, A., Park, L., **Chiang, Y.-Y.** (February 2022) Improving the Spatial Road Network in Malawi, Annual Los Angeles Geospatial Summit, Los Angeles, CA, USA

Avelar Portillo, L. J., Park, L., Ko, C., Vasquez, A., Franklin, M., **Chiang, Y.-Y.** (December 2021) Measuring Closest Water, Sanitation, and Hygiene Facilities in Unhoused Communities of Los Angeles, USA. In *Proceedings of the 30th International Cartographic Conference*, Florence, Italy

Park, L., Birdwell, A., **Chiang, Y.-Y.** (December 2021) Reimagining Measures of Spatial Access to Health Care in Low- And Middle-Income Countries: Using Road Network Analysis to Validate Self-Reported Perceptions of Geospatial Barriers. In *Proceedings of the 30th International Cartographic Conference*, Florence, Italy

Feldman, D., **Chiang, Y.-Y.** (June 2021) Enabling Responsible Computer Vision with FAIR Knowledge Graphs. Responsible Computer Vision, Conference on Computer Vision and Pattern Recognition 2021 Workshop, Virtual Meeting

Arundel, S., **Chiang, Y.-Y.** (April 2021). GeoAI in Mapping (Session Organizer), *American Association of Geographers Annual Meeting*, Virtual Meeting

Avelar Portillo, L. J., **Chiang, Y.-Y.**, Franklin, M., Ko, C., Vasquez, A. (April 2021). Impacts of COVID-19 on Water, Sanitation, and Hygiene (WaSH) Access in Skid Row, Los Angeles, *American Association of Geographers Annual Meeting*, Virtual Meeting

Khider, D., Gil, Y., Cobourn, K.M., Deelman, E., Duffy, C., Ferreira da Silva, R., Kemanian, A., Knoblock, C., Kumar, V., Peckham, S.D. and **Chiang, Y.-Y.** (December 2019). MINT: An intelligent interface for understanding the impacts of climate change on hydrological, agricultural and economic systems. *American Geophysical Union, Fall Meeting 2019 (AGUFM, 2019)*, pp. PA33C–1108, San Francisco, CA, USA

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[2] The presentations with peer-reviewed publications are in the section of Publication: Conference & Symposium Proceedings.

Portillo, J. A., **Chiang, Y.-Y.**, Vos, R. O., Rico, J. J., Qian, Y., Yin, X. and Vavra-Musser, K., (July 2019). Los Angeles Homelessness and the Access to Water, Sanitation, and Hygiene. In *Proceedings of the 29th International Cartographic Conference*, Tokyo, Japan

Eckel, S., Habre, R., Li, K., Deng, H., Urman, R., Morrison, J., Gauderman, W. J., Ambite, J. L., **Chiang, Y.-Y.**, Stripelis, D., Lin Y., and Gilliland, F. D. (September 2018). Methods for Using Personal Sensor Monitoring Systems to Predict Asthma Exacerbations. *ERS International Congress*, Paris, France

Uhl, J. H., Leyk, S., **Chiang, Y.-Y.**, Duan, W., and Knoblock, C. A. (May 2018). Exploring the Potential of Deep Learning for Settlement Symbol Extraction from Historical Map Documents. *UCGIS/AutoCarto*, pp. 123 – 124, Madison, WI, USA

Duan, W., **Chiang, Y.-Y.**, Knoblock, C. A., Uhl, J. H., and Leyk, S. (May 2018). Automatic Generation of Precisely Delineated Geographic Features from Georeferenced Historical Maps Using Deep Learning, *UCGIS/AutoCarto*, pp. 59 – 63, Madison, WI, USA

Yu, X., Cheng, Y., Lin, Y., **Chiang, Y.-Y.**, Stripelis, D., and Ambite, J. L. (May 2018). MAPINS: An Intra-City PM2.5 Modeling Web Application Using A Scalable Data Management and Analysis System Integrating Public Multi-Source Data. *UCGIS/AutoCarto*, pp. 135 – 145, Madison, WI, USA

Chiang, Y.-Y., Feldman, D. (January 2018). Next Generation Framework for Imagery Recognition and Analysis. *The 1st workshop of the NSF project: SI2-S2I2 Conceptualization: Geospatial Software Institute (GSI)*, Los Angeles, CA, USA

Uhl, J. H., Leyk, S., **Chiang, Y.-Y.**, Duan, W., and Knoblock, C. A. (November 2017). Machine-learning based Approaches for Extracting Settlement Features from Historical Maps. In *Proceedings of the International Land Use Symposium 2017 (Spatial data modelling and visualisation to enlighten sustainable policy making)*, Dresden, Germany

Holmes-Wong, D., **Chiang, Y.-Y.**, (October 2017). Unlocking Maps for Discovery and Other Purposes, Digital Library Federation (DLF) Forum, Pittsburg, PA, USA

Eckel, S. P., Deng, H., Urman, R., Habre, R., Morrison, J., Gauderman, J., Ambite, J. L., **Chiang, Y.-Y.**, Stripelis, D., and Gilliland, F. D. (September 2017). Methods for Predicting Asthma Exacerbations using Personal Sensor Monitoring systems, *International Society for Environmental Epidemiology (ISEE)*, Sydney, Australia

Leyk, S. and **Chiang, Y.-Y.** (July 2017). Implementing the Concept of Geographic Context for Efficient Recognition from Large-Scale Topographic Map Series. In *Proceedings of the 28th International Cartographic Conference,* Washington, DC, USA

Chiang, Y.-Y. (July 2017). Linking Historical Maps to the USC Shoah Foundation Visual History Archive. In *Proceedings of the 28th International Cartographic Conference,* Washington, DC, USA

Nanetti, A., Cattaneo, A., Cheong, S.-A., **Chiang, Y.-Y.**, and Lin, C.-Y. (July 2017). Visual Knowledge Aggregation: From Static to Dynamic Information Systems in Library Contexts. In *Proceedings of the ICA Pre-Conference Workshop on Mapping Tools for Non-Mapping Experts: Incorporating Geospatial Visualization Tools in Libraries*, Washington, DC, USA

Chiang, Y.-Y., Jain, A., Bandyopadhyay, B., Knoblock, A. C. (June 2017). Automatic Learning of User Design Rationales from Examples. In *Proceedings of the Symposium on Solid and Physical Modeling (SPM)*, Berkeley, CA, USA

Chiang, Y.-Y. (April 2017). Querying Historical Maps as a Unified, Structured, and Linked Spatiotemporal Source (Keynote), Second International Workshop on Exploring Old Maps, Universität Würzburg, Germany

Chiang, Y.-Y. (February 2017). Drones and GIS: The Lowdown on Small UAS Opportunities (Panel Moderator), Seventh Annual Los Angeles Geospatial Summit, Los Angeles, CA, USA

Chiang, Y.-Y. (November 2016). Cartographic Research (Panel Discussion), International Map Industry Association (IMIA) Conference, San Diego, CA, USA

Chiang, Y.-Y. (August 2016). Exploiting Context in Cartographic Evolutionary Documents to Ex- tract and Build Linked Spatial-Temporal Datasets. In *Proceedings of the 2016 Conference on Complex Systems*, Complex Systems Society, Amsterdam, Netherlands (invited abstract & speech)

Leyk, S. and **Chiang, Y.-Y.** (May 2016). Information Extraction Based on the Concept of Geographic Context. In *Proceedings of the 2016 AutoCarto*, pp. 100–110, Albuquerque, NM, USA

Chiang, Y.-Y. (May 2016). Querying Historical Maps as a Unified, Structured, and Linked Spatiotemporal Source, University Consortium for Geographic Information Science 2016 Symposium, Scottsdale, AZ, USA

Chiang, Y.-Y., Leyk, S., Honarvar Nazari, N., and Moghaddam, S. (August 2015) The Impact of Graphical Quality on Automatic Text Recognition in Digital Maps. In *Proceedings of the 27th International Cartographic Conference* (ISBN 978-85-88783-11-9), Rio de Janeiro, Brazil

Chiang, Y.-Y. and Leyk, S. (August 2015) Exploiting Online Gazetteer for Fully Automatic Extraction of Cartographic Symbols. In *Proceedings of the 27th International Cartographic Conference* (ISBN 978-85-88783-11-9), Rio de Janeiro, Brazil

Chiang, Y.-Y. and Gehring, S. (August 2015) Semi-Automated Visualization of Spatial Context in Unstructured Text. In *Proceedings of the 27th International Cartographic Conference* (ISBN 978-85-88783-11-9), Rio de Janeiro, Brazil

Ngo, V., Swift, J., and **Chiang, Y.-Y.** (August 2015) Visualizing Land Reclamation in Hong Kong: A Web Application. In *Proceedings of the 27th International Cartographic Conference* (ISBN 978-85-88783-11-9), Rio de Janeiro, Brazil

Fernandes, R. and **Chiang, Y.-Y.** (August 2015) Creating an Intuitive and Effective User Interface for Map Processing in a Geographic Information System. In *Proceedings of the 27th International Cartographic Conference* (*ISBN* 978-85-88783-11-9), Rio de Janeiro, Brazil

Chiang, Y.-Y. and Knoblock, C. A. (October 2014). Integrating Heterogeneous Sources in a Geospatial Framework to Support Oil Field Operations, CiSoft, University of Southern California, Los Angeles, CA, USA

Chiang, Y.-Y., Chioh, P., and Moghaddam, S. (September 2014) A Training-by-Example Approach for Symbol Spotting from Raster Maps. In *Proceedings of the 8th International Conference on Geographic Information Science (GIScience)*, pp. 264–269, Vienna, Austria

Jaiswal, A., **Chiang, Y.-Y.**, Knoblock, C. A., and Lan, L. (September 2014) Location Prediction with Sparse GPS Data. In *Proceedings of the 8th International Conference on Geographic Information Science (GIScience)*, pp. 315–319, Vienna, Austria

Chiang, Y.-Y. (August 2013) Strabo: A Complete System for Label Recognition in Maps. In *Proceedings of the 26th International Cartographic Conference* (ISBN: 978-1-907075-06-3), Dresden, Germany

Chiang, Y.-Y., Leyk, S., and Knoblock, C. A. (September 2009). Integrating Color Image Segmentation and User Labeling for Efficient and Robust Graphics Recognition from Historical Maps. In *Proceedings of the 9th IAPR International Workshop on Graphics Recognition (GREC)*, Beijing, China

Chiang, Y.-Y. (April 2011). Harvesting Named Geographic Features from Raster Maps, American Association of Geographers Annual Meeting, Seattle, WA, USA

Chiang, Y.-Y. and Knoblock, C. A. (July 2009). Automatic Road Vectorization of Raster Maps. In *Proceedings of the 8th IAPR International Workshop on Graphics Recognition (GREC)*, pp. 27–28, La Rochelle, France

Chiang, Y.-Y. (2015) Strabo: Digital Map Processing (Webinar). Geographic Information Science and Technology Graduate Programs, University of Southern California, Los Angeles, CA, USA

Invited Keynotes, Panel, and Seminars

2022 **Chiang, Y.-Y.** Computer Science, Spatial Science, and Historical Maps. *Unforeseen Paths (Transcending Boundaries and Sharing Critical Approaches to Architectural Heritage)*, University of Amsterdam, Netherlands

2022 Kim, J., **Chiang, Y.-Y.** The mapKurator pipeline for automatically georeferencing historical maps. The Library of Congress, Washington, DC, USA

2022 **Chiang, Y.-Y.** Spatial AI and Its Applications, UMN Spatial Forum 2022, Minneapolis, MN, USA

2022 **Chiang, Y.-Y.** Spatial AI and Its Applications, Department of Computer Science, Grinnell College, Grinnell, IA, USA

2022 **Chiang, Y.-Y.** Machines Reading Maps, Research Topics in Cartography, Department of Civil, Environmental and Geomatic Engineering, ETH Zurich

2022 **Chiang, Y.-Y.** Spatial AI and Its Applications, Keynote at the 2022 AI Symposium, University of South Dakota, Vermillion, SD, USA

2021 **Chiang, Y.-Y.** Spatial AI and Its Applications, Geography/GIS Colloquium, University of Cincinnati (online)

2021 **Chiang, Y.-Y.** Spatial AI and Its Applications, AI Seminar, Information Sciences Institute, University of Southern California (online)

2021 **Chiang, Y.-Y.** Machine Reading Maps, University Consortium for Geographic Information Science (UCGIS) (online)

2021 **Chiang, Y.-Y.**, Xu, L., Walworth, N., Lei, B., Bayes, G. Ecology, Biodiversity, and Conservation: Mapping the Land and its Ecosystems using AI (Panel Discussion), *Earth Summit (Artificial Intelligence Los Angeles)*, Los Angeles, CA USA

2020 **Chiang, Y.-Y.** and Leyk, S. Linked Maps: Exploiting Context in Cartographic Evolutionary Documents to Extract and Build Linked Spatial-Temporal Datasets, Yale-NUS College, Singapore

2018 **Chiang, Y.-Y.**, A Deep Learning Approach to Jointly Exploit Spatial and Temporal Patterns for Accurate Air Quality Forecasting, Tongji University, Shanghai, China

2018 **Chiang, Y.-Y.**, A Deep Learning Approach to Jointly Exploit Spatial and Temporal Patterns for Accurate Air Quality Forecasting, Fudan University, Shanghai, China

2018 **Chiang, Y.-Y.**, A Deep Learning Approach to Jointly Exploit Spatial and Temporal Patterns for Accurate Air Quality Forecasting, Northwest University, Xi'an, China

2018 **Chiang, Y.-Y.**, A Deep Learning Approach to Jointly Exploit Spatial and Temporal Patterns for Accurate Air Quality Forecasting, Academia Sinica, Taipei, Taiwan

2017 **Chiang, Y.-Y.**, Mining Public Datasets for Modeling Intra-city PM2.5 Concentrations at a Fine Spatial Resolution, Department of Geography, National Taiwan University, Taipei, Taiwan

2016 **Chiang, Y.-Y.** Unleashing the Power of Historical Maps (Webinar), United States Geological Survey, St. Louis, MO, USA

2016 **Chiang, Y.-Y.**, GIS and Spatial Humanity Datasets, Nanyang Technological University, Singapore

2016 **Chiang, Y.-Y.**, Introduction to Spatial Computing Research, GeoDesign Orientation, Spatial Sciences institute, University of Southern California, Los Angeles, CA, USA

2015 **Chiang, Y.-Y.**, Introduction to Spatial Computing Research, GeoDesign Orientation, Spatial Sciences institute, University of Southern California, Los Angeles, CA, USA

2013 **Chiang, Y.-Y.**, Building a Complete System for Text Recognition in Maps, TerraGo, El Segundo, CA, USA

2012 **Chiang, Y.-Y.**, Discovery, Extraction, and Fusion of Geospatial Information in Maps, Information Sciences Institute, Marina del Rey, CA, USA

2011 **Chiang, Y.-Y.**, Harvesting Named Geographic Features from Raster Maps, National Geospatial-Intelligence Agency, Washington, DC, USA

2011 **Chiang, Y.-Y.**, Harvesting Named Geographic Features from Raster Maps, Chinese Academy of Sciences, Beijing, China

2011   **Chiang, Y.-Y.**, Harvesting Named Geographic Features from Raster Maps, National Taiwan University, Taipei, Taiwan
2011   **Chiang, Y.-Y.**, Strabo: An Automatic Map Processing System, Upjohn Center for the Study of Geographical, Western Michigan University, Kalamazoo, MI, USA
2010   **Chiang, Y.-Y.**, Harvesting Geographic Features from Heterogeneous Raster Maps, Academia Sinica, Taipei, Taiwan
2009   **Chiang, Y.-Y.**, A General Method to Automatically Extracting Road Layers from Raster Maps, Geosemble Technologies, Los Angeles, CA, USA
2009   **Chiang, Y.-Y.**, Harvesting Geographic Features from Heterogeneous Raster Maps, University of Lugano, Lugano, Switzerland
2007   **Chiang, Y.-Y.**, Automatic and Accurate Extraction of Road Intersections from Raster Maps, National Taiwan University, Taipei, Taiwan

Grants, Contracts & Gifts

External

2022– 2023   **Performance Evaluation of Different Detection Technologies for Signalized Intersections in Minnesota**
Minnesota Department of Transportation (MnDOT); **PI**
$179,950 (total costs)

2022– 2023   **Harmonized Diagnostic Assessment of Dementia for the Longitudinal Aging Study in India**
National Institutes of Health (NIH); **Subcontract, UMN PI**
Lee, J, Economics Department, University of Southern California, PI
$116,817 (total costs)

2022– 2023   **Text Spotting from Multi-source, Multi-lingual Scanned Maps**
David and Abby Rumsey; **PI**
$260,000 (direct costs)

2022– 2023   **Conference: ACM SIGSPATIAL Conference 2022: Student Activities and U.S.-Based Students Support**
National Science Foundation, IIS; **PI**
$25,000 (total costs)

2022– 2024   **AI-based Program for Advancing Research, Education and Extension Activities in Precision Agriculture at PVAMU**
National Institute of Food and Agriculture (USDA-NIFA); **Subcontract, UMN Co-I**
Fares, A., Natural Resources and Environmental Management Department, Prairie View A&M University, PI
$35,766, Chiang (total costs)

2021– 2024   **SCH: Wearables for Health and Disease Knowledge (W4H)**
National Institutes of Health (NIH); **Subcontract, UMN PI**
Shahabi, C., Computer Science Department, University of Southern California, PI
$99,998, Chiang (total costs)

2021– 2024   **Combining Efficient Algorithms, Machine Learning and Knowledge Graphs for Scalable, High-Dimensional Nearest Neighbor Search (FastSearch)**
National Geospatial-Intelligence Agency (NGA); **Subcontract, UMN PI**
Wael AbdAlmageed, Information Sciences Institute, University of Southern California, PI
$482,993, Chiang (total costs)

2021– 2023	**All-Scale Trajectory Clustering for Moving Behavior Detection with Spatiotemporal Recurrent Convolutional Neural Networks**
	National Geospatial-Intelligence Agency (NGA); **Subcontract, UMN PI**
	Shahabi, C., Computer Science Department, University of Southern California, PI
	$229,886, Chiang (total costs)
2021– 2023	**Machines Reading Maps**
	National Endowment for the Humanities; **Subcontract, UMN PI**
	Holmes-Wong, D., Digital Library, University of Southern California; PI
	$142,750, Chiang (total costs)
2020– 2021	**Large-scale and Long-term Forecasting of Performance Measurement of Public Transportation Systems**
	State of California, Department of Transportation (Caltrans); **Co-PI**
	Shahabi, C., Computer Science Department, University of Southern California, PI
	$27,633, Chiang (total costs)
2020 – 2020	**AI-Driven Analytics for Network Operations**
	NTT Global Networks; **PI**
	$95,700 (direct costs)
2019 – 2020	**DETECT: An All-Scale Trajectory Clustering Approach for Moving Behavior Detection with Spatiotemporal Deep Embedded Neural Networks**
	National Geospatial-Intelligence Agency (NGA); **Co-PI**
	Shahabi, C., Computer Science Department, University of Southern California, PI
	$70,582, Chiang (total costs)
2018 – 2019	**Analysis Modernization through Content and Analytics Technologies (AMCAT)**
	BAE Systems; **PI**
	$49,102 (total costs)
2018 – 2019	**Deep-Learning Traffic Flow Prediction for Forecasting Performance Measurement of Public Transportation Systems**
	State of California, Department of Transportation (Caltrans); **Co-PI**
	Shahabi, C., Computer Science Department, University of Southern California, PI
	$20,731, Chiang (total costs)
2017 – 2021	**LA Safe**
	LA Metro; **Co-PI**
	Giuliano, G., METRANS Transportation Center and Shahabi, C., Computer Science Department, University of Southern California, PIs
	$151,734, Chiang (total costs)
2017 – 2021	**MINT: Model INTegration Across Disciplines**
	Defense Advanced Research Projects Agency (DARPA); **Co-I**
	Gil, Y., Information Sciences Institute, University of Southern California, PI
	$387,037, Chiang (total costs)
2017 – 2018	**Public Health - Using Historical Maps for Unlocking Long-Term Human-Environment Interactions**
	Microsoft Corporation; **PI**
	$20,000 (direct costs)
2017 – 2018	**Exploiting Historical Maps for Understanding Human-Environment Interactions on a Large Spatiotemporal Scale**
	NVIDIA Corporation; **PI**
	$4,800 (direct costs)
2017 – 2018	**Unlocking Maps: Automatic and Streamlined Metadata Creation for Digital Collections**

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National Endowment for the Humanities; **Co-PI**
Holmes-Wong, D., Digital Library, University of Southern California; PI
$45,483, Chiang (total costs)

2016 – 2019 **PRISMS Data and Software Coordination and Integration Center (DSCIC)**
National Institutes of Health; **Co-I**
Ambite, J. L., Information Sciences Institute and Gilliland, F. D., Keck School of Medicine, University of Southern California, PIs
$339,812, Chiang (total costs)

2016 – 2019 **Exploiting Context in Cartographic Evolutionary Documents to Extract and Build Linked Spatial-temporal Datasets**
National Science Foundation, IIS; **Co-PI**
Knoblock, C. A., Information Sciences Institute, University of Southern California and Leyk, S., Department of Geography, University of Colorado, Boulder, PIs
$349,529, Chiang (total costs)

2016 – 2017 **Automatic Alignment of Design Semantics to Enable Mapping Between CAD Systems**
Defense Advanced Research Projects Agency; **Co-PI**
Knoblock, C. A., Information Sciences Institute, University of Southern California, PI
$87,803, Chiang (total costs)

2015 – 2016 **Modeling, Integrating, and Search Across Multiple Geographic Features from a Variety of Geospatial Sources**
BAE Systems; **PI**
$330,048 (total costs)

2015 – 2016 **Automatic Map Processing on the Cloud**
Microsoft Azure Educator Grant; **PI**
$9,000 (direct costs)

2015 – 2016 **Automatic Text Recognition in Historical Ordnance Survey Maps (Phase II)**
Conveyancing Liability Solutions; **PI**
$60,000 (direct costs)

2014 – 2015 **Automatic Text Recognition in Historical Ordnance Survey Maps (Phase I)**
Conveyancing Liability Solutions; **PI**
$60,000 (direct costs)

2013 – 2015 **A Unified Approach to Information Integration and Data Mining on Large, Heterogeneous Data Sources**
Huawei Technologies Co., Ltd.; **Co-I**
Knoblock, C. A., Information Sciences Institute, University of Southern California, PI
$77,594, Chiang (direct costs)

2013 – 2014 **Harvesting Geographic Information from Heterogeneous Raster Maps**
TerraGo Technologies; **PI**
$75,000 (direct costs)

2013 – 2014 **Integrating Heterogeneous Sources in a Geospatial Framework to Support Oil Field Operations**
CiSoft; **Co-I**
Knoblock, C. A., Information Sciences Institute, University of Southern California, PI
$50,194, Chiang (direct costs)

Internal

2022– 2023 **Unconstrained Multisensor "State of the Heart" Monitoring and Disease Prediction**
The Center for Excellence in Sensing Technologies and Analytics (CESTA); **Co-PO**

Talkachova, A., Biomedical Engineering Department, University of Minnesota, PI
$8,000 (direct costs)

2019 – 2020 **Generating Linked Metadata from Historical Map Scans**
Undergraduate Research Associates Program, University of Southern California; **PI**
$6,600 (direct costs)

2018 – 2019 **Homelessness and the Access to: Water, Sanitation, and Hygiene (WaSH)**
Undergraduate Research Associates Program, University of Southern California; **PI**
$4,605 (direct costs)

2017 – 2018 **Unlocking Maps: Automatic and Streamlined Metadata Creation for Digital Collections**
Undergraduate Research Associates Program, University of Southern California; **PI**
$6,400 (direct costs)

2016 – 2017 **Linking Historical Maps to USC Shoah Foundation Visual History Archive**
Undergraduate Research Associates Program, University of Southern California; **PI**
$5,400 (direct costs)

2015 – 2016 **Linking Historical Maps to USC Shoah Foundation Visual History Archive**
Undergraduate Research Associates Program, University of Southern California; **PI**
$3,200 (direct costs)

2014 – 2015 **Preserving Historical Geographic Data Through Automatic Maps Processing**
Undergraduate Research Associates Program, University of Southern California; **PI**
$3,150 (direct costs)

Teaching

Current Courses Taught

University of Minnesota
CSCI 5523 – Introduction to Data Mining
CSCI 4707 – Practice of Database Systems
CSCI 5980/8980 – Spatial Enabled Artificial Intelligence (New Course in Spring 2022)

Past Courses Taught

University of Southern California
INF 553: Foundations and Applications of Data Mining (Course Lead)
SSCI 592: Mobile GIS (Course Lead)
SSCI 680: Advanced Spatial Computing (Course Lead)
CSCI 599: Geospatial Data Integration
SSCI 582: Spatial Databases
SSCI 586: GIS Programming and Customization

Ph.D. Dissertations & Theses Directed

Current
2022 – Haoji Hu, (Ph.D. Program in Computer Science and Engineering, University of Minnesota)
2022 – Theresa Chen, (Ph.D. Program in Computer Science and Engineering, University of Minnesota)
2022 – Leeje Jang, (Ph.D. Program in Computer Science and Engineering, University of Minnesota)
2022 – Malcolm Grossman, (Ph.D. Program in Computer Science and Engineering, University of Minnesota)

2022 –	Yuankun Jiao, (Ph.D. Program in Computer Science and Engineering, University of Minnesota)
2021 –	Jina Kim, (Ph.D. Program in Computer Science and Engineering, University of Minnesota)
2021 –	Min Namgung, (Ph.D. Program in Computer Science and Engineering, University of Minnesota)
2018 –	Yijun Lin, (Ph.D. Program in Computer Science and Engineering, University of Minnesota)
2018 –	Zekun Li, (Ph.D. Program in Computer Science and Engineering, University of Minnesota)
2018 –	Dan Feldman, (Ph.D. Program in Computer Science, University of Southern California)
2016 –	Weiwei Duan, (Ph.D. Program in Computer Science, University of Southern California)

Alumni

| 2017 – 2022 | Lois Park, (Ph.D. Program in Population, Health and Place Graduate Program, University of Southern California) |

Thesis title: *Characterizing Self-Reported Spatial and Provider Barriers To Maternal Health Care Utilization In Malawi*

Current Position: Evaluation Fellow, Centers for Disease Control and Prevention

| 2016 – 2021 | Johanna Avelar Portillo, (Ph.D. Program in Population, Health and Place Graduate Program, University of Southern California) |

Thesis title: *Homeless Encampments and Access to Water, Sanitation, and Hygiene (WaSH) Services in Los Angeles, CA*

Current Position: Postdoctoral fellow at the University of California, San Diego (UCSD) in the School of Medicine, Department of Family Medicine and Public Health, Division of Global Health as an NIH-funded 2021 GloCal Fogarty Fellow

M.S. Theses Directed

2015   Nancy McMahon, M.S., Geographic Information Science and Technology, University of Southern California
Thesis title: *The Role of GIS in Asset Management: County of Kauai Department of Parks and Recreation a Need for an Asset Management Program*

2015   Patricia Jula, M.S., Geographic Information Science and Technology, University of Southern California
Thesis title: *Generating Bicyclist Counts using Volunteered and Professional Geographic Information through a Mobile Application*

2015   Christie Root, M.S., Geographic Information Science and Technology, University of Southern California
Thesis title: *Guiding Business Oriented Volunteered Geographic Information Through Geotrigger Services: A Case Study of CrossFit Affiliates*

2015   Sarah Gehring, M.S., Geographic Information Science and Technology, University of Southern California
Thesis title: *Semi-Automated Visualization of Spatial Information in Unstructured Text*

2015   Jamen Underwood, M.S., Geographic Information Science and Technology, University of Southern California
Thesis title: *Campaign Financing for the U.S. House of Representatives: An Interactive Web Map*

2014   Haynes Bunn, M.S., Geographic Information Science and Technology, University of Southern California
Thesis title: *Wake County District Overlay: An Online Electoral Data Visualization Application*

2014   Kathryn Metivier, M.S., Geographic Information Science and Technology, University of Southern California
Thesis title: *Modeling Open Space Acquisition.*

Ph.D. Dissertation Committee

2022   Xiaozhe Yin (Ph.D. Program in Biostatistics, University of Southern California)
        Thesis title: *Uncertainty Quantification in Extreme Gradient Boosting with Application to Environmental Epidemiology*

2021   Michael Pfonner (Ph.D. Program in Political Science and International Relations, University of Southern California)
        Thesis title: Organized Intra-Ethnic Conflict and Cooperation in Divided Stateless Nations The Competitive Dynamics of Rival Ethnonationalist Factions

2021   Ken Chau (Ph.D. Program in Biostatistics, University of Southern California)
        Thesis title: *Covariance-based Distance-weighted Regression for Incomplete and Misaligned Spatial Data*

2019   Johannel Uhl (Ph.D. Program in Geography, University of Colorado, Boulder)
        Thesis title: *Spatio-Temporal Information Extraction Under Uncertainty Using Multi-Source Data Integration and Machine Learning: Applications to Human Settlement Modelling*

2019   Huiyu Deng (Ph.D. Program in Biostatistics, University of Southern California)
        Thesis title: *Flexible Methods for Longitudinal Data from Epidemiology and mHealth Studies using Machine Learning*

2018   Benedikt Budig, (Ph.D. Program in Computer Science, University of Würzburg)
        Thesis title: *Extracting Spatial Information from Historical Maps: Algorithms and Interaction*.

Other Student Advisement

My work has produced direct participation of students in computer science, data science, spatial sciences, geosciences, history, and communication through joint research activities and my teaching efforts. Since 2013, I have directly worked with more than 80 students in the USC Spatial Computing Lab. These students came from a variety of backgrounds, including one local high-school student, several visiting international students, and USC undergraduate and graduate students**. I also have a successful track record of recruiting and working with under-represented groups. More than one-third of my research students are female students in engineering.**

Post-Doctoral Fellows & Visiting Scholars Directed

2019 – 2020   Dr. Ying Zhang, Integrated Media Systems Center & Spatial Sciences Institute, University of Southern California (Visiting Scholar; Associate Professor, School of Control and Computer Engineering, North China Electric Power University, China)

2019 – 2020   Dr. Xin Zhang, Integrated Media Systems Center & Spatial Sciences Institute, University of Southern California (Visiting Scholar; Associate Professor, School of Computer Science and Technology, Changchun University of Science and Technology, China)

2019 – 2020   Dr. Hui Luan, Integrated Media Systems Center & Spatial Sciences Institute, University of Southern California (Visiting Scholar; Associate Professor, College of Instrumentation and Electrical Engineering, Jilin University, China)

2015 – 2016   Dr. Yuan Gao, Spatial Sciences Institute, University of Southern California (Visiting Scholar; Associate Professor of the Department of Information and Management, Northwest University, China)

2015 – 2016   Dr. Jianhua Wu, Spatial Sciences Institute, University of Southern California (Visiting Scholar; Associate Professor and Dean of the Department of GIS, School of Geography and Environment, Jiangxi Normal University, China)

2014 – 2015   Dr. Woojin Park, Spatial Sciences Institute, University of Southern California (Visiting Scholar)

2014 – 2015   Dr. Zebao Zhang, Spatial Sciences Institute, University of Southern California (Visiting Scholar; Lecturer and Researcher at the Harbin Engineering University, China)

External Ph.D. Examiner

2018   PhD Thesis Review Panel, Department of Computer Science, University of Würzburg, Germany
2016   PhD Thesis Review Panel, Department of Civil Engineering, Indian Institute of Technology, Roorkee, India

Short Courses & Workshops Taught

2014   Introduction to GIS
One-day short course offered for students and faculties in the School of Social Work, University of Southern California, Los Angeles, CA, USA
2010 - 2015   Introduction to GIS
Half-day short courses offered five times for students in the USC SCEC Undergraduate Studies in Earthquake Information Technology (USEIT) Program, University of Southern California, Los Angeles, CA, USA

Invited Lectures

2021   **Chiang, Y.-Y.**, Introduction to Spatial AI, CSCI 5715: Spatial Data Science, University of Minnesota, Minneapolis, MN, USA
2019   **Chiang, Y.-Y.**, Introduction to Data Mining and Spatial Computing, ISE 599: Applied Predictive Analytics, University of Southern California, Los Angeles, CA, USA
2018   **Chiang, Y.-Y.**, Geographic Data, ASCJ420: Annenberg Collaboratory, University of Southern California, Los Angeles, CA, USA
2016   **Chiang, Y.-Y.**, Introduction to Geospatial Data Integration, CSCI 548: Information Integration on the Web, University of Southern California, Los Angeles, CA, USA
2016   **Chiang, Y.-Y.**, Introduction to Geographic Information Systems, INF 549: Introduction to Computational Thinking and Data Science, University of Southern California, Los Angeles, CA, USA
2016   **Chiang, Y.-Y.**, Introduction to Geospatial Data Integration, SSCI 582: Spatial Databases, University of Southern California, Los Angeles, CA, USA
2010   **Chiang, Y.-Y.**, Map Processing, CSCI-548: Information Integration on the Web, University of Southern California, Los Angeles, CA, USA
2009   **Chiang, Y.-Y.**, Map and Imagery Fusion, CSCI-548: Information Integration on the Web, Department of Computer Science, University of Southern California, Los Angeles, CA, USA
2008   **Chiang, Y.-Y.**, Map Search and Extraction, CSCI-548: Information Integration on the Web, Department of Computer Science, University of Southern California, Los Angeles, CA, USA

Professional Service

International

2022   Guest Editor, Frontiers in Environmental Science, Artificial Intelligence in Geospatial Analysis for Environmental Applications
2022   Co-Organizer, The Workshop on Machines Reading Maps, the Library of Congress, Washington, DC, USA
2022   Co-Organizer, The Workshop on Reading and Linking Place: Text on Historical Maps, University Consortium for Geographic Information Science, Syracuse, NY, USA

2022	Program Co-Chair and Co-Organizer, 2023 AAG Symposium on GeoAI and Deep Learning for Geospatial Research: Advances in GeoAI methods and spatially explicit models, American Association of Geographers Annual Meeting, Denver, CO, USA
2022	Program Co-Chair and Co-Organizer, 2023 AAG Symposium on GeoAI and Deep Learning for Geospatial Research: GeoAI for Cartography and Mapping, American Association of Geographers Annual Meeting, Denver, CO, USA
2022	Program Co-Chair, SIAM International Conference on Data Mining (SDM23), Minneapolis, MN
2022	Program Co-Chair, Recent Trends in Image Processing and Pattern Recognition 5th International Conference, RTIP2R 2022, Kingsville, TX, USA
2022	Sponsors Co-Chair, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Seattle, WA, USA
2022	Member, Scientific Program Committee, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Seattle, WA, USA
2022	Member, Scientific Program Committee, the 5th International ACM SIGSPATIAL Workshop on AI for Geographic Knowledge Discovery (in conjunction with the 2023 SIGSPATIAL Conference), Seattle, WA, USA
2022	Member, Scientific Program Committee, the 1st ACM SIGSPATIAL International Workshop on Geospatial Knowledge Graphs (in conjunction with the 2023 SIGSPATIAL Conference), Seattle, WA, USA
2022	Member, Senior Scientific Program, the 2023 AAAI Conference on Artificial Intelligence, Washington, DC, USA
2022	Member, Scientific Program Committee, International Workshop on Health Intelligence (in conjunction with the 2023 AAAI Conference on Artificial Intelligence), Washington, DC, USA
2022	Member, Scientific Program Committee, IEEE International Conference on Tools with Artificial Intelligence, Virtual Conference
2021	Sponsors Co-Chair, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Virtual Conference
2021	Member, Scientific Program Committee, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Virtual Conference
2021	Member, Scientific Program Committee, International Workshop on Methods, Models, and Resources for Geospatial Knowledge Graphs and GeoAI co-located with GIScience, Poznań, Poland
2021	Member, Scientific Program Committee, ACM SIGSPATIAL International Workshop on AI for Geographic Knowledge Discovery, Virtual Conference
2021	Member, Scientific Program Committee, IEEE International Conference on Tools with Artificial Intelligence, Virtual Conference
2021	Member, Scientific Program Committee, International Workshop on Health Intelligence (in conjunction with the 2021 AAAI Conference on Artificial Intelligence), Virtual Conference
2020	Program Co-Chair, International Track, International Conference on Technologies and Applications of Artificial Intelligence (TAAI), Taipei, Taiwan
2020	Sponsors Co-Chair, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Virtual Conference
2020	Member, Scientific Program Committee, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Virtual Conference
2020	Member, Scientific Program Committee, IEEE International Conference on Tools with Artificial Intelligence, Virtual Conference
2020	Member, Scientific Program Committee, the 3rd ACM SIGSPATIAL International Workshop on Advances on Resilient and Intelligent Cities, Virtual Conference

2020   Member, Scientific Program Committee, International Workshop on Health Intelligence (in conjunction with the 2020 AAAI Conference on Artificial Intelligence), New York, NY, USA

2019   Member, Scientific Program Committee, IEEE International Conference on Tools with Artificial Intelligence, Portland, Oregon, USA

2019   Member, Scientific Program Committee, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Chicago, IL, USA

2019   Member, Scientific Program Committee, the 3rd Workshop on GeoAI: AI and Deep Learning for Geographic Knowledge Discovery, Chicago, IL, USA

2019   Member, Scientific Program Committee, the 2nd ACM SIGSPATIAL International Workshop on Advances on Resilient and Intelligent Cities, Chicago, IL, USA

2019   Member, Scientific Program Committee, Joint Workshop on Health Intelligence (in conjunction with the 33rd AAAI Conference on Artificial Intelligence), Honolulu, Hawaii, USA

2018   Member, Scientific Program Committee, IEEE International Conference on Tools with Artificial Intelligence, Volos, Greece

2018   Member, Scientific Program Committee, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Seattle, WA, USA

2018   Member, Scientific Program Committee, the 2nd Workshop on GeoAI: AI and Deep Learning for Geographic Knowledge Discovery, Seattle, WA, USA

2018   Member, Scientific Program Committee, the 2nd Workshop on Geospatial Humanities, Seattle, WA, USA

2018   Member, Scientific Program Committee, Joint Workshop on Health Intelligence (in conjunction with the 32nd AAAI Conference on Artificial Intelligence), New Orleans, LA, USA

2018   Member, Scientific Program Committee, American Medical Informatics Association 2018 Annual Symposium, San Francisco, CA, USA

2018   Member, Scientific Program Committee, IARIA GEOProcessing. International Conference on Advanced Geographic Information Systems, Applications, and Services, Rome, Italy

2017   Proceedings Co-Chair, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Redondo Beach, CA, USA

2017   Member, Scientific Program Committee, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Redondo Beach, CA, USA

2017   Member, Scientific Program Committee, IEEE International Conference on Tools with Artificial Intelligence, Boston, MA, USA

2017   Member, Scientific Program Committee, the First Workshop on GeoAI: AI and Deep Learning for Geographic Knowledge Discovery, Los Angeles, CA, USA

2017   Member, Scientific Program Committee, Joint Workshop on Health Intelligence (in conjunction with the 31th AAAI Conference on Artificial Intelligence), San Francisco, CA, USA

2017   Member, Scientific Program Committee, IARIA GEOProcessing. International Conference on Advanced Geographic Information Systems, Applications, and Services, Nice, France

2016   Proceedings Co-Chair, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, San Francisco, CA, USA

2016   Member, Scientific Program Committee, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, San Francisco, CA, USA

2016   Member, Scientific Program Committee, International Workshop on Mobile Entity Localization and Tracking in GPS-less Environments, San Francisco, CA, USA

2016   Member, Scientific Program Committee, IARIA GEOProcessing. International Conference on Advanced Geographic Information Systems, Applications, and Services, Venice, Italy

2016   Member, Scientific Program Committee, IARIA SPACOMM. International Conference on Advances in Satellite and Space Communications, Lisbon, Portugal

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2016   Member, Scientific Program Committee, IARIA SMART. International Conference on Smart Cities, Systems, Devices and Technologies, Valencia, Spain

2016   Member, Scientific Program Committee, Workshop on Expanding the Boundaries of Health Informatics Using Artificial Intelligence, Phoenix, AZ, USA

2015   Member, Scientific Program Committee, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Seattle, WA, USA

2015   Member, Scientific Program Committee, International Workshop on Mobile Entity Localization and Tracking in GPS-less Environments, Seattle, WA, USA

2015   Member, Scientific Program Committee, IARIA GEOProcessing. International Conference on Advanced Geographic Information Systems, Applications, and Services, Lisbon, Portugal

2015   Member, Scientific Program Committee, IARIA SPACOMM. International Conference on Advances in Satellite and Space Communications, Barcelona, Spain

2015   Member, Scientific Program Committee, IARIA SMART. International Conference on Smart Cities, Systems, Devices and Technologies, Brussels, Belgium

2014   Member, Scientific Program Committee, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Dallas, TX, USA

2014   Member, Scientific Program Committee, Workshop on Expanding the Boundaries of Health Informatics Using Artificial Intelligence, Arlington, VI, USA

2014   Member, Scientific Program Committee, IARIA SMART. International Conference on Smart Cities, Systems, Devices and Technologies, Paris, France

2013   Member, Scientific Program Committee, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Orlando, FL, USA

2013   Member, Scientific Program Committee, Workshop on Expanding the Boundaries of Health Informatics Using Artificial Intelligence, Bellevue, WA, USA

2013   Member, Scientific Program Committee, IARIA SMART. International Conference on Smart Cities, Systems, Devices and Technologies, Rome, Italy

2012   Member, Scientific Program Committee, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Redondo Beach, CA, USA

2012   Member, Scientific Program Committee, Conference on Artificial Intelligence, Special Track on AI and the Web, Toronto, Ontario, Canada

2012   Member, Scientific Program Committee, IARIA SMART. International Conference on Smart Cities, Systems, Devices and Technologies, Stuttgart, Germany

2012   Member, Scientific Program Committee, International Conference on Ubiquitous Computing, Pittsburgh, PA, USA

2011   Member, Scientific Program Committee, Conference on Artificial Intelligence, Special Track on AI and the Web, San Francisco, CA, USA

2011   Member, Scientific Program Committee, IAPR International Workshop on Graphics Recognition, Seoul, Korea

2010   Member, Scientific Program Committee, Workshop on Knowledge Engineering, Discovery and Dissemination in Health, Hong Kong, China

2010   Member, Dissertation Award Committee, Taiwanese Association for Artificial Intelligence, Taipei, Taiwan

National

2019   PI, Cooperative Research and Development Agreement between National Geospatial-Intelligence Agency (NGA) and the University of Southern California

2016   Judge, Expedition Hacks (sponsored by the National Geospatial-Intelligence Agency), Los Angeles, CA, USA

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State/County

2016   Panel Moderator, Los Angeles Geospatial Summit, Los Angeles, CA, USA

University

University of Minnesota

2022   Faculty Member, Ph.D. Student Review Committee, Computer Science and Engineering Department

2022   Faculty Member, Summer Workshop on Ethics Integration, Computer Science and Engineering Department

2021   Faculty Member, Graduate Admission Committee, Computer Science and Engineering Department

University of Southern California

2019   Faculty Member, Library Faculty Search Committee, USC Libraries

2018   Faculty Member, Office and Event Manager Search Committee, Spatial Sciences Institute

2017   Faculty Member, Faculty Merit Review Committee, Spatial Sciences Institute

2016   Faculty Member, Fiscal Administrator Search Committee, Spatial Sciences Institute

2016   Event Organizer, Spatial Sciences Institute GeoScavenge, Trojan Family Weekend, USC Dornsife Programs

2015   Faculty Member, Faculty Search Committee, Spatial Sciences Institute

2015   Faculty Member, Director Consultative Committee, Spatial Sciences Institute

2015   Faculty Member, GIS Project Specialist Search Committee, Spatial Sciences Institute

2015   Faculty Member, Visiting Scholar Committee, Spatial Sciences Institute

2015   GIS Mentor, USC SCEC Undergraduate Studies in Earthquake Information Technology (USEIT) Program

2014   GIS Mentor, USC SCEC Undergraduate Studies in Earthquake Information Technology (USEIT) Program

2013   GIS Mentor, USC SCEC Undergraduate Studies in Earthquake Information Technology (USEIT) Program

2013   Postdoc Representative, Information Sciences Institute, University of Southern California Postdoctoral Association

2012   GIS Mentor, USC SCEC Undergraduate Studies in Earthquake Information Technology (USEIT) Program

2012   Postdoc Representative, Information Sciences Institute, University of Southern California Postdoctoral Association

2011   GIS Mentor, USC SCEC Undergraduate Studies in Earthquake Information Technology (USEIT) Program

2010   GIS Mentor, USC SCEC Undergraduate Studies in Earthquake Information Technology (USEIT) Program

2009   Symposium Co-Chair, the Third Annual Intelligent Systems Division Graduate Student Symposium, Information Sciences Institute

Academic Reviews

Journal Editorial Services

2021 – Associate Editor, Journal of Information Science and Engineering (Institute of Information Science, Academia Sinica)

2017 – Action Editor, GeoInformatica (Springer)

Academic Journal Reviews

ACM Transactions on Knowledge Discovery from Data
ACM Transactions on Spatial Algorithms and Systems
Cartography and Geographic Information Science
Computer & Graphics
Computers, Environment and Urban Systems
Computers in Biology and Medicine
Data & Knowledge Engineering
GeoInformatica
Historical Methods: A Journal of Quantitative and Interdisciplinary History
Information Sciences
International Journal of Digital Earth
International Journal of Geographical Information Science
International Journal of Pattern Recognition and Artificial Intelligence
International Journal of Machine Learning and Cybernetics
IEEE Access
IEEE Transactions on Geoscience and Remote Sensing
ISPRS International Journal of Geo-Information
Journal on Computing and Cultural Heritage
Journal of Spatial Information Science
Journal of Visual Communication and Image Representation
Journal of Web Semantics
Journal of Zhejiang University
Knowledge-Based Systems
Open Journal of Semantic Web
PLOS ONE
Remote Sensing Applications: Society and Environment
Signal, Image and Video Processing
Transactions in GIS
Transactions on Knowledge and Data Engineering
Transactions on Spatial Algorithms and Systems

International Proposal Reviews

2020   The Netherlands Organisation for Scientific Research (Applied and Engineering Sciences), the
        Netherlands
2019   National Research Foundation, Singapore
2014   Lise Meitner-Program, Austrian Science Fund (FWF), Austria

National Proposal Reviews

2021   NSF Proposal Review Panel (Division of Information and Intelligent Systems)
2021   NSF Proposal Review Panel (Division of Information and Intelligent Systems)
2021   U.S. Department of Homeland Security Center for Accelerating Operational Efficiency (CAOE)
        Biennial Program Review 2021
2020   NSF Proposal Review Panel (Division of Information and Intelligent Systems)
2020   NIH Proposal Review Panel
2019   NSF Proposal Review Panel (Division of Information and Intelligent Systems)
2019   NSF Proposal Review (ad-hoc review for the Methodology, Measurement, and Statistics (MMS)
        program)
2017   NIH Proposal Review Panel
2016   NIH Proposal Review Panel

2015   NSF Proposal Review Panel (Division of Information and Intelligent Systems)

Promotion and Tenure Reviews

University of Würzburg

Professional Certifications

GISP® (Certified GIS Professional)

Professional Society Memberships

Association for Computing Machinery
Association for Computing Machinery, SIGSPATIAL
Institute of Electrical & Electronics Engineers
International Association for Pattern Recognition TC–10 (Technical Committee on Graphics Recognition)

Media Interviews and Coverage of Research

2022   Olivia Hultgren, UMN CSE News Page (October 2022). Interview for research on digital map processing. The article "University of Minnesota's Knowledge Computing Lab turns location data into time-saving tools" was published online at the UMN CSE News website

2020   Stephen Koenig, USC Dornsife Magazine (July 2020). Interview for research on AI. The article "Do Humans Dream of Androids Dreaming?" was published in the 2020 USC Dornsife Magazine.

2020   Stephen Koenig, USC Dornsife Magazine (July 2020). Interview for research on AI. The article "Do Humans Dream of Androids Dreaming?" was published in the 2020 USC Dornsife Magazine.

2018   NPR (89.3 KPCC), Take Two (June 2018). Radio interview on air quality research

2017   Valerie Osier, LA Daily News (December 2017). Quotes on the usage of drones in firefighting

2017   Kevin Smith, Southern California News Group (March 2017). Quotes on Walmart's latest patent on drone delivery

2017   Samantha Ehlinger, Scoop News Group (March 2017). Quotes on the spatial sciences and computer science participation at ExpeditionHacks

2016   Olga Grigoryants, Los Angeles Business Journal (July 2016). Quotes on the latest FAA drone regulation changes and drone manufactures in Los Angeles

2016   Robert Perkins, USC Media Relations (February 2016). Quotes and coverage on spatial computing research

2016   Lizzie Hedrick, USC News (February 2016). Interview for spatial computing research at Spatial Sciences Institute. The article "Spatial technology opens a window into history" was published online and linked from the USC homepage. Link: https://news.usc.edu/91625/spatial-technology-opens-a-window-into-history/

2013   Rosalie Murphy, USC Viterbi Magazine (May 2013). Interview for research on processing historical maps. The article "Creating the Key" was published in the 2013 USC Viterbi Magazine.

Last updated: 12/1/22