**Curriculum Vitae**

# YAO-YI CHIANG, PH.D.

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Dr. Yao-Yi Chiang is an Associate Professor in the Computer Science & Engineering Department at the University of Minnesota. Dr. Chiang's research interests are in spatial artificial intelligence. He develops machine learning methods to understand complex environmental phenomena and human-environment interactions using multi-modal data that are often sparse, unevenly distributed, and span varying spatiotemporal scales. Dr. Chiang has received funding from various government agencies, including NSF, NEH, NIH, DARPA, IARPA, NGA, and industry partners such as NTT Global Networks and BAE Systems. He was a visiting researcher at Google AI, a machine learning consultant at Meta, and the chief scientist at AirMap. In addition, Dr. Chiang founded Kartta Foundation, a non-profit organization that provides software and services to distill and assemble geographic knowledge for the public good. Kartta Foundation manages Kartta Labs, a previous Google product.

**Education**

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|---|---|
| 2007 – 2010 | Ph.D., Computer Science, University of Southern California, USA<br>Advisor: Craig A. Knoblock |
| 2003 – 2004 | M.S., Computer Science, University of Southern California, USA |
| 1996 – 2000 | B.B.A., Information Management, National Taiwan University, Taiwan |

**Licenses and Certifications**

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| 2015 – Pres. | GISP® (Certified GIS Professional), GIS Certification Institute |

## A. APPOINTMENTS

### A.1 Academic Appointments

**University of Minnesota, Twin Cities (Minneapolis, MN, USA)**

**– Faculty Appointments**

2021 – Pres. Associate Professor, Computer Science & Engineering Department

**– Other Appointments**

2024 – Pres. Director of Graduate Studies (DGS), Data Science
2023 – Pres. Affiliated Faculty, Master of Geographic Information Science Program
2022 – Pres. Scholar, Center for Transportation Studies (CTS)
2022 – Pres. Affiliated Faculty, Data Science Initiative
2021 – Pres. Director, Knowledge Computing Lab, Computer Science & Engineering Department

**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

**A.2 Other Professional Positions**

2023 – Pres. University Delegate, University Consortium for Geographic Information Science (UCGIS)
2021 – Pres. Associate Editor, *Journal of Information Science and Engineering* (Institute of Information Science, Academia Sinica, Taiwan)
2021 – Pres. Funder & President, Kartta Foundation – a 501(c)(3) organization providing software and services to distill and assemble geographic knowledge for the public good
2020 – Pres. Editorial Board Member, *Transactions in GIS* (Wiley)

2017 – Pres. Action Editor, *GeoInformatica – An International Journal on Advances of Computer Science for Geographic Information Systems* (Springer)

2023 – 2024 Member, Standing Committee on the Use of Emerging Science for Environmental Health Decisions. National Academies of Sciences, Engineering, and Medicine (NASEM)

2019 – 2020 Visiting Researcher, Google AI (New York, NY, USA)

2015 – 2017 Chief Scientist, AirMap (Santa Monica, CA, USA)

2006 – 2007 Senior Software Engineer, Geosemble Technologies (El Segundo, CA, USA)

2006 – 2007 Senior Software Engineer, Fetch Technologies (El Segundo, CA, USA)

2002 – 2003 Software Engineer, TLJ Intertech (Taipei, Taiwan)

### A.3 Industry Consulting

2019 – 2021 Machine Learning Consultant, Meta (Spatial Computing Group, Boston, MA, USA)

2013 – 2014 Research Scientist, InferLink Corporation (El Segundo, CA, USA)

### A.4 Current Membership in Professional Organizations

Member, Association for Computing Machinery (ACM)

Member, Association for Computing Machinery (ACM), Special Interest Group on Spatial Information (SIGSPATIAL)

Member, Institute of Electrical & Electronics Engineers (IEEE)

Member, International Association for Pattern Recognition (IAPR) TC–10 (Technical Committee on Graphics Recognition)

Member, American Association of Geographers (AAG)

## B. HONORS AND RECOGNITION[1]

### B.1 Professional

2024 – Pres. IonE Fellow, Institute on Environment, University of Minnesota, Minneapolis, MN, USA

2024 – Pres. Ewha Global Fellow (EGF), Ewha Womans University, Seoul, Korea

2025 **Best Paper Honourable Mention**, the 19th International Conference on Document Analysis and Recognition, Wuhan, Hubei, China (with **Duan, W.** (lead))

2025 **Best Paper Award in Natural Resources and Data Management**, Minnesota GIS/LIS Consortium, Duluth, MN, USA (with **Kirsanova, S.** (lead) and Duan, W.)

2024 **Top Ten Team**, Human Mobility Prediction Challenge (HuMob Challenge) at

[1] *Names in **boldface** indicate myself and students, postdocs, and interns under my direct supervision for the awards.*

ACM SIGSPATIAL 2024, Atlanta, GA, USA (with **Lee, J.H.**, (lead))

2023 **Third Place, Best Poster Award**, 2023 SIAM International Conference on Data Mining (SDM), Minneapolis, MN, USA (with **Lin, Y.** (lead), Luo, T., Talghader, J., Bond, D.)

2022 **First Place**, **Map Feature Extraction Challenge**, AI for Critical Mineral Assessment Competition, Defense Advanced Research Projects Agency (DARPA), online (Lead, with **Duan, W.**, **Li, Z.**, Lin, F., **Lin, Y.**, **Shrotriya, T.**, Knoblock, C. A.)

2022 **Second Place**, **Ordnance Survey Award** (for excellence in the application of Ordnance Survey data), British Cartographic Society, online (with **Li, Z.**, (lead))

2017 **First Place**, **Best Paper Award**, IAPR 8th International Conference on Pattern Recognition Systems, Madrid, Spain (with Uhl, J. H. (lead), Leyk, S., **Duan, W.**, Knoblock, C. A.)

2015 **First Place, Best Vision Paper Award,** ACM SIGSPATIAL 2015, Seattle, WA, USA (Award sponsored by the Computing Research Association's Computing Community Consortium under the CCC Blue Sky Initiative)

### B.2 Graduate

2009 **Second Place, Best Paper Award**, 4th Annual Intelligent Systems Division Graduate Student Symposium, USC Information Sciences Institute, Marina del Rey, CA, USA

2008 **Second Place, Best Paper Award**, 3rd Annual Intelligent Systems Division Graduate Student Symposium, USC Information Sciences Institute, Marina del Rey, CA, USA

2007 – 2010 **Viterbi School Doctoral Fellowship**, University of Southern California, Los Angeles, CA, USA

### B.3 Honors Awarded to Students Directly Supervised

2024 **Honorable Mention, 2024 – 2025 CRA Outstanding Undergraduate Researcher Award,** Computing Research Association (CRA). **Olson, R. M.**

2024 **Third Place, ACM Student Research Competition Grand Finals (Undergraduate)**, Association for Computing Machinery (ACM). **Olson, R. M.**

2023 **First Place, ACM SIGSPATIAL Student Research Competition (Graduate)**, ACM SIGSPATIAL 2023. **Kim, J.** "*Towards Learning of Spatial Triad from Online Text*". Hamburg, Germany

2023 **First Place, ACM SIGSPATIAL Student Research Competition (Undergraduate)**, ACM SIGSPATIAL 2023. **Olson, R. M., Kim, J.** *"An Automatic Approach to Finding Geographic Name Changes on Historical Maps"*. Hamburg, Germany

2023 **First Place, Best Paper Award,** 2023 University Consortium for Geographic Information Science Symposium (UCGIS). **Namgung, M.**, **Chen, T.**

*"Representation Learning of Regions using Unevenly Distributed, Incomplete Multi-Modal Data"*. New Haven, CT, USA

2023 **First Place, Best Poster Award**, 2023 SIAM International Conference on Data Mining (SDM). **Kim, J.** *"Generating Meaningful Representations from Multimodal Spatial Data Describing Human-Environmental Interactions"*. Minneapolis, MN, USA

2023 **Second Place, Best Poster Award**, 2023 SIAM International Conference on Data Mining (SDM). **Li, Z.** *"Geospatial Data Understanding: A Peek into Historical Maps and Contemporary Structured Databases"*. Minneapolis. MN, USA

2022 **First Place, Student Poster Competition**, 2022 University Consortium for Geographic Information Science Symposium (UCGIS). **Kim, J.** *"Generating Geospatial Linked Data from Text Labels on Maps"*. Syracuse, NY, USA

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

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

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

2017 **Winner, GPU Essay Challenge**, United States Geospatial Intelligence Foundation (USGIF) and NVIDIA. **Duan, W.** *"Spatiotemporal Predictive Analysis from Public Data Using Deep Learning"*. online

## C. RESEARCH

### C.1 Grants, Contracts, Gifts, Awards: External Sources

2025 – 2028 **Collaborative Research: HNDS-I: Building Long-term, National-scale Spatiotemporal Data Collections from Historical Map Archives**
National Science Foundation (NSF), BCS; **PI, Director (Lead Institute)**
$999,999 total; $500,000, Chiang (total costs)

2024 – 2029 **Gateway Exposome Coordinating Center (GECC) For AD/ADRD Research**
National Institutes of Health (NIH); **Co-I**
Lee, J, Economics Department, University of Southern California, PI
$4,943,526 total; $32,623, Chiang (total costs)

2024 – 2026 **Machines Reading Maps Outside the Neat Line**
National Endowment for the Humanities (NEH); **Subcontract, UMN PI**
Holmes-Wong, D., Digital Library, University of Southern California; PI
$147,756 total; $67,241, Chiang (total costs)

2023 – 2025 **NSF Convergence Accelerator Track L: Innovative Chemical Microsensor Development for In Situ, Real-Time Monitoring of Priority Water Pollutants to Protect Water Quality**

National Science Foundation (NSF); **Co-PI**

Santelli, C., Earth and Environmental Sciences Department, University of Minnesota, PI

$649,984 total; $137,842, Chiang (total costs)

2023 – 2025 **AI for Map Geolocation and Extraction to Find Critical Minerals**

Defense Advanced Research Projects Agency (DARPA); **PI**

$1,800,000 total, Chiang (Prime: InferLink Corporation; UMN $540,000, total costs)

2023 – 2025 **Extracting Models of Minerals from Knowledge**

Defense Advanced Research Projects Agency (DARPA); **Subcontract, UMN PI**

Knoblock, A. C., Information Sciences Institute, University of Southern California, PI

$1,000,000 total; $298,758, Chiang (total costs)

2023 – 2028 **AI Institute for Climate-Land Interactions, Mitigation, Adaptation, Tradeoffs and Economy**

National Science Foundation (NSF), AI Institute; **Co-I**

Shekher, S., Computer Science and Engineering Department, University of Minnesota, PI

$20,000,000 total; one month and one GRA per year, Chiang (total costs)

2023 – 2026 **ROMULUS and REMUS, Two Systems for Building Mega-City Intelligence**

Intelligence Advanced Research Projects Activity (IARPA); **Subcontract, UMN PI**

Shafique, K., Novateur Research Solutions, PI

$900,000, Chiang (total costs)

2023 – 2024 **Conference: ACM SIGSPATIAL Conference 2023: Student Activities and U.S.-Based Students Support**

National Science Foundation (NSF), IIS; **PI**

$25,000, Chiang (total costs)

2022 – 2024 **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

$233,634, Chiang (total costs)

2022 – 2023 **Performance Evaluation of Different Detection Technologies for Signalized Intersections in Minnesota**

Minnesota Department of Transportation (MnDOT); **PI**

$179,950, Chiang (total costs)

2022 – 2023 **Text Spotting from Multi-source, Multi-lingual Scanned Maps**

David and Abby Rumsey; **PI**

$260,000, Chiang (direct costs)

2022 – 2023 **Conference: ACM SIGSPATIAL Conference 2022: Student Activities and U.S.-Based Students Support**

National Science Foundation (NSF), IIS; **PI**

$25,000, Chiang (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 (NEH); **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, P

$27,633, Chiang (total costs)

2020 – 2020 **AI-Driven Analytics for Network Operations**
NTT Global Networks; **PI**
$95,700, Chiang (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, Chiang (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, Chiang (direct costs)

2017 – 2018 **Exploiting Historical Maps for Understanding Human-Environment Interactions on a Large Spatiotemporal Scale**
NVIDIA Corporation; **PI**
$4,800, Chiang (direct costs)

2017 – 2018 **Unlocking Maps: Automatic and Streamlined Metadata Creation for Digital Collections**
National Endowment for the Humanities (NEH); **Co-PI**
Holmes-Wong, D., Digital Library, University of Southern California; PI

$74,950 total; $45,483, Chiang (total costs)

2016 – 2019 **PRISMS Data and Software Coordination and Integration Center (DSCIC)**

National Institutes of Health (NIH); **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 (NSF), 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 (DARPA); **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)

**C.2 Other Grants, Awards, Gifts, or Endowment Earnings (Internal Sources)**

2025 – 2026 **Event Identification from the Sun throughout the Solar System**

Data Science Initiative (DSI), University of Minnesota; **Co-PI**

Glesener, L., Physics Department, University of Minnesota, PI

One 12-month 25% Graduate Research Assistant, Chiang (direct costs)

2023 – 2024 **Prioritizing Tribal Data Benefits and Governance in Developing and Applying Chemical Sensors for Water Quality Monitoring**

MnDRIVE DSI Seed Grant, Data Science Initiative (DSI), University of Minnesota; **Co-PI**

Santelli, C., Earth and Environmental Sciences Department, University of Minnesota, PI

$3,500 Chiang (direct costs)

2023 – 2024 **Large Scale Data Extraction from Population Sampling of Dispersed Waterborne Photovoltaic Microparticles**

Data Science Initiative (DSI), University of Minnesota; **Co-PI**

Talghader, J., Electrical and Computer Engineering Department, University of Minnesota, PI

One 9-month 25% Graduate Research Assistant, Chiang (direct costs)

2022 – 2023 **Unconstrained Multisensor "State of the Heart" Monitoring and Disease Prediction**

The Center for Excellence in Sensing Technologies and Analytics (CESTA), University of Minnesota; **Co-PI**

Talkachova, A., Biomedical Engineering Department, University of Minnesota, PI

$8,000, Chiang (direct costs)

2019 – 2020 **Generating Linked Metadata from Historical Map Scans**

Undergraduate Research Associates Program, University of Southern California; **PI**

$6,600, Chiang (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, Chiang (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, Chiang (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, Chiang (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, Chiang (direct costs)

2014 – 2015 **Preserving Historical Geographic Data Through Automatic Maps Processing**

Undergraduate Research Associates Program, University of Southern California; **PI**

$3,150, Chiang (direct costs)

### C.3 Publications[2]

#### 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.**, Chen, M., **Duan, W.**, **Kim, J.**, Knoblock, C. A., Leyk, S., **Li, Z.**, **Lin, Y.**, **Namgung, M.**, Shbita, B., & Uhl, J. H. (2023). GeoAI for the Digitization of Historical Maps. In *Handbook of Geospatial Artificial Intelligence* (pp. 217–247). CRC Press.

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[2] *Names in **boldface** indicate myself and students, postdocs, and interns under my direct supervision for the published work.*

**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., 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., 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**

Mai, G., Xie, Y., Jia, X., Lao, N., Rao, J., Zhu, Q., Liu, Z., **Chiang, Y.-Y.,** Jiao, J. (2025). Towards the Next Generation of Geospatial Artificial Intelligence. *International Journal of Applied Earth Observation and Geoinformation*, *136*, 104368.

**Avelar Portillo, L. J.**, Kayser, G. L., **Ko, C.**, **Vasquez, A.**, **Gonzalez, J.**, Avelar, D. J., Alvarenga, N., Franklin, M., **Chiang, Y.-Y.** (2023). Water, Sanitation, and Hygiene (WaSH) Insecurity in Unhoused Communities of Los Angeles, California. *International Journal for Equity in Health,* 22(1), 1–19.

Zhang, Y., Hua, Y., Kang, Ao, He, J., Jia, M., **Chiang, Y.-Y.** (2023). Optimal and Efficient Planning of Charging Stations for Electric Vehicles in Urban Areas: Formulation, Complexity and Solutions. *Expert Systems with Applications*, 230 (120442). doi: 10.1016/j.eswa.2023.120442.

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 Transactions on Interactive Intelligent Systems*, *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., 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.**, 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., 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

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**Refereed Conference & Symposium Proceedings**[3]

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**Lin, Y.**, **Chen, T.**, Brungard, C., Grunwald, S., Ives, S., Macander, M., Nawrocki, T., **Chiang, Y.-Y.**, Jelinski, N. (November 2025). Fine-Scale Soil Mapping in Alaska with Multimodal Machine Learning. In Proceedings of the 33rd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Minneapolis, MN, USA (accepted)

**Namgung, M.**, **Lee, J.**, Ding, F., **Chiang, Y.-Y.** (November 2025). Transit for All: Mapping Equitable Bike2Subway Connection using Region Representation Learning. In Proceedings of the 33rd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Minneapolis, MN, USA (accepted)

**Duan, W.**, **Chiang, Y.-Y.**, **Chen, T.**, Gerlek, M. P., **Jang, L.**, **Kirsanova, S.**, Knoblock, C. A., Lin, F., **Lin, Y.**, **Li, Z.**, Minton, S. N. (November 2025). DIGMAPPER: A Modular System for Automated Geologic Map Digitization. In Proceedings of the 33rd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Minneapolis, MN, USA (accepted)

**Li, Z.**, **Grossman, M.**, Qasemi, E., Kulkarni, M., Chen, M., **Chiang, Y.-Y.** (November 2025). MapQA: Open-domain Geospatial Question Answering on Map Data. In Proceedings of the 33rd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Minneapolis, MN, USA (short paper) (accepted)

Lin, F., Knoblock, C., Vu, B., **Chiang, Y.-Y.** (November 2025). Exploiting Polygon Metadata to Recolor Historical Maps. In Proceedings of the 33rd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Minneapolis, MN, USA (short paper) (accepted)

Lin, F., Knoblock, C., Vu, B., Shbita, B., **Chiang, Y.-Y.** (November 2025). Exploiting Polygon Metadata to Colorize Draft Maps. In Proceedings of the 33rd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Minneapolis,

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[3] *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 (typically three reviewers). For example, the ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems has had an acceptance rate of around 20% over the years. More information can be found at 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.).*

MN, USA (short paper) (accepted)

**Lin, Y., Olson, R., Wu, J., Chiang, Y.-Y.,** Weinman, J. (September 2025). LIGHT: Multi-Modal Text Linking on Historical Maps. In *Proceedings of the 19th International Conference on Document Analysis and Recognition*, pp. 60 - 77, Wuhan, Hubei, China (oral presentation)

**Duan, W., Chiang, Y.-Y.,** Knoblock, C. A. (September 2025). LDTR: Linear Object Detection Transformer for Accurate Graph Generation by Learning the N-hop Connectivity Information. In *Proceedings of the 19th International Conference on Document Analysis and Recognition*, pp. 40 - 59, Wuhan, Hubei, China (oral presentation) **(Best Paper Honourable Mention)**

**Lin, Y.**, Tual, S. **Li, Z.**, **Jang, L., Chiang, Y.-Y.**, Weinman, J., Chazalon, J., Clarinet, E., Perret, J., Abadie, N., Dum, B., Chan, T.-C., Liao, H.-M., Su, W.-R., Zou, M., Dai, T., Vaienti, B., Kaplan, F., di Lenardo, I., Baek, Y., Hentschel, M., Nakagome, Y., Shuta, I., Lee, J., Choi, C. (September 2025). ICDAR 2025 Competition on Historical Map Text Detection, Recognition, and Linking. In *Proceedings of the 19th International Conference on Document Analysis and Recognition,* pp. 568-585. Cham: Springer Nature Switzerland, Wuhan, Hubei, China

**Li, Z.**, **Lin, Y.**, **Chiang, Y.-Y.**, Weinman, J., Tual, S., Chazalon, J., Abadie, N. (August 2024). ICDAR 2024 Competition on Historical Map Text Detection, Recognition, and Linking. In *International Conference on Document Analysis and Recognition*, pp. 363–380. Cham: Springer Nature Switzerland, Athens, Greece

**Lin, Y.**, **Chiang, Y.-Y.** (August 2024). Hyper-local Deformable Transformers for Text Spotting on Historical Maps. In *Proceedings of the 30th ACM SIGKDD Conference on Knowledge Discovery and Data Mining*, pp. 5387–5397, Barcelona, Spain

**Hajisafi, A.**, Lin, H., **Chiang, Y.-Y.**, Shahabi, C. (May 2024). Dynamic GNNs for Precise Seizure Detection and Classification from EEG Data. In *Proceedings of the 28th Pacific-Asia Conference on Knowledge Discovery and Data Mining*, pp. 207–220, Taipei, Taiwan

Lin, H., **Chiang, Y.-Y.**, Xiong, Li, Shahabi, C. (May 2024). Unified Modeling and Clustering of Mobility Trajectories with Spatiotemporal Point Processes. In *Proceedings of the 2024 SIAM International Conference on Data Mining (SDM24)*, pp. 625–633, Houston, TX, USA

**Li, Z.**, **Zhou, W.**, **Chiang, Y.-Y.,** Chen, M. (December 2023). GeoLM: Empowering Language Models for Geospatially Grounded Language Understanding. In *Proceedings of the 2023 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, pp. 5227–5240, Singapore

**Hajisafi, A.**, Lin, H., Shaham, S., **Hu, H.**, Despoina Siampou, M., **Chiang, Y.-Y.**, Shahabi, C. (November 2023). Learning Dynamic Graphs from All Contextual Information for Accurate Point-of-Interest Visit Forecasting. In *Proceedings of the 31st ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, Article 22, pp. 1–12, Hamburg, Germany

**Kim, J.**, **Li, Z.**, **Lin, Y.**, **Namgung, M., Jang, L., Chiang, Y.-Y.** (November 2023). The mapKurator System: A Complete Pipeline for Extracting and Linking Text from Historical

Maps. In *Proceedings of the 31st ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, Article 35, pp. 1–4, Hamburg, Germany (demo paper)

**Lin, Y.** and **Chiang, Y.-Y.** (November 2023). Modeling Spatially Varying Physical Dynamics for Spatiotemporal Predictive Learning. In *Proceedings of the 31st ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, Article 98, pp. 1–11, Hamburg, Germany

**Lin, H.**, Shaham, S., **Chiang, Y.-Y.**, Shahabi, C. (November 2023). Generating Realistic and Representative Trajectories with Mobility Behavior Clustering. In *Proceedings of the 31st ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, Article 107, pp. 1–4, Hamburg, Germany (short paper)

Lin, F., Knoblock, A. C., Shbita, B., Vu, B., **Li, Z., Chiang, Y.-Y.** (November 2023). Exploiting Polygon Metadata to Understand Raster Maps - Accurate Polygonal Feature Extraction. In *Proceedings of the 31st ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, Article 109, pp. 1–12, Hamburg, Germany

**Olson, R. M.**, **Kim, J.**, **Chiang, Y.-Y.** (November 2023). An Automatic Approach to Finding Geographic Name Changes on Historical Maps. In *Proceedings of the 31st ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, Article 7, 1–2, Hamburg, Germany (short paper) **(SRC First Place - Undergraduate Category)**

**Kim, J.**, **Chiang, Y.-Y.** (November 2023). Towards Learning of Spatial Triad from Online Text. In *Proceedings of the 31st ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, Article 1, 1–2, Hamburg, Germany (short paper) **(SRC First Place - Graduate Category)**

**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*, pp. 575–584, Osaka, Japan

**Lin, Y.**, and **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*, pp. 1024–1033, 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*, pp. 2757-2769, 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*, pp. 4782–4787, Rio de Janeiro, Brazil

**Duan, W.**, **Chiang, Y.-Y.**, Leyk, S., Uhl, J. H., 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*, pp. 1604–1610, online (short paper)

**Duan, W.**, **Chiang, Y.-Y.**, Leyk, S., Uhl, J. H., 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

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

**Yue, M.**, **Chiang, Y.-Y.**, Shahabi, C. (September 2021). VAMBC: A Variational Approach for Mobility Behavior Clustering. In *Proceedings of the 2021 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., Ambite, J. L. (November 2020). Building Autocorrelation-Aware Representations for Fine-Scale Spatiotemporal Prediction, In *Proceedings of the 2020 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., Knoblock, C. A. (August 2020). An Automatic Approach for Generating Rich, Linked Geo-Metadata from Historical Map Images, In *Proceedings of the 2020 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., Leyk, S. (June 2020). Building Linked Spatio-Temporal Data from Vectorized Historical Maps. In *Proceedings of the 2020 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., Ku, W., (December 2019). Building Explainable Prediction Analytics for Location-Dependent Time-Series Data. In *Proceedings of the 1st 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.**, 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

Gao, Y., Duan, Z., Shi, W., Feng, J., **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

Zhang, J., Shen, T., Wang, W., Jiang, X., Ku, W., Sun, M., **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., Pierce, S. (March 2019). An Intelligent Interface for Integrating Climate, Hydrology, Agriculture, and Socioeconomic Models. In *Proceedings of the 2019 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., 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.** Shahabi, C. (November 2018). Los Angeles Metro Bus Data Analysis Using GPS Trajectory and Schedule Data In *Proceedings of the 26th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems,* pp. 560–563, Seattle, WA, USA (demo paper)

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., Pham, M., Pujara, J., Ratnakar, V., Stoica, M., Vu, B. (June 2018). MINT: Model Integration Through Knowledge-Powered Data and Process Composition. In *Proceedings of the 9th International Congress on Environmental Modeling and Software*, Ft. Collins, CO, USA

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

**Yu, R.**, **Luo, Z.**, **Chiang, Y.-Y.** (December 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

**Zhang, Y.**, **Chiang, Y.-Y.**, Knoblock, C. A., Li, C., Du, L., Liu, S., Singh, S. (June 2016) An Automatic Approach for Building Place-Name Datasets from the Web. In *Proceedings of*

*the 19th AGILE International Conference on Geographic Information Science*, pp. 1-6, Helsinki, Finland

**Honarvar Nazari, N.**, **Tan, T. X.**, **Chiang, Y.-Y.** (Feburary 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

**Chiang, Y.-Y.** (November 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., Szekely, P. (November 2015) 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.**, **Harris, A.** (November 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 (demo paper)

**Chiang, Y.-Y.**, **Moghaddam, S.**, Gupta, S., **Fernandes, R.**, Knoblock, C. A. (November 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 (demo paper)

**Chiang, Y.-Y.**, Wu, B., **Anand, A.**, **Akade, K.**, Knoblock, C. A. (November 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 (demo paper)

**Chiang, Y.-Y.** and Knoblock, C. A. (September 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. (November 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. (August 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., Shahabi, C. (Janurary 2010). A General Approach to Discovering, Registering, and Extracting Features from Raster Maps. In *Proceedings of the 2010 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. (November 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. (July 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, Spain

**Chiang, Y.-Y.** and Knoblock, C. A. (November 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. (August 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., You, S. (July 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., Chen, C.-C. (November 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

Chen, C.-C., Knoblock, C. A., Shahabi, C., **Chiang, Y.-Y.**, Thakkar, S. (November 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

**Refereed Workshop Proceedings**[4]

**Namgung, M.**, & **Chiang, Y.-Y.** (November 2025). Capturing Shared and Unique Information in Multimodal Region Representations for Urban Mobility Prediction. In *Proceedings of the 1st ACM SIGSPATIAL International Workshop on Urban Mobility Foundation Models*

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*[4] 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 (typically three reviewers). For example, the ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems has had an acceptance rate of around 20% over the years. More information can be found at 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.).*

*(UMFM 2025)*, Minneapolis, MN, USA (accepted)

**Kirsanova, S.**, **Chiang, Y.-Y.**, & Duan, W. (November 2025). Detecting Legend Items on Historical Maps Using GPT-4o with In-Context Learning. In *Proceedings of the 4th ACM SIGSPATIAL International Workshop on Searching and Mining Large Collections of Geospatial Data (GeoSearch 2025)*, Minneapolis, MN, USA (accepted)

**Xie, J.**, **Kim, J.**, **Chiang, Y.-Y.**, Zhao, L., & Shafique, K. (November 2025). BeSTAD: Behavior-Aware Spatio-Temporal Anomaly Detection for Human Mobility Data. In *Proceedings of the 2nd ACM SIGSPATIAL International Workshop on Geospatial Anomaly Detection (GeoAnomaly 2025)*, Minneapolis, MN, USA (accepted)

**Xie, J.**, **Jiao, Y**., **Kim, J.**, **Chiang, Y.-Y.**, Zhao, L., & Shafique, K. (November 2025). HiCoTraj: Zero-Shot Demographic Reasoning via Hierarchical Chain-of-Thought Prompting from Trajectory. In *Proceedings of the 1st ACM SIGSPATIAL International Workshop on Generative and Agentic AI for Multi-Modality Space-Time Intelligence (GeoGenAgent 2025)*, Minneapolis, MN, USA (accepted)

**Pyo, J.**, **Jiao, Y.**, **Chiang, Y.-Y.**, & Corey, M. (November 2025). Augmenting Human-Centered Racial Covenant Detection and Georeferencing with Plug-and-Play NLP Pipelines. In *Proceedings of the 1st ACM SIGSPATIAL International Workshop on Human-Centered Geospatial Computing (GeoHCC 2025)*, Minneapolis, MN, USA (accepted)

**Namgung, M.**, **Chiang, Y.-Y.**, & Omitaomu, O. A. (November 2025). CareWELL: Multimodal Region Representation Learning with Spatial Contexts for Urban Health. In *Proceedings of the 3rd ACM SIGSPATIAL International Workshop on Advances in Urban-AI (UrbanAI 2025)*, Minneapolis, MN, USA (accepted)

**Kim, J.**, & **Chiang, Y.-Y.** (November 2025). Region Context from Unifying Points, Lines, and Polygons. In *Proceedings of the 3rd ACM SIGSPATIAL International Workshop on Advances in Urban-AI (UrbanAI 2025)*, Minneapolis, MN, USA (accepted)

**Kim, J.**, **Jang, L.**, **Chiang, Y.-Y.**, Wang, G., & Pasco, M. (November 2025). *StreetLens: Enabling Human-Centered AI Agents for Neighborhood Assessment from Street View Imagery. In Proceedings of the 1st ACM SIGSPATIAL International Workshop on Human-Centered Geospatial Computing (GeoHCC 2025)*, Minneapolis, MN, USA (accepted)

**Lee, J.**, **Chiang, Y.-Y.** (November 2024). CrossBag: A Bag of Tricks for Cross-City Mobility Prediction. In *Proceedings of the 2nd ACM SIGSPATIAL International Workshop on Human Mobility Prediction Challenge (HuMob'24)*, 55–59, Atlanta, GA, USA

**Pyo, J.**, **Chiang, Y.-Y.** (November 2024). Leveraging Large Language Models for Generating Labeled Mineral Site Record Linkage Data. In *Proceedings of the 7th ACM SIGSPATIAL International Workshop on AI for Geographic Knowledge Discovery (GeoAI '24)*, 86–98, Atlanta, GA, USA

**Chen, T.**, **Chiang, Y.-Y.** (November 2024). MiTREE: Multi-input Transformer Ecoregion Encoder for Species Distribution Modelling. In *Proceedings of the 7th ACM SIGSPATIAL International Workshop on AI for Geographic Knowledge Discovery (GeoAI '24)*, 110–120, Atlanta, GA, USA

**Hu, H.**, **Kim, J.**, **Zhou, J.**, **Kirsanova, S.**, **Lee, J.**, **Chiang, Y.-Y.** (November 2024).

Context-aware Trajectory Anomaly Detection. In *Proceedings of the 1st ACM SIGSPATIAL International Workshop on Geospatial Anomaly Detection (GeoAnomalies '24)*, 12–15, Atlanta, GA, USA

**Jang, L.**, **Chiang, Y.-Y.** (November 2024). Enabling Semantic-Rich Location Search on Street View Imagery Using Multilingual POI Data. In *Proceedings of the 3rd ACM SIGSPATIAL International Workshop on Searching and Mining Large Collections of Geospatial Data (GeoSearch '24)*, 29–35, Atlanta, GA, USA

**Olson, R.**, **Kim, J.**, **Chiang, Y.-Y.** (November 2024). Automatic Search of Multiword Place Names on Historical Maps. In *Proceedings of the 3rd ACM SIGSPATIAL International Workshop on Searching and Mining Large Collections of Geospatial Data (GeoSearch '24)*, 9–12, Atlanta, GA, USA

**Namgung, M.**, and **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

**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

**Anastasiou, C.**, Lin, J., He, C., **Chiang, Y.-Y.**, 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., Kiveris, R. (November 2019). Kartta Labs: Unrendering Historical Maps. In *Proceedings of the 3rd GeoAI Workshop*, pp. 48–51, Chicago, IL, USA

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

**Duan, W.**, **Chiang, Y.-Y.**, Knoblock, C. A., **Vinil, J.**, **Feldman, D.**, Uhl, J. H., Leyk, S. (November 2017). Automatic Alignment of Vector Data with Geographic Features for Feature Recognition in Historical Maps. In *Proceedings of the 1st GeoAI Workshop*, pp. 45–54, Redondo Beach, CA, USA

**Duan, W.** and **Chiang, Y.-Y.** (November 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

**Zhang, Y.**, **Chiang, Y.-Y.**, Szekely, P., Knoblock, C. A. (August 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

Desai, S., Knoblock, C. A., **Chiang, Y.-Y.**, Desai, K., Chen, C.-C. (November 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

### C.4 Selected Open-Source Software and Datasets

ICDAR24 Map Text Competition (English) [Dataset]. (2024). *Open Database License (ODbL) v1.0.* Available at: https://knowledge-computing.github.io/datasets.html

mapKurator: A Complete System for Text Recognition from Maps [Computer software]. (2022). *CC by-NC 2.0.* Available at: https://github.com/knowledge-computing/mapkurator-system and https://knowledge-computing.github.io/mapkurator-doc/#/docs/introduction

Machine Readable Map Labels [Dataset]. (2017). *Open Database License (ODbL) v1.0.* Available at: https://github.com/spatial-computing/map-ocr-ground-truth

### C.5 Patents and Intellectual Property

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

### C.6 Presentations, Posters (including presentations with peer-reviewed abstracts/short papers)[5]

#### Keynote Addresses

2025 *Context-Aware Trajectory Mining*. Workshop on Integrating Artificial Intelligence and Geospatial Intelligence: Innovative Methods and Applications in Human Mobility Modeling, 2025 IEEE Intelligent Transportation Systems Conference (ITSC), Gold Coast, Australia

2024 *Spatial AI and Its Applications in an Interdisciplinary World*. Waldo Tobler Distinguished Lecture in GIScience, 2024 Annual Meeting of the American Association of Geographers, Honolulu, Hawaii, USA

2023 *Spatial AI: Leveraging Location Information for Understanding Complex Environmental Phenomena*. IEEE Siouxland Section Distinguished Seminar, Brookings, SD, USA

2022 *Spatial AI and Its Applications*, 2022 AI Symposium, University of South Dakota, Vermillion, SD, USA

[5] *Names in **boldface** indicate myself and students, postdocs, and interns under my direct supervision for the presentation.*

2017 *Querying Historical Maps as a Unified, Structured, and Linked Spatiotemporal Source*. Keynote, Second International Workshop on Exploring Old Maps, Universität Würzburg, Germany

**Invited Panels and Moderation**

2025 *Women in Tech Symposium* (Faculty Mentor), ACM-W Chapter, University of Minnesota, Minneapolis, MN, USA

2024 *Effect of Gen AI on Location Recommendations and Geoadvertising: Challenges, Opportunities, and the Role of Regulation* (Panelist), 8th ACM SIGSPATIAL Workshop on Location-based Recommendations, Geosocial Networks and Geoadvertising, Atlanta, GA, USA

2024 *Explanation and Understanding of Geospatial AI* (Panelist), Harvard CGA 2024 GeoAI Conference on Evaluating the Science of Geospatial AI, Harvard University, Cambridge, MA, USA

2021 *Ecology, Biodiversity, and Conservation: Mapping the Land and Its Ecosystems Using AI* (Panelist), Earth Summit, Artificial Intelligence Los Angeles (AI LA), Los Angeles, CA, USA

2017 *Drones and GIS: The Lowdown on Small UAS Opportunities* (Panel Moderator), 7th Annual Los Angeles Geospatial Summit, Los Angeles, CA, USA.

2016 *Cartographic Research* (Panelist), 2016 International Map Industry Association (IMIA) Conference, San Diego, CA, USA

2016 *Small UAV Opportunities* (Panelist), 6th Los Angeles Geospatial Summit, Los Angeles, CA, USA

**Other Invited Talks and Seminars**

2025 *AI for Mineral Deposit Prediction - From Automatic Geological Map Understanding to Site Data Integration*, MGS Seminars, Minnesota Geological Survey, St. Paul, MN, USA

2025 *Fine-Scale Soil Mapping in Alaska with Multimodal Machine Learning*, Fall Seminar Series, Department of Soil, Water & Climate, University of Minnesota, St. Paul, MN, USA

2025 *Building Spatial Language Models for Geographic Data Contextualization*, School of Remote Sensing and Information Engineering, Wuhan University, Wuhan, China

2025 *Building Spatial Language Models for Geographic Data Contextualization*, Disney Research, Los Angeles, CA, USA

2025 *Building Spatial Language Models for Geographic Data Contextualization*, GIS Forum, Academia Sinica, Taipei, Taiwan

2025 *Multimodal Spatial AI*, Oak Ridge National Laboratory (ORNL), Oak Ridge, TN, USA

2025 *Fine-Scale Soil Mapping in Alaska with Multimodal Machine Learning*, Department of Soil, Water and Climate, University of Minnesota, Minneapolis, MN, USA

2025 *Spatial AI and Its Applications in an Interdisciplinary World*, Carlson School of Management, University of Minnesota, Minneapolis, MN, USA

2025 *Spatial AI and Its Applications in an Interdisciplinary World*, Department of Computer Science & Engineering, Ewha Womans University, Seoul, Korea

2025 *Hyper-Local Deformable Transformers for Text Spotting on Historical Maps*, College of Computing, Sungkyunkwan University, Seoul, Korea

2025 *Hyper-Local Deformable Transformers for Text Spotting on Historical Maps*, Workshop in GeoAI, Ritsumeikan University, Kyoto, Japan

2024 *Performance Evaluation of Different Detection Technologies for Signalized Intersections in Minnesota*, ITS Minnesota Annual Meeting, St. Paul, MN, USA

2024 *Spatial AI for Historical Map Understanding*, ETH Zurich, Department of Civil, Environmental and Geomatic Engineering, Zurich, Switzerland

2024 *Spatial AI and Its Applications in an Interdisciplinary World*, Geography Seminar Series, University of Minnesota, Minneapolis, MN, USA

2024 *Spatial AI and Its Applications in a Changing World*, Hennepin County, Minneapolis, MN, USA

2024 *Spatial AI and Spatiotemporal Predictive Learning*, Center for GIS, RCHSS, Academia Sinica, Taipei, Taiwan

2024 *Spatial AI and Spatiotemporal Predictive Learning*, Computer Science Department, Pusan National University, Busan, Korea

2024 *Spatial AI and Spatiotemporal Predictive Learning*, Computer Science Department, Pukyong National University, Busan, Korea

2023 *Spatial AI for Historical Map Understanding*, ETH Zurich, Department of Civil, Environmental and Geomatic Engineering, Zurich, Switzerland

2023 *Spatial AI and Its Applications*, Department of Civil & Environmental Engineering, Seoul National University, Seoul, Korea

2022 *An Automatic System for Text Detection and Recognition*, Institute of Disaster Mitigation for Urban Cultural Heritage (DMUCH), Ritsumeikan University, Kyoto, Japan.

2022 *Computer Science, Spatial Science, and Historical Maps*, University of Amsterdam, Netherlands

2022 *The mapKurator Pipeline for Automatically Georeferencing Historical Maps*, Library of Congress, Washington, DC, USA

2022 *Spatial AI and Its Applications*, University of Minnesota Spatial Forum 2022, Minneapolis, MN, USA

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

2022 *Machines Reading Maps*, ETH Zurich, Department of Civil, Environmental and Geomatic Engineering, Zurich, Switzerland

2021 *Spatial AI and Its Applications*, Geography/GIS Colloquium, University of Cincinnati, online

2021 *Spatial AI and Its Applications*, AI Seminar, Information Sciences Institute, University of Southern California, online

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

2020 *Linked Maps: Exploiting Context in Cartographic Evolutionary Documents to Extract and Build Linked Spatiotemporal Datasets*, Yale-NUS College, Singapore

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

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

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

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

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

2016 *Exploiting Context in Cartographic Evolutionary Documents to Extract and Build Linked Spatiotemporal Datasets*, Conference on Complex Systems, Amsterdam, Netherlands (invited abstract & speech)

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

2016 *GIS and Spatial Humanity Datasets*, Nanyang Technological University, Singapore

2016 *Introduction to Spatial Computing Research*, GeoDesign Orientation, Spatial Sciences Institute, University of Southern California, Los Angeles, CA, USA

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

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

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

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

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

2011 *Harvesting Named Geographic Features from Raster Maps*, National Taiwan University, Taipei, Taiwan

2011 *Strabo: An Automatic Map Processing System*, Upjohn Center for the Study of Geographical, Western Michigan University, Kalamazoo, MI, USA

2010 *Harvesting Geographic Features from Heterogeneous Raster Maps*, Academia Sinica, Taipei, Taiwan

2009 *A General Method to Automatically Extract Road Layers from Raster Maps*, Geosemble Technologies, Los Angeles, CA, USA

2009 *Harvesting Geographic Features from Heterogeneous Raster Maps*, University of Lugano, Lugano, Switzerland

2007 *Automatic and Accurate Extraction of Road Intersections from Raster Maps*, National Taiwan University, Taipei, Taiwan

**Other Presentations**

**Kirsanova, S.,** Duan, W**., Chiang, Y.-Y.** (April 2025) Detecting Legend Items on Historical Maps. *2025 MN GIS/LIS Consortium*, Duluth, MN, USA

**Kirsanova, S.** and **Chiang, Y.-Y.** (April 2025) Detecting Legend Items on Historical Maps. *2025 Annual Big Ten GIS Conference (BTAA GIN)*, online

**Kim, J.** and **Chiang, Y.-Y.** (April 2025) City Harmony: Exploring Shared Urban Characteristics. *Map Gallery, 2025 Annual Big Ten GIS Conference (BTAA GIN)*, online

**Kim, J.** and **Chiang, Y.-Y.** (March 2025) Contextualizing Regions: Advancements in Spatial Language Models for Point of Interest Representation. *2025 American Association of Geographers Annual Meeting*, Detroit, MI, USA

Lucas, M., Huang, B., Ip, H.L., Hastings, A.M., Schultz, E.C., **Chiang, Y.-Y.**, Louie, J.P. (March 2025) Smartphone Imaging Yields Comparable Comfort to Intraoral Cameras in Teledentistry. *54th Annual Meeting & Exhibition of the American Associations for Dental, Oral, and Craniofacial Research (AADOCR)*, New York, USA

**Kim, J.** and **Chiang, Y.-Y.** (March 2024) Understanding Spatial Triad with Locality Representation through Online Texts. *2024 American Association of Geographers Annual Meeting*, Honolulu, HI, USA

**Li, Z.** and **Chiang, Y.-Y.** (March 2024) Automatic Georeferencing for Geologic Maps using Textual Information. *2024 American Association of Geographers Annual Meeting*, Honolulu, HI, USA

**Kim, J.**, **Chiang, Y.-Y.** (June 2023) Learning a Joint Embedding Space from Multimodal Spatial Data to Capture Human-Environmental Interactions. *2023 University Consortium for Geographic Information Science Symposium*, New Haven, CT, USA

**Namgung, M.**, **Chen, T.**, **Chiang, Y.-Y.** (June 2023) Representation Learning of Regions using Unevenly Distributed, Incomplete Multi-Modal Data. *2023 University Consortium for Geographic Information Science Symposium*, New Haven, CT, USA

**Jang, L.**, **Kim, J.**, **Namgung, M.**, **Shrotriya, T.**, **Lin, Y.**, **Li, Z.**, **Chiang, Y.-Y.** (April 2023) The mapKurator System: Extracting and Linking Text from Large Numbers of Historical Map Scans. *David Rumsey Map Center*, Stanford, CA, USA

**Lin, Y.**, **Kim, J.**, **Li, Z.**, **Chiang, Y.-Y.** (March 2023) SynMap: A Synthetic Dataset for Text Spotting in Scanned Historical Maps. *GeoAI and Deep Learning Symposium: GeoAI for Cartography and Mapping, 2023 American Association of Geographers Annual Meeting*, Denver, CO, USA

**Jiao, Y.**, **Kim, J.**, **Namgung, M.**, Uhl, J. H., Burghardt, K., **Chiang, Y.-Y.**, Leyk, S., Lerman, K. (March 2023) Assessing Spatio-Temporal Street Name Evolution Using Natural Language Processing and Geospatial Analysis. *GeoAI and Deep Learning Symposium:*

*Intelligent Geospatial Analytics, 2023 American Association of Geographers Annual Meeting*, Denver, CO, USA

**Jang, L.**, **Lin, Y.**, **Chiang, Y.-Y.** (March 2023) Automatic Language Detection on Historical Maps, *GeoAI and Deep Learning Symposium: Spatially Explicit Machine Learning and Artificial Intelligence II, 2023 American Association of Geographers Annual Meeting*, Denver, CO, USA

**Kim, J.**, **Jang, L.**, **Li, Z.**, **Lin, Y.**, **Namgung, M.**, **Chiang, Y.-Y.** (March 2023) The mapKurator System: Extracting and Linking Text from Large Numbers of Historical Map Scans. *GeoAI and Deep Learning Symposium: GeoAI for Cartography and Mapping, 2023 American Association of Geographers Annual Meeting*, Denver, CO, USA

**Kim, J.**, **Chiang, Y.-Y.** (March 2023) Map Understanding Model: Generating GeoSpatial Linked Data from Map Images. *GeoAI and Deep Learning Symposium: Spatially Explicit Machine Learning and Artificial Intelligence II,2023 American Association of Geographers Annual Meeting*, Denver, CO, USA

**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. *2022 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. *2022 Spatial Humanities*, Ghent, Belgium

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

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

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

**Birdwell, A.**, **Park, L.**, **Chiang, Y.-Y.** (February 2022) Improving the Spatial Road Network in Malawi*. 2022 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. *2021 Responsible Computer Vision, Conference on Computer Vision and Pattern Recognition Workshop*, online

**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. *2021 American Association of Geographers Annual Meeting*, online

Khider, D., Gil, Y., Cobourn, K.M., Deelman, E., Duffy, C., Ferreira da Silva, R., Kemanian, A., Knoblock, C., Kumar, V., Peckham, S.D. **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

**Portillo, J. A.**, **Chiang, Y.-Y.**, Vos, R. O., **Rico, J. J.**, Qian, Y., Yin, X., 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.**, Gilliland, F. D. (September 2018). Methods for Using Personal Sensor Monitoring Systems to Predict Asthma Exacerbations. 2018 *ERS International Congress*, Paris, France

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

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

**Yu, X.**, **Cheng, Y.**, **Lin, Y.**, **Chiang, Y.-Y.**, Stripelis, D., 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. *2018 UCGIS/AutoCarto*, pp. 135 – 145, Madison, WI, USA

**Chiang, Y.-Y.**, **Feldman, D.** (January 2018). Next Generation Framework for Imagery Recognition and Analysis. *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.**, Knoblock, C. A. (November 2017). Machine-learning based Approaches for Extracting Settlement Features from Historical Maps. In *Proceedings of the 2017 International Land Use Symposium (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. *2017 Digital Library Federation (DLF) Forum*, Pittsburgh, PA, USA

Eckel, S. P., Deng, H., Urman, R., Habre, R., Morrison, J., Gauderman, J., Ambite, J. L., **Chiang, Y.-Y.**, Stripelis, D., Gilliland, F. D. (September 2017). Methods for Predicting

Asthma Exacerbations Using Personal Sensor Monitoring Systems. *2017 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.**, Lin, C.-Y. (July 2017). Visual Knowledge Aggregation: From Static to Dynamic Information Systems in Library Contexts. In *Proceedings of the 2017 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, C. A. (June 2017). Automatic Learning of User Design Rationales from Examples. In *Proceedings of the 2017 Symposium on Solid and Physical Modeling (SPM)*, Berkeley, CA, USA

Leyk, S., **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. *2016 University Consortium for Geographic Information Science Symposium*, Scottsdale, AZ, USA

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

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

**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.** 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

### C.7 Media Coverage and Outreach

2023 *AI Advancements in Map Studies*, The David Rumsey Map Center e-newsletter (April 2023). https://mailchi.mp/stanford/apr2023-ai-advancements-in-map-studies

2023 Anderson, A. *USC Wins DARPA Map Feature Extraction Challenge*, USC Viterbi School of Engineering News (February 2023).

2022 Dees, H. *Voices from DARPA* podcast (December 2022). Interview on winning the DARPA AI for Critical Mineral Assessment Competition.

2022 Hultgren, O. *University of Minnesota's Knowledge Computing Lab Turns Location Data into Time-Saving Tools*, UMN CSE News (October 2022). Interview on digital map processing research.

2020 Koenig, S. *Do Humans Dream of Androids Dreaming?*, USC Dornsife Magazine (July 2020). Interview on AI research.

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

2017 Osier, V. *Quotes on the Usage of Drones in Firefighting*, LA Daily News (December 2017).

2017 Smith, K. *Quotes on Walmart's Latest Patent on Drone Delivery*, Southern California News Group (March 2017).

2017 Ehlinger, S. *Quotes on the Spatial Sciences and Computer Science Participation at*

*ExpeditionHacks*, Scoop News Group (March 2017).

2016 Grigoryants, O. *Quotes on the Latest FAA Drone Regulation Changes and Drone Manufacturers in Los Angeles*, Los Angeles Business Journal (July 2016).

2016 Perkins, R. *Quotes and Coverage on Spatial Computing Research*, USC Media Relations (February 2016).

2016 Hedrick, L. *Spatial Technology Opens a Window into History*, USC News (February 2016). Interview on spatial computing research at the Spatial Sciences Institute. Published online and linked from the USC homepage.https://news.usc.edu/91625/spatial-technology-opens-a-window-into-history/

2013 Murphy, R. *Creating the Key*, USC Viterbi Magazine (May 2013). Interview on processing historical maps research.

## D. TEACHING

### D.1 University Courses

**University of Minnesota (4)**

Fall 2024 CSCI 5523 – Introduction to Data Mining

Spring 2023 CSCI 5523 – Introduction to Data Mining

Fall 2022 CSCI 4707 – Practice of Database Systems

Spring 2022 CSCI 5980/8980 – Spatial Enabled Artificial Intelligence (New Course)

**University of Southern California (30)**

Spring 2021 INF 553: Foundations and Applications of Data Mining

Summer 2020 INF 553: Foundations and Applications of Data Mining

Spring 2020 INF 553: Foundations and Applications of Data Mining

Spring 2019 INF 553: Foundations and Applications of Data Mining

Summer 2018 INF 553: Foundations and Applications of Data Mining

Spring 2018 INF 553: Foundations and Applications of Data Mining

Spring 2017 INF 553: Foundations and Applications of Data Mining

Spring 2016 INF 553: Foundations and Applications of Data Mining

Fall 2015 INF 553: Foundations and Applications of Data Mining

Summer 2017 SSCI 592: Mobile GIS

Spring 2017 SSCI 592: Mobile GIS

Summer 2016 SSCI 592: Mobile GIS

Spring 2016 SSCI 592: Mobile GIS

Summer 2015 SSCI 592: Mobile GIS

Spring 2015 SSCI 592: Mobile GIS

Summer 2014 SSCI 592: Mobile GIS

Fall 2020 SSCI 680: Advanced Spatial Computing

| | |
|---|---|
| Fall 2019 | SSCI 680: Advanced Spatial Computing |
| Fall 2018 | SSCI 680: Advanced Spatial Computing |
| Fall 2017 | SSCI 680: Advanced Spatial Computing |
| Spring 2014 | CSCI 599: Geospatial Data Integration |
| Spring 2011 | CSCI 599: Geospatial Data Integration |
| Fall 2013 | SSCI 582: Spatial Databases |
| Summer 2013 | SSCI 582: Spatial Databases |
| Spring 2013 | SSCI 582: Spatial Databases |
| Fall 2012 | SSCI 582: Spatial Databases |
| Summer 2012 | SSCI 582: Spatial Databases |
| Fall 2011 | SSCI 582: Spatial Databases |
| Summer 2011 | SSCI 582: Spatial Databases |
| Spring 2012 | SSCI 586: GIS Programming and Customization |

### D.2 Short Courses & Workshops Taught

2020–2021 **Essentials for Data Informatics**
Lectures offered for students from the U.S. Army, Los Angeles, CA, USA

2019 **Introduction to Data Mining**
One-day short course offered for students from Soongsil University's summer program at the University of Southern California, Los Angeles, CA, USA

2018–2020 **Introduction to Spatial Computing**
Lectures offered for students in the USC Viterbi Data Analytics Bootcamp, Los Angeles, CA, USA

2014 **Introduction to GIS**
One-day short course offered for students and faculty 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

### D.3 Invited University Lectures

2025 *Introduction to Spatial AI*, AI for Earth Summer School - College of Science & Engineering, University of Minnesota, Minneapolis, MN, USA

2025 *Spatial AI and Its Applications*, CSCI 3901: Undergraduate Research in Computer Science, University of Minnesota, Minneapolis, MN, USA

2024 *Spatial AI and Geology*, Mineral Resources & Tectonics, University of Minnesota, Minneapolis, MN, USA

2023 *Spatial AI and Its Applications*, CSCI 3901: Undergraduate Research in Computer Science, University of Minnesota, Minneapolis, MN, USA

2022 *Spatial AI and Its Applications*, CSCI 3901: Undergraduate Research in Computer Science, University of Minnesota, Minneapolis, MN, USA

2021 *Introduction to Spatial AI*, CSCI 5715: Spatial Data Science, University of Minnesota, Minneapolis, MN, USA

2019 *Introduction to Data Mining and Spatial Computing*, ISE 599: Applied Predictive Analytics, University of Southern California, Los Angeles, CA, USA

2018 *Geographic Data*, ASCJ420: Annenberg Collaboratory, University of Southern California, Los Angeles, CA, USA

2016 *Introduction to Geospatial Data Integration*, CSCI 548: Information Integration on the Web, University of Southern California, Los Angeles, CA, USA

2016 *Introduction to Geographic Information Systems*, INF 549: Introduction to Computational Thinking and Data Science, University of Southern California, Los Angeles, CA, USA

2016 *Introduction to Geospatial Data Integration*, SSCI 582: Spatial Databases, University of Southern California, Los Angeles, CA, USA

2010 *Map Processing*, CSCI-548: Information Integration on the Web, University of Southern California, Los Angeles, CA, USA

2009 *Map and Imagery Fusion*, CSCI-548: Information Integration on the Web, Department of Computer Science, University of Southern California, Los Angeles, CA, USA

2008 *Map Search and Extraction*, CSCI-548: Information Integration on the Web, Department of Computer Science, University of Southern California, Los Angeles, CA, USA

## E. CURRICULUM DEVELOPMENT

### E.1 Curriculum Development Activities

**Course Developed at the University of Minnesota**

Spring 2022 CSCI 5980/8980 – Spatial Enabled Artificial Intelligence (open course materials: https://yaoyichi.github.io/spatial-ai.html)

**Course Developed at the University of Southern California**

Fall 2017 SSCI 680: Advanced Spatial Computing

Spring 2014 CSCI 599: Geospatial Data Integration (co-developed with Craig A. Knoblock)

### E.2 Collaborative Efforts and Activities

**University of Minnesota**

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

## F. ADVISING AND MENTORING

*My work has enabled the active participation of students across disciplines, including computer*

*science, data science, public health, spatial sciences, geosciences, civil engineering, architecture, physics, geography, history, and communication. Since 2013, I have directly mentored over 100 students from diverse backgrounds, ranging from local high school students to undergraduate and graduate students at USC and UMN. I also have a strong record of engaging and supporting underrepresented groups in STEM; notably, over 80% of my current and former doctoral students in engineering are women.*

### F.1 Undergraduate Students Advised

#### Undergraduate Student Thesis Directed

2024 Rhett Olson, Computer Science and Engineering, University of Minnesota. **Thesis title:** An Automatic Approach to Finding Geographic Place Name Changes on Historical Maps

#### Undergraduate Student Thesis Committee

2023 Audrey Kelly, Computer Science and Engineering, University of Minnesota. **Thesis title:** Evaluating Regression Tree-Based Machine Learning Models as Alternatives to Neural Networks in Retrieving Atmospheric VOC Columns from Thermal Infrared Satellite Measurements

2023 Razeen Ahmad, Finance and Computer Science and Engineering, University of Minnesota. **Thesis title:** Predicting Stock Momentum Using Machine Learning and Natural Language Processing

### F.2 Graduate Student Activities

#### Advisees

#### – Ph.D. Dissertations & Theses Directed

2024 – Pres. Junyi Xie (Ph.D. Program in Computer Science and Engineering, University of Minnesota)

2024 – Pres. JangHyeon Lee (Ph.D. Program in Computer Science and Engineering, University of Minnesota)

2024 – Pres. Sofia Kirsanova (Ph.D. Program in Computer Science and Engineering, University of Minnesota)

2023 – Pres. Jiyoon Pyo (Ph.D. Program in Computer Science and Engineering, University of Minnesota) (Passed WPE/OPE)

2022 – Pres. Haoji Hu (Ph.D. Program in Computer Science and Engineering, University of Minnesota) (Passed Thesis Defense)

2022 – Pres. Theresa Chen (Ph.D. Program in Computer Science and Engineering, University of Minnesota) (Passed WPE/OPE)

2022 – Pres. Leeje Jang (Ph.D. Program in Computer Science and Engineering, University of Minnesota)

2022 – Pres. Yuankun Jiao (Ph.D. Program in Computer Science and Engineering, University

of Minnesota)

2021 – Pres. Jina Kim (Ph.D. Program in Computer Science and Engineering, University of Minnesota)

2021 – Pres. Min Namgung (Ph.D. Program in Computer Science and Engineering, University of Minnesota) (Passed WPE/OPE)

2018 – Pres. Yijun Lin (Ph.D. Program in Computer Science and Engineering, University of Minnesota) (Passed WPE/OPE)

2018 – Pres. Zekun Li (Ph.D. Program in Computer Science and Engineering, University of Minnesota) (Passed WPE/OPE)

2016 – 2023 Weiwei Duan (Ph.D. Program in Computer Science, University of Southern California). **Thesis title:** *Efficient and Accurate Object Extraction from Scanned Maps by Leveraging External Data and Learning Representative Context*. **First Position:** ML Research Scientist, InferLink

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*. **First 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*. **First Position:** Postdoctoral scholar at the University of California, San Francisco (UCSF), Benioff Homelessness and Housing Initiative Program (BHHI)

**– 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.*

**F3. Committee Advising**

**Ph.D. Dissertation Committee**

2025 Mashaal Musleh (Ph.D. Program in Computer Science and Engineering, University of Minnesota). **Thesis title:** *Towards Highly Accurate Map Services*

2025 Zachary Schmitz (Ph.D. Program in Chemical Engineering, University of Minnesota). **Thesis title:** *Data Driven Protein Scaffold Developability Engineering*

2024 Konstantinos Mavromatis (Ph.D. Program in Computer Science and Engineering, University of Minnesota). **Thesis title:** *Fusion of Knowledge: Enhancing AI Reasoning through Language Models and Knowledge Graphs*

2024 Basel Shbita (Ph.D. Program in Computer Science, University of Southern California). **Thesis title:** *Transforming Unstructured Historical and Geographic Data into Spatio-Temporal Knowledge Graphs*

2024 Sidi Wu (Ph.D. Program in Civil, Environmental and Geomatic Engineering, Institute of Cartography and Geoinformation, ETH Zurich). **Thesis title:** *Deep Learning for Geographical Feature Extraction and Alignment from Heterogeneous (Historical) Maps*

2024 (Charles) Chuankai Zhang (Ph.D. Program in Computer Science and Engineering, University of Minnesota). **Thesis title:** *Towards Understanding Structured Data Peer Production Platform*

2023 Jayant Gupta (Ph.D. Program in Computer Science and Engineering, University of Minnesota). **Thesis title:** *Towards Responsible Spatial Data Science*

2022 Yan Li (Ph.D. Program in Computer Science and Engineering, University of Minnesota). **Thesis title:** *GeoAI for Emerging Spatial Datasets*

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 Johannes 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*.

**M.S. Dissertation Committee**

2023 You (Zoe) Zu, M.S., Statistics, University of Minnesota. **Thesis title:** *Online Learning under Safety Constraints with Rai Algorithm*

2023 Yiyi Fan, M.S., Statistics, University of Minnesota. **Thesis title:** Comparison of Statistical and Machine Learning Models for Forecasting Restaurant Visitors

## G. POST DOC AND VISITING SCHOLAR SUPERVISION/MENTORSHIP

2024 – Pres. Dr. Maya Luetke, Institute for Social Research and Data Innovation, University of Minnesota

2024 – Pres. Dr. Eunyoung Choi, Leonard Davis School of Gerontology, University of Southern California

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)

## H. SERVICE

### H.1 Academic Reviews

**Journal Editorial Services**

2024 – Pres. Guest Editor, Special Issue title: *Geo Simulation, ACM Transactions on Spatial Algorithms and Systems* (ACM)

2024 – Pres. Guest Editor, Special Issue title: *Best Papers of ACM SIGSPATIAL 2024, ACM Transactions on Spatial Algorithms and Systems* (ACM)

2023 – Pres. Guest Editor, Special Issue title: *VSI: Spatially Explicit ML&AI, International Journal of Applied Earth Observation and Geoinformation* (Elsevier)

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

2020 – Pres. Editorial Board Member, *Transactions in GIS* (Wiley)

2017 – Pres. Action Editor, *GeoInformatica* (Springer)

**Other Editorial Services**

2024 – Pres. Field Editor Encyclopedia of GIS (3rd Ed.), edited by Shashi Shekhar, Hui Xiong, Xun Zhou, and Yiqun Xie

**Academic Journal & Book Reviews**

*Built Environment - Taylor & Francis*

*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*

*Earth and Environmental Sciences*

*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**

2025 Defence-related Research Action (DEFRA), Belgian
2024 Belgian Programme of Sustainable Research Cooperation Between the Federal Scientific Institutions (FSI) and the Universities
2023 Nazarbayev University – Faculty-Development (FDCRGP) and Special Artificial Intelligence (AI)
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**

2025 NSF Proposal Review Panel (Division of Information and Intelligent Systems)
2025 Scientific Review Panel for the University of Texas at San Antonio (UTSA)
2024 NSF Proposal Review Panel (Division of Information and Intelligent Systems)
2024 NSF Proposal Review Panel (Advanced Cyberinfrastructure (OAC))
2023 NSF Proposal Review Panel (Division of Information and Intelligent Systems)
2023 NSF Proposal Review Panel (Advanced Cyberinfrastructure (OAC))

2022 NSF Proposal Review Panel (Advanced Cyberinfrastructure (OAC))

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**

2019 University of Würzburg

**External Ph.D. Examiner**

2025 Ph.D. Thesis Review Committee, College of Computing and Data Science, Nanyang Technological University, Singapore

2024 Ph.D. Thesis Review Committee, Department of Civil, Environmental and Geomatic Engineering, Institute of Cartography and Geoinformation, ETH Zurich, Switzerland

2018 Ph.D. Thesis Review Panel, Department of Computer Science, University of Würzburg, Germany

2016 Ph.D. Thesis Review Panel, Department of Civil Engineering, Indian Institute of Technology, Roorkee, India

**Other External Academic Examiner**

2022 Undergraduate Cornerstone Project Review Panel, Department of Information Management, National Taiwan University, Taiwan

**H.2 Professional Service**

**External**

**– Leadership and Advisory Roles**

2024 – Pres. Chair, ACM SIGSPATIAL Diversity, Equity, and Inclusion (DEI) Committee

2025 – Pres. Member, Internal Commission for Computational Technologies and History (ICCTH)

2023 – Pres. University Delegate, University Consortium for Geographic Information Science

(UCGIS)

2022 – Pres. Faculty Mentor, Spatial Women

2023 – 2024 Member, Standing Committee on the Use of Emerging Science for Environmental Health Decisions. National Academies of Sciences, Engineering, and Medicine (NASEM)

2019 – 2021 PI, Cooperative Research and Development Agreement between the National Geospatial-Intelligence Agency (NGA) and the University of Southern California

**– Program Chair and Co-Chair Roles**

2025 Program Co-Chair, 2025 ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Minneapolis, MN, USA

2024 Program Co-Chair, 2024 ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Atlanta, GA, USA

2023 Program Co-Chair, 2023 SIAM International Conference on Data Mining (SDM), Minneapolis, MN, USA

2022 Program Co-Chair, 5th International Conference on Recent Trends in Image Processing and Pattern Recognition, RTIP2R 2022, Kingsville, TX, USA

2020 Program Co-Chair, 2020 International Track, International Conference on Technologies and Applications of Artificial Intelligence (TAAI), Taipei, Taiwan

**– Organizer and Co-Organizer Roles**

2025 Co-Organizer, 1st ACM SIGSPATIAL International Workshop on Human-Centered Geospatial Computing (GeoHCC'25), 2025 ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Minneapolis, MN, USA

2025 Co-Organizer, 2nd ACM SIGSPATIAL International Workshop on Geospatial Anomaly Detection (GeoAnomalies'25), 2025 ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Minneapolis, MN, USA

2025 Co-Organizer, ICDAR 2025 Competition on Historical Map Text Detection, Recognition, and Linking, 19th International Conference on Document Analysis and Recognition. Wuhan, Hubei, China

2025 Co-Organizer, Workshop on Capturing Human Perception of Neighborhoods using Online Data with Language and Vision Models, University Consortium for Geographic Information Science Symposium, Laramie, WY, USA

2025 Co-Organizer, 2025 AAG GeoAI and Deep Learning Symposium: Spatially Explicit Machine Learning and Artificial Intelligence, American Association of Geographers Annual Meeting, Detroit, MI, USA

2024 DEI Co-Chair, 2024 ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Atlanta, GA, USA

2024 Co-Organizer, 1st ACM SIGSPATIAL International Workshop on Geospatial Anomaly Detection (GeoAnomalies'24), 2024 ACM SIGSPATIAL International Conference on

Advances in Geographic Information Systems, Atlanta, GA, USA

2024 Sponsors Co-Chair, 2024 IEEE International Conference on Big Data, Washington, DC, USA

2024 Co-Organizer, 2024 AAG Symposium on GeoAI and Deep Learning for Geospatial Research: Advances in GeoAI methods and spatially explicit models, American Association of Geographers Annual Meeting, Honolulu, HI, USA

2024 Co-Organizer, ICDAR 2024 Competition on Historical Map Text Detection, Recognition, and Linking, 18th International Conference on Document Analysis and Recognition. Athens, Greece

2023 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

2023 Co-Organizer, Workshop on Advances in Multimodal Artificial Intelligence to Enhance Environmental and Biomedical Data Integration. National Academies of Sciences, Engineering, and Medicine, Washington, DC, USA

2023 Co-Organizer, Workshop on Leveraging Language Models for Learning Geo-Entity Representation, University Consortium for Geographic Information Science Symposium, New Haven, CT, USA

2023 Co-Organizer, Session on Spatially Explicit Machine Learning and Artificial Intelligence, Spatial Data Science Symposium, online

2023 NSF Travel Funds Chair, 2023 ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Hamburg, Germany

2022 Co-Organizer, Workshop on Machines Reading Maps, the Library of Congress, Washington, DC, USA

2022 Co-Organizer, Workshop on Reading and Linking Place: Text on Historical Maps, University Consortium for Geographic Information Science Symposium, Syracuse, NY, USA

2022 Sponsors Co-Chair, 2022 ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Seattle, WA, USA

2021 Co-Organizer, GeoAI in Mapping, American Association of Geographers Annual Meeting, Virtual Meeting

2021 Sponsors Co-Chair, 2021 ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Virtual Conference

2020 Sponsors Co-Chair, 2020 ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Seattle, WA, USA

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

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

**– Scientific Program Committee and Other Roles**

**Spatial**

2025 Member, Scientific Program Committee, I-GUIDE Forum 2025: Geospatial AI and Innovation for Sustainability Solutions, Chicago, IL, USA

2025 Member, Scientific Program Committee, Workshop on Computer Vision for Earth Observation (CV4EO) Applications at the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), Tucson, AZ, USA

2024 Member, Scientific Program Committee, I-GUIDE Forum 2024: Convergence Science and Geospatial AI for Environmental Sustainability, Jackson, WY, USA

2023 Member, Scientific Program Committee, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Hamburg, Germany

2022 Member, Scientific Program Committee, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Seattle, WA, USA

2022 Member, Scientific Program Committee, ACM SIGSPATIAL International Workshop on AI for Geographic Knowledge Discovery, Seattle, WA, USA

2022 Member, Scientific Program Committee, ACM SIGSPATIAL International Workshop on Geospatial Knowledge Graphs, Seattle, WA, USA

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

2020 Member, Scientific Program Committee, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Virtual Conference

2020 Member, Scientific Program Committee, ACM SIGSPATIAL International Workshop on Advances on Resilient and Intelligent Cities, Virtual Conference

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

2019 Member, Scientific Program Committee, ACM SIGSPATIAL International Workshop on GeoAI: AI and Deep Learning for Geographic Knowledge Discovery, Chicago, IL, USA

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

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

2018 Member, Scientific Program Committee, ACM SIGSPATIAL International Workshop on GeoAI: AI and Deep Learning for Geographic Knowledge Discovery, Seattle, WA, USA

2018 Member, Scientific Program Committee, ACM SIGSPATIAL International Workshop on Geospatial Humanities, Seattle, WA, USA

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

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

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

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

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

2016 Member, Scientific Program Committee, ACM SIGSPATIAL 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 Judge, Expedition Hacks (sponsored by the National Geospatial-Intelligence Agency), Los Angeles, CA, USA

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

2015 Member, Scientific Program Committee, ACM SIGSPATIAL 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, 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, 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

**AI, Data Mining, Machine Learning**

2025 Member, Scientific Program Committee, IEEE International Conference on Tools with Artificial Intelligence (ICTAI), Athens, Greece

2025 Member, Blue Sky Track Committee, IEEE International Conference on Data Mining (ICDM), Washington, DC, USA

2025 Senior Member, Scientific Program Committee, 2025 AAAI Conference on Artificial Intelligence, Philadelphia, PA, USA

2025 Member, Scientific Program Committee, Joint Workshop on Health Intelligence (in conjunction with the 2025 AAAI Conference on Artificial Intelligence), Philadelphia, PA, USA

2024 Senior Member, Scientific Program Committee, SIAM International Conference on Data Mining (SDM24), Houston, TX, USA

2024 Senior Member, Scientific Program Committee, 2024 AAAI Conference on Artificial Intelligence, Vancouver, Canada

2024 Member, Scientific Program Committee, International Workshop on Health Intelligence (in conjunction with the 2024 AAAI Conference on Artificial Intelligence), Vancouver, Canada

2023 Member, Scientific Program Committee, International Joint Conference on Artificial Intelligence (IJCAI) Workshop on Bridge-AI: from Climate Change to Health Equity (BridgeAICCHE), Macao, China

2023 Senior Member, Scientific Program Committee, 2023 AAAI Conference on Artificial Intelligence, Washington, DC, USA

2023 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 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 Member, Scientific Program Committee, IEEE International Conference on Tools with Artificial Intelligence, 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, Joint Workshop on Health Intelligence (in conjunction with the 2019 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, Joint Workshop on Health Intelligence (in conjunction with the 2018 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

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

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

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

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

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

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

## University

### – University of Minnesota

2024 – Pres. Director, Graduate Program, Data Science

2025 Faculty Member, Untenured Faculty Evaluation Committee (UTFEC), Computer Science and Engineering Department

2025 Faculty Member, Graduate Affairs Committee, Computer Science and Engineering Department

2025 Faculty Member, Mentoring Committee, Computer Science and Engineering Department

2024 Faculty Member, CS&E Department Head Search Committee, College of Science and Engineering

2024 Faculty Member, Graduate Affairs, Computer Science and Engineering Department

2024 Faculty Member, Untenured Faculty Evaluation, Computer Science and Engineering Department

2024 Faculty Member, Mentoring Committee, Computer Science and Engineering Department

2024 Faculty Member, Faculty Hiring Search Committee (Ethical and Fair AI), Computer Science and Engineering Department

2024 Faculty Member, Faculty Hiring Search Committee (Data Science), Computer Science and Engineering Department

2023 Faculty Member, Department Vision Steering Committee, Computer Science and Engineering Department

2023 Faculty Member, Strategic Planning Committee, Computer Science and Engineering Department

2023 Faculty Member, Strategic Task Force Committee, Computer Science and Engineering Department

2023 Faculty Member, Faculty Hiring Search Committee (Data Science/Machine Learning), Computer Science and Engineering Department

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