


# XIAO HUANG


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## EDUCATION

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- Ph.D.** Department of Geography, University of South Carolina, Columbia, South Carolina, USA.
- M.S.** School of City Planning & Architecture, Georgia Institute of Technology, Atlanta, Georgia, USA.
- B.S.** School of Remote Sensing and Information Engineering, Wuhan University, Wuhan, Hubei Province, China.

## ACADEMIC APPOINTMENT

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- 2020 Assistant Professor, Department of Geosciences, University of Arkansas, Fayetteville, Arkansas, USA
- 2016 Research and Teaching Assistant, Department of Geography, University of South Carolina, Columbia, South Carolina, USA.

## RESEARCH INTERESTS

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Geospatial analysis  
Big data analytics  
Spatial and social data mining  
Remote sensing  
GeoAI and Deep Learning

## PUBLICATIONS

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### Refereed Journal Articles (published: #49, under review: #52)

An “\*” represents a student under my supervision; a “†” indicates the corresponding author.

Submitted [Huang, X.](#)†, Xu, Y., Liu, R., Wang, S., Wang, S., Zhang, M., Kang, Y., Gao, S., Zhao, B., Li, Z. Exploring home-dwelling time patterns during the COVID-19 pandemic via Bayesian inference: policy compliance, spatial disparity, and exposed inequity (Under Review)

[Huang, X.](#), Martin, Y., Wang, S., Zhang, M., Ge, Y., & Li, Z. The promise of excess mobility analysis: measuring episodic-mobility with geotagged social media data (Under Review).

## CURRICULUM VITAE

- Huang, X. †, Zhao, Y., Wang, S., Li, X., Yang, D., Feng, Y., Zhu, L., & Chen, B. Unfolding community homophily in U.S. metropolitans via find-grained mobile phone location data (Under Review).
- Wang, S., Huang, X. †, Hu, T., Corcoran, J., Zhang, M., Li, Z., Ning, H., Khan, A., & Liu, Y†. The times they are changing: tracking the shifts in mental health signals in Australia before, during and post the COVID-19 pandemic (Under Review).
- Lu, J., Huang, X., Xiao, X., Li, Z., Kupfer, J., Wei, H., Wang, S., & Zhu, L. Spatial, temporal, and social dynamics in visitation to US national parks before and during the COVID-19 pandemic: A big data approach (Under Review).
- Li, X., Huang, X., & Li, D. Does COVID-19 aggravate spatial segregation? Leveraging crowdsourcing mobility data and social vulnerability index to quantify spatial segregation (Under Review).
- Wang, S., Zhang, M., Huang, X., Hu, T., Li, Z., Sun, Q., & Liu, Y. Urban-regional disparities in mental health in Australia during the COVID-19 pandemic by Twitter data and machine learning models (Under Review).
- Wei, H., Zhu, L., Huang, X., Wang, S., & Lu, J. Are Urban parks in NYC for everyone? Implications from 1 million park visitation data (Under Review).
- Wang, S., Wang, R., Huang, X., Li, Z., & Hu, Y. An analytical framework to evaluate the effect of COVID-19 on the restaurant industry: a study of New York City (Under Review).
- Wu, W., Huang, X., Shao, Z., Teng, J., Li, D. SAR-DRDNet: A SAR Image Despeckling Network with Detail Recovery (Under Review).
- Feng, Y., Huang, X., Sester, M. Social media VGI analysis for natural disasters in the deep learning era: review, opportunities, and challenges (Under Review).
- Zhang, R., & Huang, X. MapsNet: Multi-attention mechanism feature constrained pixel-shuffle image fusion network for change detection in high resolution satellite image (Under Review).
- Wu, W., Shao, Z., Huang, X., & Guo, S. Urban impervious surface extraction using seasonal time-series SAR images (Under Review).
- Zhang, R., & Huang, X. Sustainability evaluation of Chinese capital cities based on urban geographic environment index (Under Review).
- Wang, J., Shao, Z., Lu, T., Huang, X., & Zhang, R. Deep locally linear embedding network (Under Review).
- Cheng, X., Hu, E., Huang, X., Hu, D., & Zhu, A. Integrating structural description of data format information into programming to auto-generate reading programs for geographical data files (Under Review).
- Shao, Z., & Huang, X. Assessing the impact of land use changes on net primary productivity in Wuhan, China (Under Review).
- Ding, Q., Shao, Z., Huang, X., & Altan, O. DSA-Net: A novel deeply supervised attention-guided network for building change detection in high-resolution remote sensing images (Under Review).
- Feng, X., Shao, Z., Huang, X., Hu, L., Lv, X., Zhuang, Q., Integrating Zhuhai-1 hyperspectral data with Sentinel-2 data to improve 10-m resolution impervious surface mapping (Under Review).

## CURRICULUM VITAE

- Dang, C., Shao, Z., Huang, X., Qian, J., Cheng, G., Ding, Q., & Fan, Y. Assessment of impact of increasing temperature and decreasing soil moisture on global ecosystem productivity (Under Review).
- Wang, X., Shao, Z., Huang, X., & Li, D. Spatiotemporal temperature fusion based on a deep convolutional network. (Under Review).
- Zhuang, Q., Shao, Z., Huang, X., Cai, B., Altan, O. Urbanization and soil salinization weaken climate-driven increases in vegetation production capacity of arid farmland ecosystem (Under Review).
- Wu, X., Deng, X., & Huang, X. Analysis of urban spatial structure in western Guangdong based on point of interest big data (Under Review).
- Wang, S., Noland, R. B., Huang, X. Does ridersourcing provide equal accessibility? (Under Review).
- Li, D., Peng, H., Xu, X., Huang, X., Liu, J., & Shao, Z. Prospects on information retrieval based on remote sensing image sharing ontology (Under Review).
- Wang, Z., Lam, N., Sun, M., Huang, X., Shang, J., Zou, L., Wu, Y., & Mihunov, V. A machine learning approach for detecting rescue requests from social media (Under Review).
- Shao, Z., Wang, J., Deng, L., Huang, X., Lu, T., Zhang, R., Lv, X., Ding, Q., & Wang, Z. GLSD: The Global Large-Scale Ship Database and Baseline Evaluations (Under Review).
- Zhang, H., Shao, Z., Hu, B., Huang, X., Zhao, J., & Wu, W. Comparing runoff converging criteria weight sensitivity in AHP based flood risk estimation (Under Review).
- Cai, B., Shao, Z., Fang, S., Huang, X., Tang, Y & Zhuang, Q. Spatiotemporal analysis of human-earth relationship coordination involved in urban-rural transition (Under Review).
- Zhou, L., Shao, Z., Wang, S., & Huang, X. Deep learning-based local climate zone classification using Sentinel data (Under Review).
- Wang, X., Li, D., Huang, X. & Shao, Z. A systematic review on remote sensing of urban heat island (Under Review).
- Shao, Z., Pan, W., Huang, X., Li, Y. & Peng, S. Video stabilization for improved video anomaly detection (Under Review).
- Feng, X., Shao, Z., & Huang, X. Refined impervious surface extraction via fused hyperspectral multispectral images (Under Review).
- Zhuang, Q., Shao, Z., Huang, X., Zhang, Y., Wu, W., Feng, X., Lv, X., Ding, Q., Cai, B., Altan, O. Evolution of soil salinization under the background of landscape patterns (Under Review)
- Zhang, Y., Shao, Z., Feng, X., Huang, X., Zhou, Z., Li, Y. Comparison of the influence of spatial configuration of green space and urban impervious surface temperature at multi-grid scales (Under Review).
- Song, P., Shao, Z., Huang, X. & Zhang, R. BiCSNet: A Novel Bidirectional Cross-Scale Backbone for Recognition and Localization. (Under Review).
- Wang, J., Shao, Z., Huang, X., et al. NSN: Deep Non-local Self-regression Networks for Satellite Image Super-resolution (Under Review).

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- Yu, W., Shao, Z., & Huang, X. Fine-Grained multiscale community detection of urban agglomeration from human interactive network using big signaling data (Under Review).
- Wang, P., Li, X., Huang, X. Population prediction with micro spatiotemporal granularity based on integrated LSTM and CA model: a case study of Chongming District, Shanghai (Under Review)
- Shao, Z., Li, Y., Huang, X., Cai, B., Ding, L., Pan, W., Zhang, Y. Monitoring urban ecosystem service value using multi-level regular grids (Under Review).
- Shao, Z., Liu, L., Huang, X., Altan, O. & Javed, A. Urban Impervious Surface Monitoring from Time-series of High-Resolution Remote Sensing Images with Time-invariant Spectral Features (Under Review).
- Zhang, H., Shao, Z., Zhao, J., Huang, X., Yang, J., Hu, B., & Wu, W. WZSAHP: An extend watershed-based zonal statistic AHP model for flood risk estimating--by constraining sub-watershed to runoff related indicators (Under Review)
- Li, X., Yu, S., Dadashova, B., Cui, W., Huang, X. Do underserved and socially vulnerable communities observe more crashes? A spatial examination of social vulnerability and crash risks in Texas (Under Review)
- Shao, Z., Zhang, Y., Zhang, C., & Huang, X. Mapping impervious surfaces with hierarchical spectral mixture analysis incorporating endmember spatial distribution (Under Review).
- Cai, B., Shao, Z., Fang, S., Huang, X., Tang, Y., Zheng, M., & Zhang, H. Evolutions, deviations, and suggestions from urban agglomerations in China (Under Review).
- Li, X., Ning, H., Dadashova, B., Ma, A., Kang, Y., Huang, X. Intersection Audit: An Effective Protocol to Identify Signalized Intersections by Mining Google Street View Images (Under Review).
- Ren, M., Xu, Y., Park, S., & Huang, X. Impact of COVID-19 on domestic tourism demand-a case of Jeju, Republic of Korea (Under Review)
- Ning, H., Li, Z., Wang, C., Hodgson, M., Huang, X., & Li, X. Surveying in the land cover maps covered from street view images: a case study on sidewalk network extraction and width measuring for wheelchair users (Under Review).
- Zhang, R., Shao, Z., Li, D., Wang, J., Wang, Y. & Huang, X. Adaptive dense pyramid network for object detection in UAV imagery (Under Review).
- Gong, X., Peng, S., Lu, Y., Wang, S., Huang, X., & Ye, X. Social network analysis of nonprofits in disaster response: the case of Twitter during the COVID-19 pandemic in the United States (Under Review).
- Li, H., Mao, D., Li, X., Wang, Z., Yan, H., & Huang, X. China achieved effective control on *Spartina alterniflora* invasion from 2015 to 2020 (Under Review).
- Li, H., Jia, M., Li, X., Wang, Z., & Huang, X. Quantification of changes in ecosystem service in Liaoning Province, China as a result of climate variability and land cover change (Under Review).
- 2021 Huang, X.<sup>†</sup>, Zhu, D., Zhang, F., Liu, T., Li, X., & Zou, L. (2021). Sensing population distribution from satellite imagery via deep learning: model selection, neighboring effect, and systematic biases. doi: 10.1109/JSTARS.2021.3076630.
- Huang, X.<sup>†</sup>, Lu, J., Gao, S., Wang, S., Liu, Z., & Han, X. (2021). Staying at home is a privilege: evidence from fine-grained mobile phone location data in the U.S. during

## CURRICULUM VITAE

- the COVID-19 pandemic. *Annals of American Association of Geographers*. doi: 10.1080/24694452.2021.1904819.
- Huang, X.<sup>†</sup>, Li, Z., Jiang, Y., Ye, X., Deng, C. Zhang, J., & Li, X. (2021). The Characteristics of multi-source mobility datasets and how they reveal the luxury nature of social distancing in the U.S. during the COVID-19 pandemic. *International Journal of Digital Earth*. doi:10.1080/17538947.2021.1886358.
- Li, Z., Huang, X., Ye, X., Jiang, Y., Yago, M., & Hodgson, M. Measuring global multi-scale place connectivity using geotagged social media data. *Scientific Reports*. doi: 10.1038/s41598-021-94300-7.
- Li, Z., Huang, X., Hu, T., Ning, H., Ye, X., Huang, B., & Li, X. ODT FLOW: Extracting, Analyzing, and Sharing Multi-source Multi-scale Human mobility. *PLOS ONE*. doi: 10.1371/journal.pone.0255259.
- Xu, D., Huang, X., & Li, Z. Multi-Exit Evacuation Simulation based on Deep Reinforcement Learning. (2021). *Transactions in GIS*. doi: 10.1111/tgis.12738.
- Jiang, Y., Huang, X., Li, Z. Spatiotemporal patterns of human mobility and its association with land use types during the COVID-19 in New York City using Twitter data. *ISPRS International Journal of Geo-Information*. doi: 10.3390/ijgi10050344.
- Wang, P., Huang, X., Mango, J., Zhang, D., Xu, D., & Li, X. A hybrid population distribution prediction approach integrating LSTM and CA models with micro spatiotemporal granularity: a case study of Chongming District, Shanghai. *ISPRS International Journal of Geo-Information*. doi: 10.3390/ijgi10080544.
- Shao, Z., Tang, Y., Huang, X., & Li, D. (2021). Monitoring Work Resumption of Wuhan in the COVID-19 Epidemic Using Daily Nighttime Light. *Photogrammetric Engineering & Remote Sensing*, 87(3), 195-204.
- Li, Y., Shao, Z., Huang, X., Peng, S., & Cai, B. Meta-FSEO: a meta-learning fast adaptation with self-supervised embedding optimization for few-shot remote sensing scene classification. *Remote Sensing*, 13(14), 2776.
- Lv, X., Shao, Z., Huang, X., Zhou, W., Ming, D., Wang, J., & Tong C. Binary tree sampling for the identification of irregular segmented objects based on deep learning. *International Journal of Geographical Information Science* (Accepted).
- Shao, Z., Ding, Q., Huang, X., & Altan Orhan. Improving urban land cover mapping with the fusion of optical and SAR data based on feature selection strategy. *Photogrammetric Engineering & Remote Sensing* (Accepted).
- Ding, Q., Shao, Z., Huang, X., & Altan, O. Monitoring, analyzing, and predicting urban surface subsidence: a case study of Wuhan City, China. *International Journal of Applied Earth Observation and Geoinformation*, doi.org/10.1016/j.jag.2021.102422.
- Wang, J., Shao, Z., Huang, X., Lu, T., & Zhang, R. A dual-path fusion network for pan-sharpening. *IEEE Transactions on Geosciences and Remote Sensing*. doi: 10.1109/TGRS.2021.3090585.
- Hu, B., Xu, Y., Huang, X., Cheng, Q., Ding, Q., & Li, Y. Improving urban land cover classification with combined use of Sentinel-2 and Sentinel-1 data. *ISPRS International Journal of Geo-information*. doi: 10.3390/ijgi10080533.
- Wang, J., Shao, Z., Huang, X., Lu, T., Zhang, R., & Ma, J. Enhanced image prior for unsupervised remote sensing super-resolution. *Neural Networks*, doi: 10.1016/j.neunet.2021.06.005.

## CURRICULUM VITAE

- Tang, Y., Shao, Z., Huang, X., & Cai, B. Mapping Impervious Surface Areas using Time-series Nighttime Light Data and MODIS Products. *Remote Sensing*, 13(10). doi: 10.3390/rs13101900.
- Wang, Z., Shao, Z., Huang, X., & Wang, J. Spatial-spectral cross attention network for hyperspectral image denoising. *IEEE Geoscience and Remote Sensing Letters* (Accepted).
- Wang, J., Shao, Z., Huang, X., Lu, T., Zhang, R., & Lv, X. Spatio-temporal pooling for action recognition in videos. *Neurocomputing*. doi: 10.1016/j.neucom.2021.04.071.
- Li, C., Shao, Z., Zhang, L., Huang, X., & Zhang, M. (2021). A comparative analysis of index-based methods for impervious surface extraction using multi-seasonal Sentinel-2 satellite data. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*. doi: 10.1109/JSTARS.2021.3067325.
- Zhuang, Q., Shao, Z., Huang, X., Zhang, Y., Wu, W., Feng, X., Lv, X., Ding, Q., Cai, B., & Altan, O. Evolution of soil salinization under the background of landscape patterns in the irrigated northern slopes of Tianshan Mountains, Xinjiang, China. *CATENA*. doi: 10.1016/j.catena.2021.105561.
- Shao, Z., Zhou, Z., Huang, X., & Zhang, Y. (2021). MRENet: Simultaneous Extraction of Road Surface and Road Centerline in Complex Urban Scenes from Very High-Resolution Images. *Remote Sensing*, 13(2), 239. doi:10.3390/rs13020239.
- Martin, Y., Li, Z., Ge, Y., & Huang, X. Towards real-time population estimates: introducing Twitter daily estimates of residents and non-residents at the county level. *Social Sciences*. doi:10.3390/socsci10060227.
- Cai, B., Shao, Z., Fang, S., Huang, X., Huq, M., Tang, Y., Li, Y., Zhuang, Q. Finer-scale spatiotemporal coupling coordinate model between socioeconomic activity and environment: a case study of Beijing, China. *Ecological Indicators*. doi: 10.1016/j.ecolind.2021.108165.
- Li, X., Xu, H., Huang, X., Guo, C., Kang, Y., & Ye, X. Emerging Urban-Geo Data Sources to Reveal Human Mobility Dynamics During the COVID-19 Pandemic: Opportunities and Challenges. *Computational Urban Sciences* (Accepted).
- Shao, Z., Cheng, G., Li, D., Huang, X., Lu, Z. & Liu, J. Spatio-temporal-spectral-angular observation model that integrates observations from UAV and mobile mapping vehicles for better urban mapping. *Geo-spatial Information Science*. doi: 10.1080/10095020.2021.1961567.
- Liu, Z., Zhang, A., Yao, Y., Shi, W., Huang, X., & Shen, X. (2021). Analysis of the performance and robustness of methods to detect base locations of individuals with geo-tagged social media data. *International Journal of Geographical Information Science*, 35(3), 609-627.
- Kupfer, J., Li, Z., Ning, H., & Huang, X. Using big data to track the effects of the COVID-19 pandemic on national park visitation. *International Journal of Geo-information*. doi: 10.3390/su13169366.
- Shao, Z., Wang, J., Lu, T., Zhang, R., Huang, X., & Lv, X. Internal and External Spatial-temporal Constraints for Person Reidentification. *Journal of Visual Communication and Image Representation*. doi: 10.1016/j.jvcir.2021.103302.
- Zhang, R., Newsam, S., Shao, Z., Huang, X., Wang, J. & Li, D. Multi-Scale Adversarial Network for Vehicle Detection in UAV Imagery. *ISPRS Journal of Photogrammetry and Remote Sensing*. doi:10.1016/j.isprsjprs.2021.08.002.

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- Hu, T., Wang, S., Luo, W., Zhang, M., Huang, X., Yan, Y., Liu, R., Ly, K., Kacker, V., She, B., Li, Z. Revealing public opinion towards COVID-19 vaccines with Twitter data in the United States: a spatiotemporal perspective. *Journal of Medical Internet Research*. doi: 10.2196/30854.
- Hu, T., Wang, S.\*, She, B., Zhang, M., Huang, X.†, Cui, Y., Khuri, J., Hu, Y., Fu, X., Wang, X., Wang, P., Zhu, X., Bao, S., Guan, W., Li, Z. Human mobility data in the COVID-19 pandemic: characteristics, applications, and challenges. *International Journal of Digital Earth*, doi: 10.1080/17538947.2021.1952324.
- Ning, H., Ye, X., Wang, S., Li, Z., Wang, W., & Huang, X. Exploring the vertical dimension of street view image based on deep learning: a case study on lowest floor elevation estimation. *International Journal of Geographical Information Science* (Accepted).
- Shao, Z., Feng, X., Bai, L., Jiao, H., Jiao, H., Zhang, Y., Li, D., Fan, H., Huang, X., Ding, Y., Altan, O., & Salemf, N. Monitoring and Predicting Desert Locust Plague Severity in Asia-Africa using Multi-source Remote Sensing Time-series data. *IEEE Journal of Selected Topics in Applied Observations and Remote Sensing*. doi: 10.1109/JSTARS.2021.3104936.
- 2020 Huang, X., Li, Z., Jiang, Y., Li, X., & Porter, D. (2020). Twitter reveals human mobility dynamics during the COVID-19 pandemic. *PLOS ONE*, 15(11), e0241957.
- Huang, X.†, Li, Z., Lu, J., Wang, S., Wei, H., & Chen, B. (2020). Time-series clustering for home dwell time during COVID-19: what can we learn from it?. *ISPRS International Journal of Geo-Information*, 9(11), 675.
- Huang, X.†, & Wang, C. (2020). Estimates of exposure to the 100-year floods in the conterminous United States using national building footprints. *International Journal of Disaster Risk Reduction*, doi: 10.1016/j.ijdrr.2020.101731.
- Huang, X., Wang, C., Li, Z., & Ning, H. (2020). A 100 m population grid in the CONUS by disaggregating census data with open-source Microsoft building footprints. *Big Earth Data*, 10.1080/20964471.2020.1776200.
- Xu, D., Huang, X., Li, Z., & Li, X. (2020). Local Motion Simulation using Deep Reinforcement Learning, *Transactions in GIS*, doi: 10.1111/tgis.12620.
- Ning, H., Huang, X., Wang, C., & Li, Z. (2020). Detection new building construction in urban areas based on images of small unmanned aerial system. *Papers in Applied Geography*, doi: 10.1080/23754931.2019.1707108.
- Zhang, R., Shao, Z., Huang, X., Wang, J., & Li, D. (2020). Object Detection in UAV Images via Global Density Fused Convolutional Network. *Remote Sensing*, 12(19), 3140.
- Lu, J., Carbone, G. J., Huang, X., Lackstrom, K., & Gao, P. (2020). Mapping the sensitivity of agriculture to drought and estimating the effect of irrigation in the United States, 1950–2016. *Agricultural and Forest Meteorology*, 292, 108124.
- 2019 Huang, X.†, Wang, C. Lu, J., & Ning, H. (2019). Understanding spatiotemporal development of human settlement in hurricane-prone areas on U.S. Atlantic and Gulf Coasts using nighttime remote sensing, *Natural Hazards and Earth System Sciences*, doi: 10.5194/nhess-19-2141-2019.
- Huang, X.†, Wang, C. Li, Z., & Ning, H. (2019). Identifying disaster related social media for rapid response: a visual-textual fused CNN architecture. *International Journal of Digital Earth*, doi: 10.1080/17538947.2019.1633425.

## CURRICULUM VITAE

- 2018 Huang, X.<sup>†</sup>, Wang, C. Li, Z., & Ning, H. (2018). A visual-textual fused approach to automated tagging of flood-related tweets during a flood event. *International Journal of Digital Earth*, doi: 10.1080/17538947.2018.1523956.
- Huang, X.<sup>†</sup>, Wang, C., & Li, Z. (2018). Reconstructing flood inundation probability by enhancing near real-time imagery with real-time gauges and tweets. *IEEE Transactions on Geoscience and Remote Sensing*, 56(8), 4691-4701.
- Huang, X.<sup>†</sup>, Wang, C., & Li, Z. (2018). A near real-time flood-mapping approach by integrating social media and post-event satellite imagery. *Annals of GIS*, 24(2), 113-123.
- Wang, C., Li, Z., & Huang, X. (2018). Geospatial Assessment of Wetness Dynamics in the October 2015 SC Flood with Remote Sensing and Social Media. *Southeastern Geographer*, 58(2), 164-180.
- Li, H., Wang, C., Huang, X., & Hug, A. (2018). Spatial Assessment of Water Quality with Urbanization in 2007–2015, Shanghai, China. *Remote Sensing*, 10(7), 1024.

### Book Chapters (#2)

- 2021 Young, S. G., Datta, J., Kar, B., Huang, X., Williamson, M. D., Tullis, J. A. & Cothren, J. “Challenges and limitations of geospatial data and analyses in the context of COVID-19”. In *Mapping COVID-19 in Space and Time* (pp. 65-76). Springer, Cham, doi: 10.1007/978-3-030-72808-3\_8.
- 2020 Huang, X., Wang, C., Li, Z., & Ning, H. A visual–textual fused approach to automated tagging of flood-related tweets during a flood event. In *Social Sensing and Big Data Computing for Disaster Management*. Routledge, doi: 10.4324/9781003106494-4.

### Peer Reviewed Conference Proceedings (#5)

- 2021 Wang, J., Shao, Z., Huang, X., Lu, T., Zhang, R. & Wang, Z. (2021). Unsupervised Remote Sensing Super-Resolution via Migration Image Prior. IEEE International Conference on Multimedia and Expo (ICME) 2021. 10.1109/ICME51207.2021.9428093.
- Wang, J., Shao, Z., Huang, X., Lu, T. & Zhang, R. (2021). Pan-sharpening via high-pass modification convolutional neural network. IEEE International Conference on Image Processing (ICIP) (In production).
- 2020 Huang, X.<sup>†</sup>, Xu, D., Li, Z., & Wang, C. (2020). Translating multispectral imagery to nighttime imagery via conditional generative network. 2019 IEEE International Geoscience and Remote Sensing Symposium, Waikoloa, HI, USA, 2020, pp. 6758-6761, doi: 10.1109/IGARSS39084.2020.9323669.
- 2019 Huang, X.<sup>†</sup>, Wang, C., & Li, Z. (2019). Linking picture with text: tagging flood relevant tweets for rapid flood inundation mapping. Proceedings of the International Cartographic Association, 2, 45, doi: 10.5194/ica-proc-2-45-2019.
- Huang, X.<sup>†</sup>, Wang, C, & Li, Z. (2019). High-Resolution Population Grid in the CONUS using Microsoft Building Footprints: A Feasibility Study. Proceedings of the 3rd ACM SIGSPATIAL Workshop on Geospatial Humanities, doi: 10.1145/3356991.3365469.
- Huang, X.<sup>†</sup>, & Wang, C. (2019). Human settlement dynamics in hurricane-prone zones of CONUS: view from nighttime remote sensing perspective. 2019 IEEE International Geoscience and Remote Sensing Symposium, doi: 10.1109/IGARSS.2019.8899106.



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### Other Publications (#3)

- 2020 Huang, X.<sup>†</sup> (2020). Remote Sensing and Social Sensing for Improved Flood Awareness and Exposure Analysis in the Big Data Era. (Doctoral dissertation). Retrieved from <https://scholarcommons.sc.edu/etd/585>.
- 2019 Huang, X.<sup>†</sup> (2019). The fusion of remote sensing and social sensing in rapid flood mapping: motivation, opportunities and challenges, U.S. National Report (U.S. National Committee for the International Cartographic Association): <https://cartogis.org/usnc-ica/us-national-report/>.
- 2017 Huang, X.<sup>†</sup> (2017). A Future Energy Harvesting Scenario for Georgia Tech Campus Using Photovoltaic Solar Panels and Piezoelectric Materials. MS-GIST Capstone Paper, Georgia Institute of Technology.

### AWARDS, GRANTS, AND SCHOLARSHIPS

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#### External Grants

- 2021 NASA SMD Computational and Information Sciences and Technology Office. Co-PI (with PI Di Yang). Project: *Assessing and Qualifying Citizen Science Labeling for Training Data for GLOBE Observer Mosquito and Land Cover Protocols Improving Data Quality within the GLOBE Observer Community* (\$93,824)
- 2021 NASA EPSCoE Research Infrastructure Development (RID). Co-PI (with PI Yaqian He and Co-PI Matthew Connolly). Project: *Quantifying impacts of irrigation and the consequent climate variability on crop yield in North Arkansas*. (\$40,000)
- 2019 Travel Grant, Japan Local Organizing Committee to the International Cartographic Association, for the participation in the bi-annual International Cartographic Conference (ICC 2019). (¥100,000)
- Travel Grant, U.S National Committee (USNC) to the International Cartographic Association, for the participation in the bi-annual International Cartographic Conference (ICC 2019). (\$2000)

#### Internal Grants

- 2019 The SPARC Graduate Research Grant, sponsored by the Office of the Vice President for Research, University of South Carolina. Co-PI. Funded project: *A Deep Learning Supported Flood Mapping Framework that Integrates Remote Sensing and Social Sensing*. (\$5000)
- Teaching Resource Development Grant, Center for Teaching Excellence, University of South Carolina. (\$750)

#### Awards, Honors, and Fellowships

- 2019 Second Place in Student Paper Competition, the 42<sup>nd</sup> of the Applied Geography Conference, Charlotte, NC, October 23-25.
- Breakthrough Graduate Scholar, University of South Carolina.
- The Paul E. Lovingood Graduate Research Award.
- Second Place in Robert Raskin Student Paper Competition, American Association of Geographers (AAG) Cyberinfrastructure Specialty Group (CISG), Washington, DC, April 3-April 7.
- 2018 Second Place in Remote Sensing Specialty Group (RSSG) Student Paper Competition, American Association of Geographers (AAG), New Orleans, LA, April 10-April 14.

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- 2017 First Place Student Paper Award, the 25th International Conference on GeoInformatics, Buffalo, OH, August 3.
- 2013 National Second-Class Scholarship, Wuhan University (WHU). (\$500)
- 2012 National Second-Class Scholarship, Wuhan University (WHU). (\$500)

## CONFERENCES

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### Selected Oral Presentations (\* for presenting author)

- 2022 Huang, X.\*. 2022. *Sensing population distribution from satellite imagery via deep learning: model selection, neighboring effect, and systematic biases*, American Association of Geographers (AAG) Annual Meeting, New York City, NY, February 25-March 1 (forthcoming).
- 2021 Wang, S. \*, Liu, Y, Li, Z., Huang, X., & Hu, T. 2021. *The impact of the COVID-19 pandemic on mental health in Australia: spatial disparity, social inequity, and unbalanced healthcare access*. The Regions, Economy and Society in the Post-COVID World Online Conference, Cambridge Journal of Regions, Economy and Society, September 17.
- Huang, X.\*. 2021. *COVID-19 exposes the long-standing social inequity issues in the U.S.*, Symposium on Human Dynamics Research: Emerging Urban-Geo Big Data in Transportation Research, American Association of Geographers (AAG) Annual Meeting, April 11 (virtual).
- Wang, S. \*, Noland, R., & Huang, X. 2021. *Does ridersourcing provide equitable accessibility?*. 2021 Association of Collegiate Schools of Planning (ACSP) Annual Conference, Miami, FL, October 7-9.
- Sharman, G. \*, Johnson, I, Huang, X., & Syzmanski, E. *Predicting sand mineralogy within Cordilleran orogenic systems: Machine learning applied to a global database of modern-Pleistocene sand samples*. 2021 Geological Society of America Annual Conference, Portland, OR, October 10-13.
- Johnson, I. \*, Sharman, G., Huang, X., & Syzmanski, E. *Machine learning applied to petrographic database: introducing the global prediction of sand minerology (GloPrSM)*. 2021 Geological Society of America Annual Conference, Portland, OR, October 10-13.
- Wang, S. \*, Noland, R., & Huang, X. (invited). 2021. *Does ridersourcing provide equitable accessibility?*. Invited presentation at the 2021 World Symposium on Transport and Land Use Research (WSTLUR) conference, August 9-13 (virtual).
- 2020 Huang, X.\*, Xu, D., Li, Z., & Wang, C. 2020. *Translating multispectral imagery to nighttime imagery via conditional generative adversarial network*. 2020 IEEE International Geoscience and Remote Sensing Symposium, Waikoloa, Hawaii, USA, July 19 - July 24 (virtual).
- 2019 Huang, X.\* (invited panelist). 2019. *Deep learning in social media retrieval for rapid flood mapping*. U.S. Geological Survey: leveraging Crowdsourcing, Citizen Science, and Social Media to Produce Volunteer Geographic Information (VGI) for Hazard Science, Disaster Research, and Emergency Management, D.C, April 6.
- Huang, X.\* (invited speaker). 2019. *Combining virtual geographic environment and fieldwork to promote efficient learning in Geography*. Oktoberbest: A Celebration of Teaching, UoSC Russell House, October 18.

## CURRICULUM VITAE

- Huang, X.\*, & Wang, C. 2019. *Social media data mining in supporting rapid flood inundation mapping*. The 74th Annual Meeting of SouthEastern Division of the American Association of Geographers, Wilmington, NC, November 24 - 25.
- Huang, X.\*. 2019. *Generating population grid in the CONUS by disaggregating census population with Microsoft building footprints*. The 74th Annual Meeting of SouthEastern Division of the American Association of Geographers, Wilmington, NC, November 24 - 25.
- Huang, X.\*, Wang, C., & Li, Z. 2019. *High-Resolution Population Grid in the CONUS using Microsoft Building Footprints: a feasibility study*. The 3rd ACM SIGSPATIAL Workshop on Geospatial Humanities, Chicago, IL, November 5 - 8.
- Huang, X.\*. 2019. *A high-resolution population grid in the CONUS based on Microsoft building footprints and its potentials in hazard studies*. Applied Geography Conference, Charlotte, NC, October 23 - 25.
- Huang, X.\*, Wang, C., & Li, Z. 2019. *Linking picture with text: tagging flood relevant tweets for rapid flood inundation mapping*, 2019 International Cartographic Conference, Tokyo, Japan, July 15 - 20.
- Huang, X.\*, Li, Z, & Wang, C. 2019. *Identifying disaster related social media for rapid response: a visual-textual fused approach*, AAG Annual Meeting, AAG Cyberinfrastructure Specialty Group (CISG), DC, April 3 - 7.
- Wang, C.\*, Morgan, G., Hodgson, M., Huang, X. 2019. *Drone based 3D Tree Structure Surveying on Earth Dams to Assist Dam Safety*. The 74th Annual Meeting of SouthEastern Division of the American Association of Geographers, Wilmington, NC, November 24 - 25.
- 2018 Wang, C.\*, & Huang, X. 2018. *Integration of social sensing and remote sensing for situation awareness of coastal floods*. The 3rd Conference of Digital Belt and Road (DBAR), Tengchong, Yunnan Province, China, December 5 - 7.
- Wang, C.\*, & Huang, X. 2018. *Rapid flood inundation mapping via integrated social sensing and Earth sensing*. 2018 SEDAAG Annual Meeting, Johnson City, TN, November 8 - 19.
- Wang, C.\*, & Huang, X. 2018. *Rapid flood inundation reconstruction by integrating social media and satellite imagery*. Applied Geography Conference, Kent, OH, October 31 – November 2.
- Huang, X.\*, Wang, C., & Li, Z. 2018. *Reconstructing flood inundation probability by enhancing near real-time imagery with real-time gauges and tweets*, AAG Annual Meeting, Remote Sensing Specialty Group (RSSG), New Orleans, LA, April 13.
- 2017 Huang, X.\*, Wang, C., & Li, Z. 2017. *A near real-time flood mapping approach by integrating social media and post-event satellite imagery*, The 25th International Conference on GeoInformatics, Buffalo, OH, August 3.

## MEDIA COVERAGE

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- 2021 Article titled “*Staying at Home Is a Privilege: Evidence from Fine-Grained Mobile Phone Location Data in the United States during the COVID-19 Pandemic*” published on the Annals of American Association of Geographers has been covered by more than 20 news outlets. Some selected media outlets are listed below:
- **Taylor & Francis Breaking research**, “*Data from 45 million mobile users further confirms poorer communities less able to follow ‘stay at home’ COVID rules*”,

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- <https://newsroom.taylorandfrancisgroup.com/data-from-45-million-mobile-users-further-confirms-poorer-communities-less-able-to-follow-stay-at-home-covid-rules/>
- **METRO**, “Poor people more likely to be forced to ignore stay-at-home orders than the rich”, <https://metro.co.uk/2021/06/02/poorer-citizens-broke-lockdown-more-frequently-smartphone-data-shows-14699764>.
  - **Medical News**, “Low-wage earners could not afford to comply with stay-at-home orders during lockdown”, <https://www.news-medical.net/news/20210602/Low-wage-earners-could-not-afford-to-comply-with-stay-at-home-orders-during-lockdown.aspx>
  - **Verywell-health**, “Study: Stay-at-Home COVID Orders Were a Luxury Many Couldn't Afford”, <https://www.verywellhealth.com/stay-at-home-orders-low-income-covid19-5187273>
  - **Medical press**, “Data from 45 million mobile users further shows poorer people less able to stay at home COVID rules”, <https://medicalxpress.com/news/2021-05-million-mobile-users-poorer-people.html>
  - **Big News Network**, “Poorer people less able to stay at home amid COVID-19”, <https://www.bignewsnetwork.com/news/269666910/poorer-people-less-able-to-stay-at-home-amid-covid-19>
- 2019      Research highlight by the Spatial Analysis and Modeling Specialty Group (SAM) in American Association of Geographers, “100-year Flood Exposure in the Conterminous United States Using National Building Footprints”.  
[https://docs.wixstatic.com/ugd/4a5b75\\_9434b078133b45e0b5dba453e075fe40.pdf](https://docs.wixstatic.com/ugd/4a5b75_9434b078133b45e0b5dba453e075fe40.pdf)
- Research highlight by the Hazards, Risks, and Disaster Specialty Group (HRD) in the American Association of Geographers: “Human settlement in hurricane-prone areas”.  
[https://docs.wixstatic.com/ugd/4a5b75\\_2b88057e41c9489483088b79018751a7.pdf](https://docs.wixstatic.com/ugd/4a5b75_2b88057e41c9489483088b79018751a7.pdf)
- Research highlight by the Applied Geography Specialty Group (AGSG) in the American Association of Geographers, “Human Settlement in Hurricane-Prone Zones is Revealed by Nighttime Remote Sensing”.  
[https://docs.wixstatic.com/ugd/4a5b75\\_2c6511375189498ba6287fc53af0f18c.pdf](https://docs.wixstatic.com/ugd/4a5b75_2c6511375189498ba6287fc53af0f18c.pdf)
- Research highlight by the Cyberinfrastructure Specialty Group (CISG) in American Association of Geographers, “Visual-textual fused CNN architecture for rapid disaster related social media retrieval”.  
[https://docs.wixstatic.com/ugd/4a5b75\\_cca08cb9c381485eb9fac8bc32f341f0.pdf](https://docs.wixstatic.com/ugd/4a5b75_cca08cb9c381485eb9fac8bc32f341f0.pdf)

## INVITED TALKS

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- 2021      *Home-dwelling time pattern mining based on optimized Random Forest algorithm*. Research seminar invited by Beijing University, Wuhan University (Geocomputation Center for Social Science), and East China University of Science and Technology (Lab for Urban and Regional Analysis), July 15 (virtual).
- The disparity in home-dwelling time during the COVID-19 pandemic in the U.S.* Joint Seminar invited by University of Maryland, Texas A&M University & University of Tennessee Transportation Engineering and Science Student Chapter, June 10 (virtual).
- SafeGraph Social Distancing Metrics for COVID-19 Studies*. Invited by the Mobility Research Group of the China Data Lab and the Geo-computation Center for Social Sciences, Wuhan University, May 7 (virtual).

## CURRICULUM VITAE

*COVID-19 reveals the social inequity issue in the U.S.* Research Showcase invited by Placekey, May 21 (virtual).

*Sensing Population Distribution from Satellite Imagery via Deep Learning: Model Selection, Neighboring Effects, and Systematic Biases.* GIScience Symposium Series No. 5 GeoAI, invited by Peking University, Institute of Geographic Sciences and Natural Resources Research (CAS), and Beijing Normal University, April 16 (virtual).

*Disparity in compliance with social distancing policies during the COVID-19 pandemic: evidence from fine-grained mobile phone data.* Guest lecture for the Department of Geography, University of Utah, April 21 (virtual).

2020 *Big mobility data reveal the luxury nature of social distancing and stay-at-home orders in the U.S. during the COVID-19 pandemic.* Research Seminar invited by Geoinsider, December 17 (virtual).

*Twitter and Disasters.* Guest speaker, invited by Texas A&M University Chinese School, November 14 (virtual).

*Does social inequity stand in the way of the effective implementation of stay-at-home orders?.* Seminar presenter invited by SafeGraph, November 12 (virtual).

*Big Geospatial Data in Assisting Disaster Assessment.* Research Colloquium, University of Arkansas, AR, February 14.

2019 *Sensing and Improving Rapid Flood Mapping through Social Media Data Mining.* Fall research seminar series in School of City & Regional Planning, Georgia Institute of Technology, Atlanta, GA, September 27.

## TEACHING EXPERIENCE

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### University of Arkansas

2021 *Digital Earth (GEOS 2813/2813H)*  
Course evaluation (out of 5): 2021 Fall: N/A

*Geospatial Technologies Computational Toolkit (GEOS 3103)*  
Course evaluation (out of 5): 2021 Spring: N/A; 2021 Fall: N/A

### University of South Carolina

2017-2018 *Geographic Information Systems (GEOG 363)*  
Course evaluation (out of 5): 2018 Fall: 4.96

*The Digital Earth (GEOG 105)*  
Course evaluation (out of 5): 2019 Fall: N/A; 2018 Summer: 5.0; 2018 Spring: 4.78; 2017 Fall: 4.73

## SERVICE

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### Served on Professional Committees

2021 Program Committee Member, the 4<sup>th</sup> ACM SIGSPATIAL International Workshop on AI for Geographic Knowledge Discovery (GeoAI 2021), Beijing, China, November 5, 2021.

Program Comitemem Member, the 4<sup>th</sup> ACM SIGSPATIAL International Workshop on Advances on Resilient and Intelligent Cities (ARIC 2021), Beijing, China, November 5, 2021.

## CURRICULUM VITAE

- 2020 Program Committee Member, the 3<sup>rd</sup> ACM SIGSPATIAL International Workshop on Advances in Resilient and Intelligent Cities (ARIC 2020), Seattle, Washington, November 3, 2020

### Organized Conference Sessions

- 2021 Organizer, Symposium on *Human Dynamics Research: Emerging Urban-Geo Big Data in Transportation Research*, 2021 Annual Meeting of American Association of Geographers, Seattle, WA, April 7-11.
- 2019 Chair, Special Session: *Remote Sensing and Social Sensing for Improved Disaster Monitoring*. The 74<sup>th</sup> Annual Meeting of the Southeastern Division of the American Association of Geographers, Wilmington, NC, November 24-25.

### Public Outreach

- 2014 Local volunteer reception, Wuhan local reception committee of *Association internationale des étudiants en sciences économiques et commerciales* (AIESEC) global volunteer program, Wuhan, China, June 10 - August 10.
- 2013 International volunteer, *Association internationale des étudiants en sciences économiques et commerciales* (AIESEC) global volunteer program, Egypt, Africa, June 16 - August 3.
- International volunteer, *Association internationale des étudiants en sciences économiques et commerciales* (AIESEC) global volunteer program, Tunisia, Africa, May 15 - June 15.
- Student investigator, Lake Management and Protection Program, Wuhan, Hubei Province, China. March 15 - September 27.

### Editorial Board

- Frontiers Remote Sensing (Review Editor)* (2020-present)
- Big Earth Data (Topic Editor)* (2020-present)
- Computational Urban Science (Associate Editor)* (2020-present)

### Reviewer Board

- Sustainability (2020-present)

### Organized Journal Special Issues

- 2021 *Computational Urban Science: Promoting Urban Computational Paradigms with Shareable Data, Models Tools, and Frameworks*.
- 2021 *International Journal of Environmental Research and Public Health: Spatial Analytics for COVID-19 Studies*.
- 2021 *Frontiers in Future Transportation: Emerging Urban-Geo Big Data in Transportation Research*.

### Departmental and School Services

- 2021 Search committee, Department of Geosciences, University of Arkansas
- 2019 Discover USC Reviewer, Office of the Vice President for Research, University of South Carolina.

## CURRICULUM VITAE

- 2018      Thinking Globally Ambassador, International Student Service, University of South Carolina.  
            Organizing committee, Geography Professional Development Workshop, University of South Carolina.
- 2017      Organizing committee, 2017 GIS day, University of South Carolina.

### Advised Students

- Jingjing Yan, Ph.D. (committee member) (2021-now)  
Jah Johnson, M.S. (committee member) (2021-now)

### Journal Reviews (Year [Times])

- Annals of American Association of Geographers (2020[2])  
Annals of GIS (2020 [4], 2021[2])  
Applied Geography (2020 [4])  
Applied Sciences (2020[2])  
Big Earth Data (2020[2],2021[1])  
Cities (2021[1])  
Computational Urban Science (2021[8])  
Geo-spatial Information Science (2020[1], 2021[2])  
Health & Place (2021[1])  
Health Policy (2021[1])  
IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (2020 [1])  
IEEE Transactions on Geoscience and Remote Sensing (2020 [3])  
International Journal of Digital Earth (2018[4], 2020[2], 2021[6])  
International Journal of Geographical Information Science (2021[3])  
Information Processing and Management (2021[1])  
International Journal of Applied Observation and Geoinformation (2021[1])  
Journal of Flood Risk Management (2021 [1])  
ISPRS International Journal of Geo-Information (2021[1])  
Journal of ambient intelligence and humanized computing (2020 [3])  
Papers in Applied Geography (2019[3])  
Photogrammetric Engineering and Remote Sensing (2020[1], 2021[4])  
PLOS ONE (2020 [4], 2021[7])  
Scientific Reports (2021[2])  
Soft Computing (2021[1])  
Spatial and Spatio-temporal Epidemiology (2021[1])  
Sustainability (2021[1])  
Transactions in GIS (2020[2], 2021[1])  
Water (2021[2])

### Scholarly/Professional Organizations

- Institute of Electrical and Electronics Engineers (IEEE) member (2018-present).  
American Association of Geographers (AAG) member (2017-present).  
Southeastern Division of the American Association of Geographers (SEDAAG) member (2017-2019).  
International Association of Chinese Professional in Geographic Information Sciences (CPGIS) member (2017-present).  
American Geographic Society (AGS) member (2017-2018).