

Bin CHEN

Division of Landscape Architecture, The University of Hong Kong

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EDUCATION

Ph.D. in Global Environmental Change, Beijing Normal University, China 2013/09-2017/06
Supervisor: Profs. Guanhua Xu, Bing Xu and Bo Huang

B.S. in Geographic Information System, Wuhan University, China 2009/09-2013/06
Supervisor: Prof. Huanfeng Shen

APPOINTMENTS

Assistant Professor, The University of Hong Kong 2021/03-present

Postdoctoral Researcher, University of California, Davis 2017/08-2021/02

Research Assistant, The Chinese University of Hong Kong 2015/03-2015/10

Graduate Research Assistant, Beijing Normal University 2013/09-2017/06

RESEARCH INTERESTS

Remote Sensing and Data-Model Fusion

Geographic Information Systems (GIS) and Geospatial Big Data Analysis

Urban Environmental and Public Health

Human-Environment Spatiotemporal Interaction

Sustainable Development Goals (SDGs)

PUBLICATIONS

Peer-reviewed manuscript (*corresponding author, # co-first author, Google citations = 4398)

Multi-source Data-model Fusion

1. **Chen, B.***, Li, J., & Jin, Y. (2021). Deep Learning for Feature-Level Data Fusion: Higher Resolution Reconstruction of Historical Landsat Archive. *Remote Sensing*, 13(2), 167. (IF = 4.51)
2. **Chen, B.***, Song, Y., Huang, B., & Xu, B. (2020). A novel method to extract urban human settlements by integrating remote sensing and mobile phone locations. *Science of Remote Sensing*. 100003.
3. **Chen, B.***, Jin, Y., & Brown, P. (2019). An enhanced bloom index for quantifying floral phenology using multi-scale remote sensing observations. *ISPRS Journal of Photogrammetry and Remote Sensing*, 156, 108-120. (IF = 7.32)
4. **Chen, B.**, Chen, L., Huang, B., Michishita, R., & Xu, B. (2018). Dynamic monitoring of the Poyang Lake wetland by integrating Landsat and MODIS observations. *ISPRS Journal of Photogrammetry and Remote Sensing*, 139, 75-87. (IF = 7.32)
5. Lu, M., **Chen, B.**, Liao, X., Yue, T., Yue, H., Ren, S., ... & Xu, B. (2017). Forest types classification based on multi-source data fusion. *Remote Sensing*, 9(11), 1153. (IF = 4.51)

6. **Chen, B.**, Chen, L., Lu, M., & Xu, B. (2017). Wetland mapping by fusing fine spatial and hyperspectral resolution images. *Ecological Modelling*, 353, 95-106. (IF = 2.50)
7. **Chen, B.**, Huang, B., & Xu, B. (2017). A hierarchical spatiotemporal adaptive fusion model using one image pair. *International Journal of Digital Earth*, 10(6), 639-655. (IF = 3.10)
8. **Chen, B.**, Huang, B., & Xu, B. (2017). Multi-source remotely sensed data fusion for improving land cover classification. *ISPRS Journal of Photogrammetry and Remote Sensing*, 124, 27-39. (IF = 7.32)
9. **Chen, B.**, Huang, B., Chen, L., & Xu, B. (2016). Spatially and temporally weighted regression: A novel method to produce continuous cloud-free Landsat imagery. *IEEE Transactions on Geoscience and Remote Sensing*, 55(1), 27-37. (IF = 5.86)
10. **Chen, B.**, Huang, B., & Xu, B. (2016). Constructing a unified framework for multi-source remotely sensed data fusion. In *2016 IEEE International Geoscience and Remote Sensing Symposium (IGARSS)* (pp. 2574-2577).
11. **Chen, B.**, Huang, B., & Xu, B. (2015). Fine land cover classification using daily synthetic Landsat-like images at 15-m resolution. *IEEE Geoscience and Remote Sensing Letters*, 12(12), 2359-2363. (IF = 3.83) (*Issue Front Cover Paper*)
12. **Chen, B.**, Huang, B., & Xu, B. (2015). Comparison of spatiotemporal fusion models: A review. *Remote Sensing*, 7(2), 1798-1835. (IF = 4.51)
13. **Chen, B.**, & Xu, B. (2014). A unified spatial-spectral-temporal fusion model using Landsat and MODIS imagery. In *2014 Third International Workshop on Earth Observation and Remote Sensing Applications (EORSA)* (pp. 256-260). (*Best student paper*)

Land Cover and Land Use Changes

1. **Chen, B.***, Jin, Y., Scaduto, E., Moritz, M., Goulden, M., & Randerson, J. T. (2021). Climate, fuel, and land use controls on the spatial pattern of wildfire in California's Sierra Nevada. *Journal of Geophysical Research: Biogeosciences*. e2020JG005786. (IF = 3.82) [AGU research spotlights]
2. Li, X., Hu, T., Gong, P., Du, S., **Chen, B.**, Li, X., & Dai, Q. (2021). Mapping Essential Urban Land Use Categories in Beijing with a Fast Area of Interest (AOI)-Based Method. *Remote Sensing*, 13(3), 477. (IF = 4.51)
3. Tu, Y., **Chen, B.**, Yu, L., Xin, Q., Gong, P., & Xu, B. (2020) How does urban expansion interact with cropland loss? A comparable study of 14 Chinese cities from 1980 to 2015. *Landscape Ecology*. 1-21. (IF = 3.39)
4. Scaduto, E., **Chen, B.**, & Jin, Y. (2020), Satellite-based fire progression mapping: a comprehensive assessment for large fires in Northern California, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*. 13, 5102-5114. (IF = 3.83)
5. Theobald, D. M., Kennedy, C., **Chen, B.**, Oakleaf, J., Baruch-Mordo, S., & Kiesecker, J. (2020). Earth transformed: detailed mapping of global human modification from 1990 to 2017. *Earth System Science Data*, 1-35. (IF = 9.20)
6. Tan, Z., Melack, J., Li, Y., Liu, X., **Chen, B.**, & Zhang, Q. (2020). Estimation of water volume

in ungauged, dynamic floodplain lakes. *Environmental Research Letters*, 15, 054021. (IF = 6.10)

7. Su, M., Guo, R., **Chen, B.**, Hong, W., Wang, J., Feng, Y., & Xu, B. (2020). Sampling strategy for detailed urban land use classification: A systematic analysis in Shenzhen. *Remote Sensing*, 12, 1497. (IF = 4.51)
8. Tu, Y., **Chen, B.**, Zhang, T., & Xu, B. (2020). Regional mapping of essential urban land use categories in China: a segmentation-based approach. *Remote Sensing*, 12, 1058. (IF = 4.51)
9. Jin, Y., **Chen, B.**, Lampinen, B., & Brown, P. (2020). Advancing agricultural production with machine learning analytics: yield determinants for California's almond orchards. *Frontiers in Plant Science*, 11, 290. (IF = 4.40)
10. Gong, P., Li, X., Wang, J., Bai, Y., **Chen, B.**, Hu, T., ... & Zhou, Y. (2020). Annual maps of global artificial impervious area (GAIA) between 1985 and 2018. *Remote Sensing of Environment*, 236, 111510. (IF = 9.10) (*Highly Cited Paper in ESI*)
11. Ren, Z., Liu, Y., **Chen, B.**, & Xu, B. (2020). Where does nighttime light come from? Insights from source detection and error attribution. *Remote Sensing*, 12, 1922. (IF = 4.51)
12. Gong, P., **Chen, B.**, Li, X., Liu, H., Wang, J., Bai, Y., ... & Feng, Y. (2019). Mapping essential urban land use categories in China (EULUC-China): preliminary results for 2018. *Science Bulletin*. 65, 182-187. (IF = 9.51) (*Highly Cited Paper in ESI*)
13. Tan, Z., Wang, X., **Chen, B.**, Liu, X., & Zhang, Q. (2019). Surface water connectivity of seasonal isolated lakes in a dynamic lake-floodplain system. *Journal of Hydrology*, 579, 124154.
14. **Chen, B.***, Kennedy, C. M., & Xu, B. (2019). Effective moratoria on land acquisitions reduce tropical deforestation: evidence from Indonesia. *Environmental Research Letters*, 14(4), 044009. (IF = 6.10)
15. **Chen, B.***, Jin, Y., & Brown, P. (2019). Automatic mapping of planting year for tree crops with Landsat satellite time series stacks. *ISPRS Journal of Photogrammetry and Remote Sensing*, 151, 176-188. (IF = 7.32)
16. Zhang, Z., Jin, Y., Chen, B., & Brown, P. (2019). California almond yield prediction at the orchard level with a machine learning approach. *Frontiers in Plant Science*, 10, 809. (IF = 4.40)
17. Gong, P., Liu, H., Zhang, M., ..., **Chen, B.**, ..., & Song, L. (2019). Stable classification with limited sample: transferring a 30-m resolution sample set collected in 2015 to mapping 10-m resolution global land cover in 2017, *Science Bulletin*. 64, 370-373. (IF = 9.51) (*Highly Cited Paper in ESI*)
18. **Chen, B.**, Nie, Z., Chen, Z., & Xu, B. (2017). Quantitative estimation of 21st-century urban greenspace changes in Chinese populous cities. *Science of the Total Environment*, 609, 956-965. (IF = 6.55)
19. Lu, M., Hu, L., Yue, T., Chen, Z., **Chen, B.**, Lu, X., & Xu, B. (2017). Penalized linear discriminant analysis of hyperspectral imagery for noise removal. *IEEE Geoscience and Remote Sensing Letters*, 14(3), 359-363. (IF = 3.83)
20. **Chen, B.**, & Xu, B. (2014). A novel method for measuring landscape heterogeneity changes. *IEEE Geoscience and Remote Sensing Letters*, 12(3), 567-571. (IF = 3.83)

Environmental Exposure and Public Health

1. Ren, Z., Li, R., Zhang, T., **Chen, B.**, Wang, C., Li, M., ... & Xu, B. (2021). Reduction of Human Mobility Matters during Early COVID-19 Outbreaks: Evidence from India, Japan and China. *International Journal of Environmental Research and Public Health*, 18(6), 2826. (IF = 2.85)
2. Li, R.[#], **Chen, B.**[#], et al., (2020) Suppression of future waves of COVID-19: Global pandemic demands joint interventions. *Proceedings of the National Academy of Sciences*. 117(42), 26151-26157. (IF = 9.41)
3. Li, R., Pei, S., **Chen, B.**[#], Song, Y., Zhang, T., Yang, W., & Shaman, J. (2020). Substantial undocumented infection facilitates the rapid dissemination of novel coronavirus (SARS-CoV2). *Science*. 368(6490), 489-493. (IF = 41.85) (*Highly Cited Paper in ESI*)
4. Tian, H. [#], Liu, Y. [#], Li, Y. [#], Wu, C. H. [#], **Chen, B.** [#], Kraemer, M. U., ... & Wang, B. (2020). An investigation of transmission control measures during the first 50 days of the COVID-19 epidemic in China. *Science*. 368(6491), 638-642. (IF = 41.85) (*Highly Cited Paper in ESI*)
5. Jiang, T., **Chen, B.**, Nie, Z., Zhehao, R., Xu, B., & Tang, S. (2020). Estimation of hourly full-coverage PM_{2.5} concentrations at 1-km resolution in China using a two-stage random forest model. *Atmospheric Research*, 105146. (IF = 4.68)
6. Chen, Z., Chen, D., Zhao, C., ..., **Chen, B.**, ... & Li, R. (2020). Influence of meteorological conditions on PM_{2.5} concentrations across China: A review of methodology and mechanism. *Environment International*, 139, 105558. (IF = 7.58)
7. Song, Y., **Chen, B.**^{*}, & Kwan, M. P. (2020). How does urban expansion impact people's exposure to green environments? A comparative study of 290 Chinese cities. *Journal of Cleaner Production*, 246, 119018. (IF = 7.25)
8. Zhou, Y., Huang, B., Wang, J., **Chen, B.**, Kong, H., & Norford, L. (2019). Climate-conscious urban growth mitigates urban warming: evidence from Shenzhen, China. *Environmental Science & Technology*, 53(20), 11960-11968. (IF = 7.86)
9. Song, Y., Huang, B., He, Q., **Chen, B.**, Wei, J., & Mahmood, R. (2019). Dynamic assessment of PM_{2.5} exposure and health risk using remote sensing and geo-spatial big data. *Environmental Pollution*, 253, 288-296. (IF = 6.79)
10. Jiang, T., **Chen, B.**, Chan, K. K. Y., & Xu, B. (2019). Himawari-8/AHI and MODIS aerosol optical depths in China: evaluation and comparison. *Remote Sensing*, 11(9), 1011.
11. Chen, Z., Chen, D., Kwan, M. P., **Chen, B.**, Gao, B., Zhuang, Y., ... & Xu, B. (2019). The control of anthropogenic emissions contributed to 80% of the decrease in PM_{2.5} concentrations in Beijing from 2013 to 2017. *Atmospheric Chemistry and Physics*, 19(21), 13519-13533. (IF = 5.41)
12. Chen, Z., Chen, D., Wen, W., Zhuang, Y., Kwan, M. P., **Chen, B.**, ... & Xu, B. (2019). Evaluating the "2+ 26" regional strategy for air quality improvement during two air pollution alerts in Beijing: variations in PM_{2.5} concentrations, source apportionment, and the relative contribution of local emission and regional transport. *Atmospheric Chemistry and Physics*, 19(10), 6879-6891. (IF = 5.41)
13. Song, Y., Huang, B., Cai, J., & **Chen, B.** (2018). Dynamic assessments of population exposure

to urban greenspace using multi-source big data. *Science of the Total Environment*, 634, 1315-1325. (IF = 6.55)

14. **Chen, B.**, Song, Y., Kwan, M. P., Huang, B., & Xu, B. (2018). How do people in different places experience different levels of air pollution? Using worldwide Chinese as a lens. *Environmental Pollution*, 238, 874-883. (IF = 6.79)
15. **Chen, B.**, Song, Y., Jiang, T., Chen, Z., Huang, B., & Xu, B. (2018). Real-time estimation of population exposure to PM_{2.5} using mobile-and station-based big data. *International Journal of Environmental Research and Public Health*, 15(4), 573. (IF = 2.85)
16. Yu, P., Li, Y., Xu, B., Wei, J., Li, S., Dong, J., **Chen, B.**, ... & Yang, J. (2017). Using satellite data for the characterization of local animal reservoir populations of Hantaan virus on the Weihe Plain, China. *Remote Sensing*, 9(10), 1076. (IF = 4.51)

Book chapter

1. Wu, J., **Chen, B.**, Reynolds, G., Xie, J., Liang, S., O'Brien, M. J., & Hector, A. (2020). Monitoring tropical forest degradation and restoration with satellite remote sensing: A test using Sabah Biodiversity Experiment. *Advances in Ecological Research*, 62, 117-146. In: Dumbrell, A., Turner, E. & Fayle, T. *Tropical Ecosystems in the 21st Century*, Academic Press, 494 pages.
2. Tu, Y., **Chen, B.**, Yu, L., Xin, Q., Gong, P., & Xu, B. (2019). Urban-Expansion Driven Farmland Loss Follows with the Environmental Kuznets Curve Hypothesis: Evidence from Temporal Analysis in Beijing, China. In *Geoinformatics in Sustainable Ecosystem and Society* (pp. 394-412). Springer, Singapore.

SELECTED PRESENTATIONS & LECTURES

1. **Chen, B.**, Multi-source Remote Sensing Data Fusion and Applications. Department of Land Surveying and Geo-informatics, The Hong Kong Polytechnic University, Hong Kong 2021/03 (Invited lecture)
2. **Chen, B.**, Leveraging GeoData and Remote Sensing in Urban and Environmental Health. Webinar on "Geo-Information in Smart Societies and Environment", Hong Kong Baptist University, Hong Kong 2021/03 (Invited speaker)
3. **Chen, B.**, Jin, Y., Scaduto, E., Moritz, M., Goulden, M., & Randerson, J. T., Spatiotemporal patterns and environmental controls on increasing wildfires in Sierra Nevada, California. AGU Fall Meeting, San Francisco, CA, USA 2019/12 (poster)
4. **Chen, B.**, & Li, J., Transferring 30-m Historical Landsat to 10-m Sentinel-2-like Archive through Generative Adversarial Network based Super-resolution. AGU Fall Meeting, San Francisco, CA, USA 2019/12 (poster)
5. **Chen, B.**, Jin, Y., & Brown, P., Automatic Mapping of Tree Crops Planting Years using Landsat Time Series Stacks. AGU Fall Meeting, Washington D.C., USA 2018/12 (oral)
6. **Chen, B.**, Kennedy, C., & Xu, B., Moratoria on Land Acquisitions Reduce Tropical Deforestation: Evidence from Indonesia. The Association for Forest Spatial Analysis Technologies (ForestSAT) 2018 Meeting, University of Maryland, MD, USA 2018/10 (poster)

7. **Chen, B.**, Jin, Y., & Brown, P., Automatic mapping of planting year for tree crops with Landsat time series stacks and Google Earth Engine. The 1st Inaugural Data Science Workshop. Lawrence Livermore National Laboratory, CA, USA 2018/08 (poster)
8. **Chen, B.**, The Integration of Geospatial Big Data and Remote Sensing in Urban Studies. Beijing Normal University, Beijing, China 2018/05 (Invited lecture)
9. **Chen, B.**, Earth's Terrestrial Change Monitoring with Multi-source Data and Interdisciplinary Approaches. Wuhan University, Wuhan, China 2018/05 (Invited lecture)
10. **Chen, B.**, Globally Increased Crop Growth and Cropping Intensity from the Long-term Satellite-based Observations. ISPRS TC III Symposium on Development, Technologies and Applications in Remote Sensing. Beijing, China 2018/05 (oral)
11. **Chen, B.**, & Xu, B., Accurate Extraction of Human Settlement by Integrating Location-based and Remotely Sensed Data. The Third National Quantitative Remote Sensing Forum, Beijing, China 2017/06 (oral)
12. **Chen, B.**, Huang, B., Chen, L., & Xu, B., A Novel Method to Produce Continuous Cloud-free Landsat Imagery. AAG Annual Meeting, Boston, MA, USA 2017/04 (oral)
13. **Chen, B.**, Huang, B., & Xu, B., Constructing a Unified Framework for Multi-source Remotely Sensed Data Fusion. *IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2016)*, Beijing, China 2016/07 (poster)
14. **Chen, B.**, & Xu, B., Dynamic Monitoring of the Poyang Lake Basin by Integrating Landsat and MODIS Observations. *Annual Meeting of International Society of Ecological Modelling*, Baltimore, MD, USA 2016/05 (oral)
15. **Chen, B.**, & Xu, B., Fine Land-cover Classification Using Synthetic Fused Images. *Annual Meeting of the Chinese Society for Environmental Science*, Shenzhen, China 2015/08 (oral)
16. **Chen, B.**, & Xu, B., A Compound Comparison of Factors Impacting on Land Cover Classification Accuracy from the Perspective of Data Features. *AAG Annual Meeting*, Chicago, IL, USA 2015/04 (*Chair for the AAG session "Object-Based and Multitemporal Approaches for Image Classification"*) (oral)
17. **Chen, B.**, & Xu, B., A Unified Spatial-spectral-temporal Fusion Model Using Landsat and MODIS Imagery. *The Third EORSA*, Changsha, China 2014/06 (oral)

SELECTED HONORS & AWARDS

American Association of Geographers (AAG) Early-Career Award in Remote Sensing	2021
Excellent PhD Thesis Award, Beijing Normal University	2019
International Society for Photogrammetry and Remote Sensing Best Young Author Award	2018
Li Xiaowen Remote Sensing Excellent Youth Award, China	2017
Zhou Tingru Scholarship (first place), Beijing Normal University	2017
Outstanding PhD Graduates Award, Beijing Normal University	2017
Best Poster Award, the Third Chinese Graduate Forum on Global Change Studies	2016
Best Student Paper Award, the Seventh Remote Sensing Symposium in China	2016
Best Student Paper Award (second place), the Third International Workshop on EORSA	2014
Excellent Bachelor's Dissertation in Hubei Province	2014

The first-place Wang Zhizhuo Innovative Talent Scholarship, Wuhan University	2013
Honorable Mention, International Mathematical Contest in Modeling	2012
Second Prize, National Mathematical Contest in Modeling	2011

GRANTS

PI: Unified Fusion Framework for Multi-source Remotely Sensed Data China Postdoctoral Science Foundation (RMB: 50,000)	2017
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Co-PI: Urban Greenspace Exposure Assessment for Chinese Cities based on Multi-Source Spatio-Temporal Big Data, Open Research Fund, Key Laboratory of Ecology and Energy-saving Study of Dense Habitat (Tongji University) (RMB 25,000)	2019
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Collaborator: Multi-source Wildland Urban Interface Characterization Enhanced with Machine Learning: Dynamics and Hazard Assessment, NASA Land Cover/ Land Use Change Program (\$625,801)	2020
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PROFESSIONAL MEMBERSHIP

American Geophysical Union (AGU)
IEEE Geoscience and Remote Sensing (GRSS)
Association of American Geographers (AAG)
International Society for Ecological Modelling (ISEM)

JOURNAL REVIEWER

Science Advances; Remote Sensing of Environment; ISPRS Journal of Photogrammetry and Remote Sensing; IEEE Transactions on Geoscience and Remote Sensing; Photogrammetric Engineering & Remote Sensing; International Journal of Remote Sensing; Environment International; Science of the Total Environment; Resources, Conservation and Recycling; Environmental Earth Science; International Journal of Geographic Information System; Remote Sensing; Environmental Science & Technology; Environmental Research Communications; IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing; Agricultural and Forest Meteorology; ISPRS International Journal of Geo-Information; Frontiers in Public Health; Land; Forests; etc.