

Lei Zou (he/him)

Assistant Professor
Department of Geography
College of Geosciences
Texas A&M University

203D Computing Service Annex
3147 TAMU, College Station, TX 77843
+1 (979) 458-1803, lzou@tamu.edu
GEAR Lab: <https://www.geoeearlab.com>

RESEARCH INTERESTS

- Geographic Information Science (GIScience)
- Geospatial Artificial Intelligence (GeoAI)
- Big Data and Microdata Analytics
- Data Mining and Visualization
- Public Health and Covid-19
- Computational Urban Informatics
- Human-Environmental Sustainability
- Smart and Equitable Disaster Management

TEACHING INTERESTS

- GIS and Remote Sensing
- Geospatial Data Science
- Data Analysis and Visualization
- Machine Learning and Deep Learning
- Programming (Python, R, JS) and Database
- Information Management and Analytics
- Human-Environment Modeling and Simulation
- Project Management and Practicum

APPOINTMENTS

• **Academic Institutions**

- 2019-pres. Assistant Professor, Department of Geography, Texas A&M University (TAMU)
- 2019-pres. Research Affiliate, Texas A&M Institute of Data Sciences, TAMU
- 2018-pres. Faculty Fellow, Hazard Reduction and Recovery Center, TAMU
- 2018-2019 Visiting Assistant Professor, Department of Geography, TAMU
- 2017-2018 Postdoctoral Researcher, Environmental Sciences, Louisiana State University
- 2014-2017 Research Assistant, Environmental Sciences, Louisiana State University
- 2010-2013 Research Assistant, Institute of Remote Sensing & Digital Earth, Chinese Academy of Sciences

• **Professional Organizations**

- 2022-pres. BOD Member, Cartography and Geographic Information Society (CaGIS)
- 2020-pres. Communication Director, AAG-Geographic Information Sciences & Systems Group (GISS)
- 2019-pres. Research Committee Member, University Consortium for Geographic Information Science (UCGIS)
- 2017-pres. Research Agenda Committee Member, Commission on Geospatial Analysis and Modeling of the International Cartographic Association (ICA)
- 2019-2021 BOD Member, Chinese Professionals in Geographic Information Sciences (CPGIS)

EDUCATION

- 2014-2017 **Ph.D.**, Environmental Science, Louisiana State University, Baton Rouge, LA
Outstanding Dissertation and Dr. Joseph Martinez Memorial Awards
- 2010-2013 **M.S.**, Cartography and GIS, Chinese Academy of Sciences, Beijing, China
- 2006-2010 **B.E.**, Remote Sensing and Photogrammetry, Wuhan University, Wuhan, China

HONORS AND AWARDS

- 2021 Best Paper Award (1st/35), Symposium on Geospatial Approaches to Combating Covid-19
- 2021 ICA Scholarship Award, 30th International Cartographic Conference
- 2021 USNC Travel Award, 30th International Cartographic Conference
- 2019 ICA Scholarship Award, 29th International Cartographic Conference
- 2019 USNC Travel Award, 29th International Cartographic Conference
- 2018 Outstanding Student Dissertation Award, College of Coast & Environment, LSU
- 2018 Dr. Joseph Martinez Memorial Award, College of Coast & Environment, LSU
- 2017 USNC Travel Award, 28th International Cartographic Conference
- 2017 NCAR Travel Award, Community Earth System Modeling (CESM) Workshop 2017
- 2016 NSF Travel Award, 3rd International CyberGIS Conference
- 2016 LSU Graduate Student Travel Award, AAG 2016
- 2015 LSU Graduate Student Travel Award, AAG 2015
- 2014 CRIM App, Top 10 in ESRI Global Disaster Resilience App Challenge 2014
- 2012 Merit Student, University of Chinese Academy of Sciences, China
- 2011 Merit Student, University of Chinese Academy of Sciences, China
- 2007 Excellent Student Scholarship Award, Wuhan University, China

PROJECTS**• Funded**

- 2022 PI. PVAMU&TAMU-Panther RISE Grant Program, “Leveraging geospatial big data and artificial intelligence (AI) to enhance disaster resilience in vulnerable communities”, \$40,000.
- 2022 Co-PI. TAMIDS-Course Development Grant Program, “Spatial data science: advances and applications”, PI: Heng Cai, \$15,000.
- 2022 PI. AAG Summer Workshop Series, “Spatial data science for social media analytics.” \$1750.
- 2021 Co-PI. NSF-EAGER, “EAGER: SAI-E: synchronizing decision-support via human- and social-centered digital twin infrastructures for coastal communities”, PI: Xinyue Ye, \$298,982.
- 2021 PI. TAMU-T3 Grant, “Community resilience to technological disasters: an analysis of risks, preparedness, and mitigation”, \$32,000.
- 2020 Co-PI. TAMU-X Grant, “Disaster city digital twin: integrating machine and human intelligence to augment flood resilience”, PI: Ali Mostafavi, \$1,000,000.
- 2020 PI. TAMIDS-Data Resource Development Program, “Tracking social and governmental responses to COVID-19 using geospatial big data”, \$27,000.
- 2020 PI. TAMU-Geosciences Dean’s Interdisciplinary Research Initiative Program, “Improving coastal resilience using high-resolution climate prediction and geographic artificial intelligence”, \$6000.
- 2020 Co-PI. Department of Veterans Affairs-Veterans Cemetery Grants Program, “Veteran’s legacy geographic information system: citizen science approach to extended memorialization digitally”, PI: Stacey Lyle, \$249,832.

- 2020 Co-I. TAMU-Center for Health Systems & Design. “Aging in [physical+social] place: a coupled environment-activity network and social network analysis”, PI: Dongying Li, \$20,000.
- 2019 Co-PI. NSF-Human, Disasters, and Built Environment (HDBE) Program, “Reducing the human impacts of flash floods: development of microdata and causal model to inform mitigation and preparedness”, PI: Nasir Gharaibeh, \$350,000.
- 2019 PI. TAMU-Innovation [X] Program, “Integrated disaster citizen science, education, and engagement: a customized resilience inference measurement (CRIM) framework”, \$20,000.
- 2016 PI. LSU-Dissertation Year Assistantship Grant, “Mining social media data for improved understanding of disaster resilience”, \$12,600.
- 2015 PI. LSU-Graduate Dean’s Summer Research Grant, “Integrating social media with tradition data to evaluate and enhance community resilience”, \$4,000.

• Pending

- 2022 TAMU PI. NSF-Human Networks and Data Science (HNDS), “Collaborative Research: HNDS-I: A Cyberinfrastructure for multiscale human dynamics and resilience (HDR) research”, PI: Nina Lam, \$1,200,000 (TAMU: \$302,000).
- 2022 TAMU PI. NSF-Human Environment and Geographical Sciences (HEGS), “Understanding the transitions of spatial/social interactions in the post-pandemic era via big geospatial data”, PI: Xiao Huang, \$600,000 (TAMU: \$70,000).
- 2022 Senior Personnel. NSF-Advancing Informal STEM Learning (AISL), “BGInteractive: Community citizen science exhibits to increase public engagement with Blue-Green Infrastructure (BGI)”, PI: Kelly Albus, \$300,000.
- 2022 Co-PI. TAMU-Innovation [X], “Big data fusion for the development of intelligent geospatial digital twin (IGDT)”, PI: Paul Koola, \$20,000.

PUBLICATIONS

Notes:

- Asterisks (*) denote student advisees
- Total: 53
 - Journal Articles - published: 30, in revision: 2, in review: 4, in preparation: 8
 - Conference Proceedings - published: 7
 - Book Chapters - published: 2

• Journal Articles

- 2022 *Lin, B. **Zou, L.**, Duffield, N., Mostafavi, A., Cai, H., *Zhou, B., Tao, J., *Yang, M., *Mandal, D., *Abedin, J. Revealing the linguistic and geographic disparities in public awareness to covid-19 outbreak through social media. *International Journal of Digital Earth*. (Accepted)
<https://doi.org/10.48550/arXiv.2111.03446> (preprint version)
- 2022 *Yang, M., **Zou, L.**, Cai, H., Qiang, Y., *Lin, B., *Zhou, B., *Abedin, J., *Mandal, D. Spatial-temporal land loss modeling and simulation in a vulnerable coast: a case study in coastal Louisiana. *Remote Sensing*. 14(4): 896.
<https://doi.org/10.3390/rs14040896>
- 2022 Cai, H., Lam, N.S.N., **Zou, L.** Incorporating neighborhood scale effects into land loss

- modeling using semivariograms. *Journal of Geographical Systems*.
<https://doi.org/10.1007/s10109-021-00372-4>
- 2022 Ren, M., Park, S., Xu, Y., Huang, X., **Zou, L.**, Wang, M.S., Koh, S.-Y. Impact of covid-19 on domestic tourism demand - A case study of Jeju, Korea. *Tourism Management*.
<https://doi.org/10.1016/j.tourman.2022.104533>
- 2021 Zhang, Z., **Zou, L.**, Li, W., Usery, L., Albrecht, J., Armstrong, M. Cyberinfrastructure and intelligent spatial decision support systems. *Transactions in GIS*. 25(4): 1651-1653.
<https://doi.org/10.1111/tgis.12835>
- 2021 Yang, B., Wang, Z., **Zou, L.**, Zou, L.L., Zhang, H. Exploring the eco-efficiency of cultivated land utilization and its influencing factors in the Yangtze River Economic Belt of China, 2001–2018. *Journal of Environmental Management*.
<https://doi.org/10.1016/j.jenvman.2021.112939>
- 2021 Wang, K., Lam, N.S.N., **Zou, L.**, Mihunov, V. Twitter use in Hurricane Isaac and its implications to disaster resilience. *ISPRS International Journal of Geo-Information*. 10(3):116.
<https://doi.org/10.3390/ijgi10030116>
- 2021 Huang, X., Zhu, D., Zhang, F., Liu, T., Li, X., **Zou, L.** Sensing population distribution from satellite imagery via deep learning: model selection, neighboring effect, and systematic biases. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*. 14: 5137-5151.
<https://doi.org/10.1109/JSTARS.2021.3076630>
- 2020 Mihunov, V., Lam, N.S.N., **Zou, L.**, Wang, Z., Wang, K. Use of Twitter in disaster rescue: lessons learned from Hurricane Harvey. *International Journal of Digital Earth*. 13(12):1454-1466.
<https://doi.org/10.1080/17538947.2020.1729879>
- 2020 Correll, R., Lam, N.S.N., Mihunov, V., **Zou, L.**, Cai, H. Economics over risk: flooding is not the only driving factor of migration considerations on a vulnerable coast. *Annals of the American Association of Geographers*. 111(1):300-315.
<https://doi.org/10.1080/24694452.2020.1766409>
- 2019 **Zou, L.**, Lam, N.S.N., Shams, S., Cai, H., Meyer, M.A., Yang, S., Lee, K., Park, S.J., Reams, M.A. Social and geographical disparities in Twitter use during Hurricane Harvey. *International Journal of Digital Earth*, 12(11):1300-1318.
<https://doi.org/10.1080/17538947.2018.1545878>
- 2019 Bushra, N., Rohli, R.V., Lam, N.S.N., **Zou, L.**, Mostafiz, R.B., Mihunov, V. The relationship between the normalized difference vegetation index and drought indices in the south-central United States. *Natural Hazards*. 96:791-808.
<https://doi.org/10.1007/s11069-019-03569-5>
- 2019 Kirby, R., Reams, M.A., Lam, N.S.N., **Zou, L.**, Dekker, G., Fundter D.Q.P. Assessing social vulnerability to flood hazards in the Dutch Province of Zeeland. *International Journal of Disaster Risk Science*. 10(2):233-243.
<https://doi.org/10.1007/s13753-019-0222-0>
- 2019 Li, R., Leifer, D., Schoof, J., **Zou, L.**, Crowe, J. Social media for understanding social perception of energy: challenges and opportunities. *Energy Research & Social Science*, 56:101217.
<https://doi.org/10.1016/j.erss.2019.101217>
- 2019 Mihunov, V., Lam, N.S.N., Rohli, R.V., **Zou, L.** Emerging disparities in community resilience

- to drought hazard in south-central United States. *International Journal of Disaster Risk Reduction*, 41:101302.
<https://doi.org/10.1016/j.ijdrr.2019.101302>
- 2019 Zhang, B., Benediktsson, J.A., Chen, Z., Peng, D., Liu, B., **Zou, L.**, Li, J., Plaza, A. Remotely sensed Big Data: evolution in model development for information extraction. *Proceedings of the IEEE*, 107(12):2294-2301.
<https://doi.org/10.1109/JPROC.2019.2948454>
- 2018 **Zou, L.**, Lam, N.S.N., Cai, H., Qiang, Y. Mining Twitter data for improved understanding of disaster resilience. *Annals of the American Association of Geographers*, 108(5):1422-1441.
<https://doi.org/10.1080/24694452.2017.1421897>
- 2018 Cai, H., Lam, N.S.N., **Zou, L.**, Qiang Y. Modeling the dynamics of community resilience to coastal hazards using a Bayesian network. *Annals of the American Association of Geographers*, 108(5):1260-1279.
<https://doi.org/10.1080/24694452.2017.1421896>
- 2018 Lam, N.S.N., Cheng, W., **Zou, L.**, Cai, H. Effects of landscape fragmentation on land loss. *Remote Sensing of Environment*, 209:253-262.
<https://doi.org/10.1016/j.rse.2017.12.034>
- 2018 Mihunov, V., Lam, N.S.N., **Zou, L.**, Rohli, R.V., Bushra, N., Reams, M.A., Argote, J.E. Community resilience to drought hazard in south-central United States. *Annals of the American Association of Geographers*, 108(3):739-755.
<https://doi.org/10.1080/24694452.2017.1372177>
- 2018 Cai, H. Lam, N.S.N., Qiang, Y., **Zou, L.** (*corresponding author*), Correll, R., Mihunov, V. A synthesis of disaster resilience measurement methods and indices. *International Journal of Disaster Risk Reduction*, 31:844-855.
<https://doi.org/10.1016/j.ijdrr.2018.07.015>
- 2018 Lam, N.S.N., Qiang, Y., Li, K., Cai, H., **Zou, L.**, Mihunov, V. Extending resilience assessment to dynamic system modeling: perspectives on human dynamics and climate change research. *Journal of Coastal Research*, SI85:1401-1405.
<https://doi.org/10.2112/SI85-281.1>
- 2018 Lam, N.S.N., Xu, Y.J., Liu, K.B., Dismukes, D.E., Reams, M.A., Pace, R.K., Qiang, Y., Narra S., Li, K., Bianchette, T., Cai, H., **Zou, L.**, Mihunov, V. Understanding the Mississippi River Delta as a coupled natural-human system: research methods, challenges, and prospects. *Water*, 10(8):1054.
<https://doi.org/10.3390/w10081054>
- 2017 Qiang, Y., Lam, N.S.N., Cai, H., **Zou, L.** Changes in exposure to flood hazards in the United States. *Annals of the American Association of Geographers*, 107(6):1-19.
<https://www.tandfonline.com/doi/abs/10.1080/24694452.2017.1320214>
- 2016 Cai, H., Lam, N.S.N., **Zou, L.**, Qiang, Y., Li, K. Assessing community resilience to coastal hazards in the Lower Mississippi River Basin. *Water*, 8(2):46.
<https://doi.org/10.3390/w8020046>
- 2016 Rohli, R.V., Bushra, N., Lam, N.S.N., **Zou, L.**, Mihunov, V., Reams, M.A., Argote, J.E. Drought indices as drought predictors in the south-central USA. *Natural Hazards*, 83(3):1567-1582.

- <https://doi.org/10.1007/s11069-016-2376-z>
- 2016 Shen, Q., Li, J., Zhang, B., Wu, Y., **Zou, L.**, Wu T. Analyzing spectral characteristics of water involving in-situ multi-angle polarized reflectance and extraction of water-leaving radiance. *Spectroscopy and Spectral Analysis*, 36(10):3269-3273.
[http://www.gpxygpfx.com/EN/10.3964/j.issn.1000-0593\(2016\)10-3269-05](http://www.gpxygpfx.com/EN/10.3964/j.issn.1000-0593(2016)10-3269-05)
- 2015 **Zou, L.**, Kent, J., Lam, N.S.N., Cai, H., Qiang, Y., Li, K. Evaluating land subsidence rates and their implications for land loss in the Lower Mississippi River Basin. *Water*, 8(1):10.
<https://doi.org/10.3390/w8010010>
- 2015 Li, K., Lam, N.S.N., Qiang, Y., **Zou, L.**, Cai, H. A cyberinfrastructure for community resilience assessment and visualization. *Cartography and Geographic Information Science*, 42(sup1):34-39.
<https://doi.org/10.1080/15230406.2015.1060113>
- 2014 Zhang, F., Zhang, B., Li, J., Shen, Q., Wu, Y., Wang, G., **Zou, L.**, Wang, S. Validation of a synthetic chlorophyll index for remote estimates of chlorophyll-a in a turbid hypereutrophic lake. *International Journal of Remote Sensing*, 35(1):289-305.
<https://doi.org/10.1080/01431161.2013.870679>
- In Review **Zou, L.**, *Liao, D., Lam, N.S.N., Meyer, M., Gharaibeh, N., Cai, H., *Zhou, B., Li, D. Social media for emergency rescue: an analysis of rescue requests on Twitter during Hurricane Harvey. *International Journal of Disaster Risk Reduction*.
- In Review Wilkho, R.S., Gharaibeh, N.G., Chang, S., **Zou, L.** Integrating NOAA storm events database and machine learning for developing a flash flood information retrieval system. *Advanced Engineering Informatics*.
- In Review Wang, Z., Lam, N.S.N., Sun, M., Huang, X., Shang, J., **Zou, L.**, Wu, Y., Mihunov, V. A machine learning approach for detecting rescue requests from social media. *Applied Geography*.
- In Review Chang, S., Wilkho, R.S., Gharaibeh, N., Sansom, G., Meyer, M., Olivera, F., **Zou, L.** A rare event logistic regression model for predicting probability of fatality or injury occurrence in flash flood events. *International Journal of Disaster Risk Reduction*.
- Minor Rev. *Zhou, B., **Zou, L.**, Mostafavi, A., *Lin, B., *Yang, M., Gharaibeh, N., Cai, H., *Abedin, J., *Mandal, D. VictimFinder: harvesting rescue requests on social media during disasters with BERT. *Computers, Environment, and Urban Systems*.
- Major Rev. Ye, X., Han, Y., Newman, G.D., Retchless, D., **Zou, L.**, Ham, Y., Cai, Z. Developing human-centered urban digital twins for community infrastructure resilience: a research agenda. *Journal of Planning Literature*.
- In Prep. **Zou, L.**, Lam, N.S.N., Cai, H., Mihunov, V., Qiang, Y. Geographical disparities of community disaster resilience in the United States. To be submitted to *Proceedings of the National Academy of Sciences*.
- In Prep. **Zou, L.**, *Li, M., *Zhou, B., *Abedin, J. Social media reveals overlooked communities in disaster damage assessment. To be submitted to *Cartography and Geographical Information Sciences*.
- In Prep. *Lin, B., **Zou, L.** Evolving effects of policy and public awareness on mobility behavioral changes during the Covid-19 outbreak. To be submitted to *Health & Place*.
- In Prep. *Zhou, B., **Zou, L.** Parsing social media data with pretrained language models for intelligent disaster response. To be submitted to *International Journal of Information Management*.

- In Prep. *Yang, M., **Zou, L.**, Cai, H., Guneralp, I., Qiang, Y. Deep learning for predicting landscape dynamics: modeling and simulating coastal land losses and gains using convolutional neural networks and cellular automata. To be submitted to *Earth's Future*.
- In Prep. *Mandal, D., **Zou, L.**, *Lin, B., *Zhou, B., *Yang, M. Uncertainties in locating social media data for disaster management. To be submitted to *ISPRS International Journal of Geo-Information*.
- In Prep. *Abedin, J., **Zou, L.**, Brown, J. Spatial-temporal changes of flood risk in the United States. To be submitted to *Scientific Reports*.
- In Prep. Cai, H., *Lin, B., **Zou, L.** Community awareness and sentiment inequalities during Winter Storm Uri. To be submitted to *Applied Geography*.

• Conference Proceedings

- 2021 **Zou, L.** Mapping the disparities of community resilience to natural hazards in the United States. In *30th International Cartographic Conference (ICC 2021)*, 3:330.
<https://doi.org/10.5194/ica-abs-3-330-2021>
- 2019 **Zou, L.** Visualizing and mining social media data for smart emergency management. In *29th International Cartographic Conference (ICC 2019)*, 1:442.
<https://doi.org/10.5194/ica-abs-1-442-2019>
- 2019 Lam, N.S.N. Cai, H., **Zou, L.**, Liu, K.B. Scale effects on land loss modeling in the Mississippi River Delta. In *29th International Cartographic Conference (ICC 2019)*, 1:205.
<https://doi.org/10.5194/ica-abs-1-205-2019>
- 2019 *Chen, X., **Zou, L.**, Zhao, B. Detecting climate change deniers on Twitter using a deep neural network. In *ACM 11th International Conference on Machine Learning and Computing*. 204-210.
<https://doi.org/10.1145/3318299.3318382>
- 2014 **Zou, L.**, Zhang, B., Li, J., Shen, Q., Zhang, F., Wang, G.L. A study on retrieval algorithm of black water aggregation in Taihu Lake based on HJ-1 satellite images. In *IOP Conference Series: Earth and Environmental Science*, 17(1):012100.
<https://doi.org/10.1088/1755-1315/17/1/012100>
- 2012 **Zou, L.**, Zhang, B., Li, J., Song, Y., Shen, Q., Li, L. A comparative analysis of the 'transmittance' method between using integrating sphere and filter holders for measuring light absorption by aquatic particles. In *2012 IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2567-2570.
<https://doi.org/10.1109/IGARSS.2012.6350955>
- 2012 Li, J., Zhang, B., Shen, Q., **Zou, L.**, Li, L. Monitoring water quality of Lake Taihu from HJ-CCD data using empirical models. In *2012 IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 812-815.
<https://doi.org/10.1109/IGARSS.2012.6351438>

• Book Chapters & Reports

- 2019 Lam, N.S.N, Xu, Y.J., Pace, R.K., Liu, K.B., Qiang, Y., Narra, S., Bianchette, T.A., Cai, H., **Zou, L.**, Li, K., Joshi, S., Mihunov, V. Collaboration across boundaries: reflections on studying the sustainability of the Mississippi River Delta as a coupled natural-human system in *Across Boundaries for Interdisciplinary Environmental Systems Science: Experiences around the World* (Editors: Stephen Prez and Palgrave Macmillan).

https://doi.org/10.1007/978-3-030-13827-1_11

- 2019 **Zou, L.,** Lam, N.S.N., Cai, H. A framework for analyzing and visualizing Twitter use patterns during natural hazards. *US National Report for the International Cartographic Association*.
<https://cartogis.org/usnc-ica/us-national-report/>

TEACHING EXPERIENCE

• Instructor

Note:

- TAMU upgraded the course evaluation system in 2021. Overall scores are no longer available.

Year	Term	Course	Evaluation (0-5)
2022	Spring	GEOG491 GIS Practicum	ongoing
		GEOG651 Remote Sensing for Geographical Analysis	ongoing
2021	Fall	GEOG659 GeoDatabases	-
	Summer	GEOG659 GeoDatabases	-
	Spring	GEOG695 Frontiers in GIScience	-
		GEOG651 Remote Sensing for Geographical Analysis	-
2020	Fall	GEOG391/659 Geodatabases	4.42
	Summer	GEOG659 GeoDatabases	4.55
	Spring	GEOG476 GIS Practicum	4.86
		GEOG651 Remote Sensing for Geographical Analysis	4.25
2019	Fall	GEOG651 Remote Sensing for Geographical Analysis	4.41
	Summer	GEOG659 GeoDatabases	4.44
	Spring	GEOG676 GIS Programming	4.65
		GEOG659 GeoDatabases	4.08
		GEOG651 Remote Sensing for Geographical Analysis	3.98
2018	Fall	GEOG392/676 GIS Programming	4.62

• Guest Lecturer

Year	Term	Lecture Title	School/Course
2021	Summer	Seeing what's happening through the lens of social media	TAMU-Chinese K12
	Spring	Leveraging advances in GIScience to enhance resilience	SUNY-Albany
2020	Fall	Workshop: social media data mining	Texas GIS Day
2019	Fall	Workshop: social media data mining	TAMU, GIS Day
		GIS and social media in disaster management	UTHealth, PH2126
		Python for location-based social media data mining	TAMU, GEOG392
2018	Fall	Workshop: social media data mining	TAMU, GIS Day
	Spring	Location-based social media data mining	UNT, Dept. of Geog.
		Location-based social media data mining methods	LSU, ENVS7050
2017	Fall	Geospatial big data in environmental management	LSU, ENVS4149
	Spring	Geospatial Big Data analytics	LSU, ENVS7050

- **Teaching Assistant**

Year	Term	Course
2017	Fall	LSU-ENVS4149: Design of Environmental Management Systems-A GIS Approach
2016	Fall	LSU-ENVS4149: Design of Environmental Management Systems-A GIS Approach

PRESENTATIONS

Note:

- Asterisks (*) denote student advisees
- Total: 69
 - Invited Talks: 14
 - Invited Panelists: 2
 - Conference Presentations: 53

- **Invited Talks**

- 2022 Active hope in the changing world: geospatial approaches to enhancing disaster and pandemic resilience. Department of Land Surveying and Geo-Informatics (LSGI), the Hong Kong Polytechnic University.
- 2021 Preparing for a faculty interview. Academy for Future Faculty, Center for Teaching Excellence, TAMU.
- 2021 Social media for disaster management: methods and applications. Data Lake Meeting, TAMU.
- 2020 Active hope in the changing environment: leveraging advances in GIScience to enhance resilience and sustainability. Department of Geography, University of Washington, Seattle.
- 2020 Understanding and building disaster resilience capacity through social media. Seminar at the Department of Geography, University of Wisconsin-Milwaukee.
- 2020 Mining spatial-temporal big social sensing and remote sensing data for disaster resilience and sustainability. GeoInsider Online Symposium.
- 2019 Geospatial big data mining for disaster resilience and sustainability. Geoscience Café at State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University.
- 2019 Emerging geospatial big data and disaster resilience (Co-Presented with Michelle Meyer). Seminar at the Institute for Sustainable Communities (IFSC), TAMU.
- 2018 Geospatial big data mining for resilient human-environment systems. Department of Geography and Urban Studies, Temple University.
- 2018 Geospatial big data mining for disaster resilience and sustainability. Department of Geography, TAMU.
- 2018 Geospatial big data mining for disaster resilience and sustainability. Department of Geography and the Environment, University of North Texas.
- 2018 Location-based social media analytics. GIScience Club, LSU.
- 2017 Achieving a sustainable society in the big data era. Seminar at the Geography Colloquium, Department of Geography, Kansas State University.

2017 Big data for emergency management during natural hazards. GIScience Club, LSU.

- **Invited Panelist**

2021 Geoscience research advances and Ph.D./postdoc applications. *GeoInsider Online Symposium*, Virtual.

2019 Leveraging crowdsourcing, citizen science, and social media to produce volunteer geographic information (VGI) for hazard science, disaster research, and emergency management. *AAG 2019 Annual Meeting*, Washington D.C.

- **Conference Presentations**

2022 **Zou, L.**, *Zhou, B., Gharaibeh, N., Meyer, M., Cai, H., *Lin, B., *Mandal, D. VictimFinder: harvesting disaster rescue requests from social media with AI. *2nd Disaster PRIMR Conference*, Danton, TX.

2022 **Zou, L.**, Lam, N.S.N., Cai, H., *Zhou, B. Social media for emergency rescue: analysis of rescue requests on Twitter during Hurricane Harvey. *AAG 2022 Annual Meeting*, Virtual.

2022 *Abedin, J., **Zou, L.**, Cai, H., *Mandal, D., *Lin, B., *Yang, M., *Zhou, B., *Brown, T. Spatial-temporal changes of flood risk in the United States. *AAG 2022 Annual Meeting*, Virtual.

2022 *Yang, M., **Zou, L.**, *Lin, B., *Zhou, B., *Abedin, J., *Mandal, D. Simulating land loss and land gain by integrating neighborhood effect and deep learning with cellular automata. *AAG 2022 Annual Meeting*, Virtual.

2022 *Lin, B., **Zou, L.**, Cai, H., *Zhou, B., *Yang, M., *Mandal, D., *Abedin, J. Revealing the linguistic and geographic disparities of public awareness to Covid-19 outbreak through social media. *AAG 2022 Annual Meeting*, Virtual.

2022 Cai, H., *Lin, B., **Zou, L.**, *Mandal, D., *Zhou, B. Community awareness and sentiment inequalities during Winter Storm Uri. *AAG 2022 Annual Meeting*, Virtual.

2022 *Zhou, B., **Zou, L.**, *Lin, B., *Yang, M. Analysis of linguistic and geographic disparities across hurricane related rescue request social media data. *AAG 2022 Annual Meeting*, Virtual.

2022 *Mandal, D., **Zou, L.**, Cai, H., *Lin, B., *Zhou, B., *Yang, M., *Abedin, J. A modular machine learning platform for resilience inference measurement and enhancement (PRIME). *AAG 2022 Annual Meeting*, Virtual.

2022 *Li, M., **Zou, L.** A community-based assessment of flash flood vulnerability in Texas and the influence from different social variables. *AAG 2022 Annual Meeting*, Virtual.

2021 **Zou, L.** *Lin, B., Duffield, N., Mostafavi, A. and Tao, J. Revealing social awareness and behavioral changes during Covid-19 through geospatial big data. *2021 TAMIDS Research Conference*, College Station, TX.

2021 **Zou, L.** Mapping the disparities of community resilience to natural hazards in the United States. *30th International Cartographic Conference*, Virtual/Florence, Italy.

2021 Cai, H., Lam, N.S.N., **Zou, L.** Improving land loss modeling through incorporating neighborhood scale effects. *30th International Cartographic Conference*, Virtual/Florence, Italy.

2021 *Mandal, D., *Lin, B., *Zhou, B., *Yang, M., **Zou, L.** Visualizing and evaluating the geocoding uncertainty in social sensing for disaster management. *30th International Cartographic Conference*, Virtual/Florence, Italy.

- 2021 **Zou, L.**, *Lin, B., *Yang, M., *Zhou, B., Cai, H. Revealing the geographical disparities of global Covid-19 awareness and its health effects through social media. *International Symposium on Geospatial Approaches to Combating Covid-19*, Virtual/Florence, Italy. **Best Paper Award.**
- 2021 **Zou, L.**, *Zhou, B., *Lin, B., Lam, N.S.N., Mihunov, V. Analyzing rescue requests on social media to enhance disaster response and resilience. *The 28th International Conference on Geoinformatics (CPGIS 2021)*, Virtual.
- 2021 **Zou, L.**, Lam, N.S.N., Qiang, Y., Cai, H., Mihunov, V. Geographical disparities of community disaster resilience in the United States. *AAG 2021 Annual Meeting*, Virtual.
- 2021 *Zhou, B., **Zou, L.**, *Lin, B., *Yang, M. VictimFinder: Harvesting rescue requests in disaster response from social media with BERT. *AAG 2021 Annual Meeting*, Virtual. **1st Place in the GISS Student Paper Competition.**
- 2021 *Lin, B., Zou, L., *Yang, M., *Zhou, B. Revealing the long-term global awareness of Covid-19 and its effects on public health through the lens of social media. *AAG 2021 Annual Meeting*, Virtual. **SAM Student Travel Award.**
- 2021 *Yang, M., **Zou, L.**, *Lin, B., *Zhou, B. Modeling the spatial dynamics of land loss in the Louisiana Coastal Zone. *AAG 2021 Annual Meeting*, Virtual. **SAM Student Travel Award.**
- 2021 *Li, M., **Zou, L.** A community-based assessment of flash-flood vulnerability and driving forces in Texas. *AAG 2021 Annual Meeting*, Virtual.
- 2021 Mihunov, V., **Zou, L.**, Lam, N.S.N., Wang, Z., Wang, K., Govender, D. Analyzing the use of Twitter in hurricanes and floods: common approaches, lessons learned, and emerging trends. *AAG 2021 Annual Meeting*, Virtual.
- 2021 Cai, H., Lam, N.S.N., **Zou, L.** Incorporating neighborhood effect into land loss modeling in the Lower Mississippi River Delta. *AAG 2021 Annual Meeting*, Virtual.
- 2021 Wang, K., Lam, N.S.N., **Zou, L.**, Mihunov, V. Twitter use in Hurricane Isaac and its implications to disaster resilience. *AAG 2021 Annual Meeting*, Virtual.
- 2021 Gharaibeh, N., Chang, S., Wilkho, R., **Zou, L.** Characteristics of Texas communities frequently impacted by flash flooding. *1st Disaster PRIMR Conference*, Virtual.
- 2020 **Zou, L.**, Lam, N.S.N., Mihunov, V., Cai, H. The changing roles of social media in disaster management. *UCGIS Symposium 2020*, Virtual. Recording: <https://youtu.be/7x8nHg8YW0U> (0:51:00~1:22:00).
- 2019 **Zou, L.**, Lam, N.S.N., Meyer, M.A., Li, D., Cai, H. Mining volunteered geographical information (VGI) for disaster resilience and emergency management. *Symposium on Rising Resilience: Research and Practice on Harvey and Hazards of the Future*, College Station, TX.
- 2019 **Zou, L.** Visualizing and mining social media data for smart emergency management. *29th International Cartographic Conference*, Tokyo, Japan.
- 2019 Lam, N.S.N., Cai, H., **Zou, L.**, Liu, K.B. 2019. Scale effects on land loss modeling in the Mississippi River Delta. *29th International Cartographic Conference*, Tokyo, Japan.
- 2019 **Zou, L.**, Lam, N.S.N., Cai, H. 2019. Towards disaster resilient communities: from resilience modeling to smart disaster management. *Location-Based Big Data Workshop*, Tokyo, Japan.
- 2019 **Zou, L.** Towards disaster resilient communities: from resilience modeling to smart disaster

- management. *Texas A&M University Hazard Reduction and Recovery Center (HRRC) Fellows Forum 2019*, College Station, TX.
- 2019 **Zou, L.**, Lam, N.S.N., Cai, H. Sensing and improving disaster resilience through social media data mining. *AAG 2019 Annual Meeting*, Washington D.C.
- 2019 **Zou, L.** Geospatial big data mining for community emergency management. *Texas A&M Workshop on Operational Data Science*, College Station, TX.
- 2018 **Zou, L.**, Lam, N.S.N., Cai, H., Meyer, M.A., Yang, S., Lee, K., Park, S.J., Reams, M.A. Sensing, building, and improving disaster resilience through social media data mining. *AGU 2018 Fall Meeting*, Washington D.C.
- 2018 **Zou, L.**, Lam, N.S.N., Cai, H., Qiang, Y. The changing roles of social media in disaster resilience. *AAG 2018 Annual Meeting*, New Orleans, LA.
- 2018 Correll, R., Lam, N.S.N., **Zou, L.**, Mihunov, V., Cai, H. Move or stay? A dilemma for coastal Louisiana residents. *AAG 2018 Annual Meeting*, New Orleans, LA.
- 2017 **Zou, L.**, Lam, N.S.N., Cai, H. Leveraging social media data to understand disaster resilience: a case study of Hurricane Isaac. *AGU 2017 Fall Meeting*, New Orleans, LA. (Poster).
- 2017 Cai, H., Lam, N.S.N., **Zou, L.** A coupled natural-human system modeling of the land loss probability in the Lower Mississippi River Basin. *AGU 2017 Fall Meeting*, New Orleans, LA.
- 2017 **Zou, L.**, Lam, N.S.N., Cai, H., Qiang, Y. Visualizing social media data for improved understanding of disaster resilience. *28th International Cartographic Conference*, Washington D.C.
- 2017 Cai, H., Lam, N.S.N., **Zou, L.**, Qiang, Y. Modeling the dynamics of community resilience to coastal hazards using a Bayesian Network. *28th International Cartographic Conference*, Washington D.C.
- 2017 **Zou, L.**, Lam, N.S.N., Cai, H., Qiang, Y. Mining Twitter data for improved understanding of disaster resilience. *2017 International Symposium on Location-based Social Media and Tracking Data (LSMTD)*, Washington D.C.
- 2017 Liu, K.B., Bianchette, T.A., **Zou, L.**, Qiang, Y., Lam, N.S.N. Contribution of recent hurricanes to wetland sedimentation in coastal Louisiana. *EGU 2017 Annual Meeting*, Vienna, Austria.
- 2017 **Zou, L.**, Lam, N.S.N. Utilizing social media data to understand and enhance disaster resilience. *2017 LSU College of the Coast and Environment Annual Graduate Student Symposium*, Baton Rouge, LA. **Finalist**.
- 2017 **Zou, L.**, Lam, N.S.N., Cai, H., Qiang, Y. Mining Twitter data for improved understanding of disaster resilience during Hurricane Sandy. *AAG 2017 Annual Meeting*, Boston, MA.
- 2016 **Zou, L.**, Lam, N.S.N., Cai, H., Qiang, Y. Social sensing coastal resilience to disasters through Twitter. *Louisiana Sea Grant's Coastal Connections Competition*, Baton Rouge, LA. **Finalist**.
- 2016 **Zou, L.**, Lam, N.S.N., Cai, H., Qiang, Y. Social sensing of disaster resilience through Twitter: a case study of Hurricane Sandy (Poster). *3rd International Conference on CyberGIS and Geospatial Data Science*, Urbana, IL. **NSF Student Travel Award**.
- 2016 **Zou, L.**, Lam, N.S.N., Cai, H., Qiang, Y., Li, K. Impacts of hurricane Katrina on population dynamics in the Lower Mississippi River Basin. *AAG 2016 Annual Meeting*, San Francisco, CA.
- 2016 Cai, H., Lam, N.S.N., **Zou, L.**, Qiang, Y., Li, K. Assessing community resilience to coastal

- hazards in the Lower Mississippi River Basin. *AAG 2016 Annual Meeting*, San Francisco, CA.
- 2016 Qiang, Y., Lam, N.S.N., **Zou, L.**, Cai, H., Li, K. Modeling long-term human dynamics in response to natural hazard using remote sensing data. *AAG 2016 Annual Meeting*, San Francisco, CA.
- 2016 Mihunov, V., **Zou, L.**, Lam, N.S.N. Community resilience to drought hazard in South-Central U.S. *AAG 2016 Annual Meeting*, San Francisco, CA.
- 2015 **Zou, L.**, Lam, N.S.N., Cai, H., Qiang, Y., Li, K. A genetic algorithm calibrated cellular automata modeling of urban growth in the East Baton Rouge Parish, Louisiana. *AAG 2015 Annual Meeting*, Chicago, IL.
- 2014 **Zou, L.**, Lam, N.S.N., Cai, H. Assessment of community resilience to drought in Texas and Louisiana (Poster). *30th Louisiana Remote Sensing & GIS Workshop*, New Orleans, LA.
- 2014 Cai, H., Lam, N.S.N., **Zou, L.** Predicting the resiliency of the east coast counties after Hurricane Sandy. *AAG 2014 Annual Meeting*, Tampa, FL.
- 2012 **Zou, L.**, Zhang, B., Li, J.S., Shen, Q. 2012. A study on retrieval algorithm of Black Water Aggregation in Taihu Lake by HJ-1 satellite data. *12th National Symposium of Case II Watercolor Remote Sensing*, Guangzhou, China.

STUDENT MENTORSHIP

• Supervised Students

Committee Chair for:

2021-pres.	Joynal Abedin	TAMU	Ph.D., Geography
2021-pres.	Debayan Mandal	TAMU	Ph.D., Geography
2021-pres.	Binbin Lin	TAMU	Ph.D., Geography
2021-pres.	Mingzheng Yang	TAMU	Ph.D., Geography
2021-pres.	Bing Zhou	TAMU	Ph.D., Geography
2021-pres.	Tarik Jamil Brown	TAMU	M.S., Geography
2020-2022	Moxuan Li	TAMU	M.S., Geography

Committee Member for:

2021-pres.	Linqing Yang	TAMU	Ph.D., Ecosystem Science & Management
2021-pres.	Zhihan Tao	TAMU	Ph.D., Urban Planning
2021-pres.	Rui Zhu	TAMU	Ph.D., Urban Planning
2021-pres.	Shi Chang	TAMU	Ph.D., Civil & Environmental Engineering
2021-pres.	Rohan Singh Wilkho	TAMU	Ph.D., Civil & Environmental Engineering
2021-pres.	Bhushan Pawar	TAMU	Ph.D., Chemical Engineering
2020-pres.	Rakibul Ahasan	TAMU	Ph.D., Geography
2020-pres.	Weiyong Lin	TAMU	Ph.D., Geography
2019-pres.	Wencong Cui	TAMU	Ph.D., Geography
2019-pres.	Jinwen Xu	USF	Ph.D., Geography
2020-2021	Jinwoo Park (Graduated)	TAMU	Ph.D., Geography
2020-2021	Zhiheng Hu (Graduated)	TAMU	Ph.D., Geography
2020-2021	Yuzhu Wang (Graduated)	TAMU	M.S., Urban Planning
2020-2021	Shin Tu (Graduated)	TAMU	M.S., Urban Planning
2019-2020	Snaju Maharjan (Graduated)	TAMU	M.S., Urban Planning

2019-2020	Danqing Liao (Graduated)	TAMU	M.S., Urban Planning
2018-2019	Lauren Shultz (Graduated)	TAMU	M.S., Anthropology

Sponsored Undergraduates:

2020-2021	Nathan Young	TAMU	Student Worker
2020-2021	Tarik Jamil Brown	TAMU	Student Worker
2019-2020	Denisse Diaz	TAMU	Student Worker

- **Student Honors and Awards**

2021	Bing Zhou, CaGIS Scholarship Award
2021	Bing Zhou, 1 st Place in GISS Student Paper Competition at AAG 2021
2021	Mingzheng Yang, Travel Award from the SAM Specialty Group at AAG 2021
2021	Binbin Lin, Travel Award from the SAM Specialty Group at AAG 2021
2021	Debayan Mandal, Travel Award from the CaGIS Society at ICC 2021

ACADEMIC SERVICES

- **Grant Panel Reviewer**

2022	National Academy of Sciences, Engineering, and Medicine (NASEM)/U.S. Agency for International Development (USAID)-Partnerships for Enhanced Engagement and Research (PEER) Program
2022	NSF-Human, Disasters, and Built-Environment (HDBE) Program

- **University Committees**

2021-pres.	Scholarship Committee, College of Geosciences, TAMU
2019-pres.	Graduate Committee, Department of Geography, TAMU
2019-pres.	50 th Department Anniversary Committee, Department of Geography, TAMU

- **Editorial Services**

2022-pres.	Lead Guest Editor, <i>Big Earth Data</i> , SI: Big Earth Data for Disaster Risk Reduction
2020-pres.	Topic Editor & Outreach Group Lead, <i>Big Earth Data</i> Journal
2020-2022	Guest Editor, <i>Remote Sensing</i> , SI: Human-Environment Interactions Using Remote Sensing
2020-2022	Guest Editor, <i>GeoInformatica</i> , SI: Geospatial Artificial Intelligence
2020-2021	Guest Editor, <i>Transactions in GIS</i> , SI: Cyberinfrastructure and Intelligent Spatial Decision Support Systems

- **Conference Organizations**

2022	Session Chair/Organizer - CPGIS 2022: Big Earth Data for Disaster Risk Reduction - AAG 2022: GeoAI and CyberGIS for Advancing Spatial Decision Making - AAG 2022: Scales of Vulnerability, Resilience and Disaster Risk Assessment - AAG 2022: Modeling Human Dynamics in Integrated Social-Environmental Systems
2021	Program Committee Member - 1st International Workshop on Methods, Models, and Resources for Geospatial Knowledge Graphs and GeoAI - International Symposium on Geospatial Approaches to Combating Covid-19 - 4th ACM SIGSPATIAL International Workshop on Advances in Resilient and Intelligent

- Cities (ARIC 2021)
- 2021 **Session Organizer**
- AAG 2021: Modeling Human Dynamics in Coupled Natural-Human Systems I & II
- 2020 **Program Committee Member**
- 3rd ACM SIGSPATIAL International Workshop on Advances in Resilient and Intelligent Cities (ARIC 2020)
- 2019 **Session Chair**
- ICC 2019: T09-6 Analysis and modeling of air quality and landscape
- ICC 2019: T09-10 Big data and machine learning (I)
- ICC 2019: T09-13 Terrain analysis, modeling, and visualization
- 2019 **Technical Committee Member**
- 11th International Conference on Machine Learning and Computing
- 2018 **Session Organizer & Chair**
- AGU 2018: Dynamic coastal systems: human-landscape interactions under changing environment
- **Invited Reviews**
Annals of the American Association of Geographers (4) Transactions in GIS (4)
Computers, Environment, and Urban Systems International Journal of GIS
Cartography and Geographic Information Science (3) PLOS One
Annals of GIS Applied Geography (2)
Journal of Cleaner Production Sustainable Cities and Society
Cities (2) Sustainability (5)
Science of the Total Environment IJERPH (2)
International Journal of Disaster Risk Reduction (5) Data (3)
ISPRS International Journal of Geo-Information (2) IEEE Access
Socio-Economic Planning Sciences Safety Science
PeerJ Sensors
Social Science Future Internet (2)
Research for Transportation Business and Management Cogent Engineering
Journal of Marine Science and Engineering Cogent Social Science
Cogent Food and Agriculture Journal of GEES International
International Conference on WRE 2016 11th ICMLC 2019 (2)
Journal of Location Based Services (2) International Journal of Disaster Risk Science
Earthquake Spectra International Journal of Digital Earth
Scientific Reports Geo-Spatial Information Science
Computational Urban Science (3) ACM GeoAI Workshop (3)
Cambridge Journal of Regions, Economy, and Society ACM ARIC Workshop (2)
CPGIS 2022 (5)

- **Others**

- 2020-pres. Co-Founder of GeoInsider, a global organization for advancing geoscience research communication and collaboration. I invited guest speakers to share latest geoscience research and hosted all GIS-related webinars. Each webinar attracted 2,000 ~ 12,000 audiences.
- 2017-2018 Co-Founder of GIScience Club@LSU, a student/scholar organization for advancing education, communication, and research collaboration in GIScience at LSU. I invited guest speakers, delivered technical workshops, and organized team-building activities.

PROFESSIONAL SOCIETIES

- 2021-pres. Cartography and Geographic Information Society (CaGIS)
- 2019-pres. University Consortium of Geographic Information Science (UCGIS)
- 2017-pres. International Cartography Association (ICA)
- 2017-pres. American Geophysics Union (AGU)
- 2016-pres. The Int. Assoc. of Chinese Professionals in Geographic Information Sciences (CPGIS)
- 2014-pres. American Association of Geographers (AAG)

SELECTED MEDIA COVERAGE

- 2022 Texas A&M Today, PVAMU And Texas A&M Announce Faculty Winners Of \$400K Joint PRISE Research Grants For 2022 [\[link\]](#)
- 2021 Texas A&M Today, 'Digital twins' of Texas coastal communities could shed light on resiliency [\[link\]](#)
- 2021 Research@Texas A&M, 'Digital twin' could help Galveston recover faster from severe storms [\[link\]](#)
- 2019 KXAN Texas Politics, Texas A&M flood researchers collaborate with state emergency officials on preventing future disasters [\[link\]](#)
- 2019 Texas A&M Geosciences News, NSF-funded Texas A&M study working to reduce flash flood fatalities [\[link\]](#)
- 2019 Texas A&M Health Vital Records, Focusing on the human impacts of flash floods [\[link\]](#)
- 2017 NSF Research News, Study reveals America's most flood-vulnerable communities [\[link\]](#)
- 2017 The Washington Post, Moving away from the coasts doesn't mean you're safe from flooding [\[link\]](#)
- 2017 ScienceDaily, Flooding risk: America's most vulnerable communities [\[link\]](#)
- 2017 USA Today, Hurricane Harvey: Yet another harbinger of climate change [\[link\]](#)
- 2017 The Conservation, Americans live far from coasts should also be worried about flooding [\[link\]](#)
- 2017 CNBC, Americans who live far from coasts should also be worried about flooding [\[link\]](#)
- 2017 Bloomberg, Where tomorrow's floods will come [\[link\]](#)