Yao–Yi Chiang, Ph.D.

Spatial Sciences Institute

Dana and David Dornsife College of Letters, Arts and Sciences

University of Southern California

3616 Trousdale Parkway, AHF B55C

Los Angeles, CA 90089-0374

Phone: (213) 740-5910

E-mail: yaoyic@usc.edu

Personal Website: http://yoyoi.info/

Spatial Computing Website: http://spatial–computing.github.io/

CURRENT APPOINTMENTS

University of Southern California

2017 –	Associate Professor (Research) of Spatial Sciences, Spatial Sciences Institute
2017 –	Associate Director, Integrated Media System Center (IMSC)

EDUCATION

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

PROFESSIONAL EXPERIENCE

AirMap, Santa Monica, CA, USA

2015 –	Chief Scientist

University of Southern California, Los Angeles, CA, USA

2013 – 2017	Assistant Professor (Research) of Spatial Sciences, Spatial Sciences Institute
2011 – 2013	Lecturer, Spatial 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

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

2017	Travel Award, the U.S. National Committee (USNC) for the International Cartographic Association (USNC-ICA)
2015	Best Vision Paper, First Place, the 2015 ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Seattle, Washington, USA (award sponsored by the Computing Research Association's Computing Community Consortium under the CCC Blue Sky initiative)
2015	Travel Award, the U.S. National Committee (USNC) for the International Cartographic Association (USNC-ICA)
2013	Travel Award, the U.S. National Committee (USNC) for the International Cartographic Association (USNC-ICA)

Graduate

2009	Best Paper Award, Second Place, the Fourth Annual Intelligent Systems Division Graduate Student Symposium, USC Information Sciences Institute, Marina del Rey, CA, USA
2008	Best Paper Award, Second Place, the Third 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

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

<u>Book Chapters</u>

2017

Chiang, Y.-Y. (April 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.

2016

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.

2013

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.

2012

Chiang, Y.-Y. and Knoblock, C. A. (2012). Generating Named Road Vector Data from Raster Map. In 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.

2010

Chiang, Y.-Y. and Knoblock, C. A. (2009). 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.

<u>Refereed Journal Articles</u>

2016

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

2015

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

2014

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

2013

> **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

2009

> **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]

2017

> 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 Historical Maps. In Proceedings of the First GeoAI Workshop, Redondo Beach, CA USA.

> Lin Y., Pan F., **Chiang Y.-Y.**, 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 (ACM SIGSPATIAL 2017)*, Redondo Beach, CA USA

> 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.

> 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*, Madrid, Spain (best paper award).

> **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.

> 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*

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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.)

for Non-Mapping Experts: Incorporating Geospatial Visualization Tools in Libraries, Washington, D.C., USA.

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, D.C., 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, D.C., USA.

2016

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 International Conference on Pattern Recognition*, IEEE, pp. 3993–3998, Cancun, Mexico.

Chiang, Y.-Y. (2016). Exploiting Context in Cartographic Evolutionary Documents to Extract 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.** (2016). Information Extraction Based on the Concept of Geographic Context. In *Proceedings of the 2016 AutoCarto*, pp. 100–110, Albuquerque, NM, USA.

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.

2015

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**).

Chiang, Y.-Y., Leyk, S., Honarvar Nazari, N., and Moghaddam, S. (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. (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. (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.** (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.** (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.

2014

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.

Chiang, Y.-Y., Chioh, P., and Moghaddam, S. (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. (2014) Location Prediction with Sparse GPS Data. In *Proceedings of the 8th International Conference on Geographic Information Science (GIScience)*, pp. 315–319, Vienna, Austria.

2013

Chiang, Y.-Y. (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.

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.

2011

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

Chiang, Y.-Y., Leyk, S., and Knoblock, C. A. (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.

2010

Chiang, Y.-Y. and Knoblock, C. A. (2010). Strabo: A System for Extracting Road Vector Data from Raster Maps (demo *paper*). 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 International Conference on Pattern Recognition*, IEEE, 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.

2009

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 International Conference on Document Analysis and Recognition*, IEEE, pp. 838–842, Barcelona, Span.

Chiang, Y.-Y. and Knoblock, C. A. (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.

2008

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.

2006

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 International Conference on Pattern Recognition*, IEEE, 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 International Conference on Multimedia & Expo*, IEEE, pp. 93–96, Toronto, Ontario, Canada.

2005

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 International Workshop on Geographic Information Retrieval*, ACM, pp. 35–38, Bremen, Germany.

2004

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, D.C., USA.

Open Source Software and Datasets

2017

Karma-CAD: A Semi-Automatic System for Learning User Intent of CAD Models [Computing software]. (2017). Apache License, Version 2.0. Retrieved from https://github.com/spatial-computing/Karma-CAD

Strabo: A Complete System for Text Recognition from Maps [Computer software]. (2017). Apache License, Version 2.0. Retrieved from https://github.com/spatial-computing/strabo-text-recognition

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/

2016

Generating Place Datasets from the Web [Computer Software]. (2016). Apache License, Version 2.0. Retrieved from https://github.com/spatial-computing/generating-place-datasets-from-web

Manuscripts Submitted or Under Construction

Werner, M. and **Chiang, Y.-Y.** (eds.) Spatial Computing Series, Springer (proposal in progress).

Wu, J., Su, Z., Fu, Z., **Chiang, Y.-Y.**, and Lu, Y. A New Method Using Gabor Filter for Automatic Recognition of Hatched Residential Areas, Geomatics *and Information Science of Wuhan University* (submitted 2/2017).

Stripelis, D., Ambite, J. L., **Chiang, Y.-Y.**, Eckel, S. P., and Habre, R. A Scalable Data Integration and Analysis Architecture for Sensor Data of Pediatric Asthma, *IEEE*

International Conference on Data Engineering, San Diego, CA, USA (submitted 11/2016; accepted 01/2017).

Chiang, Y.-Y. Using Historical Maps in Scientific Studies: Challenges and Best Practices, SpringerBrief (proposal submitted & accepted 12/2016).

Presentations[2]

<u>Conferences & Workshops</u>

2017	**Chiang, Y.-Y.**, Querying Historical Maps as a Unified, Structured, and Linked Spatiotemporal Source (Keynote), Second International Workshop on Exploring Old Maps, Universität Würzburg, Germany.
2017	**Chiang, Y.-Y.**, Drones and GIS: The Lowdown on Small UAS Opportunities (Panel Moderator), Seventh Annual Los Angeles Geospatial Summit, Los Angeles, CA, USA.
2017	**Chiang, Y.-Y.**, Cartographic Research (Panel Discussion), International Map Industry Association (IMIA) Conference, San Diego, CA, USA.
2016	**Chiang, Y.-Y.**, Querying Historical Maps as a Unified, Structured, and Linked Spatiotemporal Source, University Consortium for Geographic Information Science 2016 Symposium, Scottsdale, AZ, USA.
2014	**Chiang, Y.-Y.** and Knoblock, C. A., Integrating Heterogeneous Sources in a Geospatial Framework to Support Oil Field Operations, CiSoft, University of Southern California, Los Angeles, CA, USA.
2011	**Chiang, Y.-Y.**, Harvesting Named Geographic Features from Raster Maps, American Association of Geographers Annual Meeting, Seattle, WA, USA.

<u>Webinars & Videos</u>

2016	**Chiang, Y.-Y.**, Unleashing the Power of Historical Maps (Webinar), United States Geological Survey, St. Louis, MO, USA.
2015	**Chiang, Y.-Y.**, Strabo: Digital Map Processing (Webinar). Geographic Information Science and Technology Graduate Programs, University of Southern California, Los Angeles, CA, USA.

<u>Invited Lectures & Seminars</u>

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

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

2016	**Chiang, Y.-Y.**, Introduction to Geospatial Data Integration, SSCI 582: Spatial Databases, University of Southern California, Los Angeles, CA, USA.
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, D.C., 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.
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.**, A General Method to Automatically Extracting Road Layers from Raster Maps, Geosemble Technologies, 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.
2009	**Chiang, Y.-Y.**, Harvesting Geographic Features from Heterogeneous Raster Maps, University of Lugano, Lugano, Switzerland.
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.
2007	**Chiang, Y.-Y.**, Automatic and Accurate Extraction of Road Intersections from Raster Maps, National Taiwan University, Taipei, Taiwan.

Grants & Contracts

2017 – 2018	*Public Health - Using Historical Maps for Unlocking Long-Term Human-Environment Interactions*
	Microsoft Corporation; **PI**; $20,000 (total costs)
2017 – 2018	*Exploiting Historical Maps for Understanding Human-Environment Interactions on a Large Spatiotemporal Scale*

	NVIDIA Corporation; **PI**; $4,800 (total costs)
2017 – 2018	*Unlocking Maps: Automatic and Streamlined Metadata Creation for Digital Collections*
	National Endowment for the Humanities; **Co-PI**; Holmes-Wong, Deborah, Digital Library, University of Southern California; PI; $74,950 ($45,483, **Chiang**; total 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 – 2019	*PRISMS Data and Software Coordination and Integration Center (DSCIC)*
	National Institutes of Health; **Co-I**; Ambite, J. L., Information Sciences Institute, University of Southern California and Gilliland, F. D., Keck School of Medicine, University of Southern California; PIs; $5.25 million ($82,052, **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; $913,841 ($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; $120,000 ($87,803, **Chiang**; total 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	*Modeling, Integrating, and Search Across Multiple Geographic Features from a Variety of Geospatial Sources*
	BAE Systems; **PI**; $330,048 (total 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)
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)
2014 – 2015	*Preserving Historical Geographic Data Through Automatic Maps Processing*

	Undergraduate Research Associates Program, University of Southern California; **PI**; $3,150 (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; $130,000 ($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; $116,000 ($50,194, **Chiang**; direct costs)

Teaching

<u>Current Courses Taught</u>

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)

<u>Past Courses Taught</u>

University of Southern California

CSCI 599: Geospatial Data Integration

SSCI 582: Spatial Databases

SSCI 586: GIS Programming and Customization

<u>Post-Doctoral Fellows & Visiting Scholars Directed</u>

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

<u>Dissertations & Theses Directed</u>

	Weiwei Duan, (Ph.D. Program in Computer Science, University of Southern California)
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.*

Other Student Advisement

My work has produced direct participations of students in computer science, data informatics, spatial sciences, geosciences, history, and communication through the research activities and my teaching efforts. Since 2013, I have directly worked with more than **50 students** in our Spatial Computing Lab. These students came from a variety of background and disciplines, including one local high school student, several visiting international students, and some USC undergraduate and graduate students in geodesign, electrical engineering, spatial informatics, computer science, and data informatics. I also have a successful track record of working with under-represented groups. More than **one-third of the 50+ research students are female students in engineering.**

External Ph.D. Examiner

2016	PhD Thesis Review Panel, Department of Civil Engineering, Indian Institute of Technology, Roorkee

Short Courses & Workshops Taught

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
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

Professional Service

International

2018	Member, Scientific Program Committee, IARIA GEOProcessing. International Conference on Advanced Geographic Information Systems, Applications, and Services, Rome, Italy
2017	Member, Scientific Program Committee, IEEE International Conference on Tools with Artificial Intelligence, Boston, MA, USA
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, 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
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

2016	Competition Judge, ExpeditionHacks, Los Angeles, CA, USA

State / County

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

University

University of Southern California

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
2012 – 2013	Postdoc Representative, Information Sciences Institute, University of Southern California Postdoctoral Association
2010 – 2015	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

Academic Journal Reviews

Cartography and Geographic Information Science

Computers, Environment and Urban Systems

Computers in Biology and Medicine

Data & Knowledge Engineering

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

ISPRS International Journal of Geo-Information

Journal of Spatial Information Science

Journal of Visual Communication and Image Representation

Journal of Web Semantics

Journal of Zhejiang University

Open Journal of Semantic Web

PLOS ONE

Remote Sensing Applications: Society and Environment

Transactions in GIS

Transactions on Knowledge and Data Engineering

International Proposal Reviews

2014   Lise Meitner-Program, Austrian Science Fund (FWF), Austria

National Proposal Reviews

2017   NIH Proposal Review Panel

2016   NIH Proposal Review Panel

2015   NSF Proposal Review Panel (IIS Division)

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

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

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