

Yang Shao

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EDUCATION

Ph.D., Geography, University of North Carolina at Chapel Hill, 2007

Advisor: Stephen J. Walsh

M.S. studies, Geography, Nanjing University, 1999-2001

B.S., Geography, Nanjing University, 1997

ACADEMIC APPOINTMENTS

Associate Professor, Department of Geography, Virginia Tech, 2017-present

Assistant Professor, Department of Geography, Virginia Tech, 2011-2017

Research Associate, National Research Council and United States Environmental Protection Agency (EPA), 2007-2010

PUBLICATIONS

REFEREED JOURNAL ARTICLES:

- ❖ Poor, E.E.*, **Shao, Y.**, Kelly, M., 2018. Changes in tiger habitat connectivity in Riau, Sumatra, *Journal of Environmental Management*, in revision.
- ❖ Taff, G.N., **Shao, Y.**, Ren, J.*, and Zhang, R.*, 2018. Remote Sensing Image Classification by Integrating Reject Option and Prior Information. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, in press.
- ❖ Jensen, C.*, McGuire, K., **Shao, Y.** 2018. Modeling headwater stream networks across multiple flow conditions in the Appalachian Highlands, *Earth Surface Processes and Landforms*, doi: 10.1002/esp.4431.
- ❖ Ren, J.*, Campbell, J.B. and **Shao, Y.**, 2017. Estimation of SOS and EOS for Midwestern US Corn and Soybean Crops. *Remote Sensing*, 9(7), p.722.
- ❖ Jin, X., **Shao, Y.**, Zhang, Z., Resler, L.M., Campbell, J.B., Chen, G., Zhou, Y., 2017. The evaluation of land consolidation policy in improving agricultural productivity in China. *Scientific Report*, 7: 2792, DOI:10.1038/s41598-017-03026-y.
- ❖ Cooper, B.*, Dymond, R., **Shao, Y.**, 2017. Impervious Comparison of NLCD versus a Detailed Dataset over Time. *Photogrammetric Engineering and Remote Sensing*, 83(6), 429-437.,
- ❖ **Shao, Y.**, R. Lunetta, J.B. Wheeler*, Iames, J., Campbell, B. 2016. Evaluating time-series smoothing algorithms for multi-temporal land cover classification. *Remote Sensing of Environment*, 174, 258–265.

- ❖ **Shao, Y.**, Taff, G.N., Ren, J.*, Campbell, J.B. 2016. Characterizing major agricultural land change trends in the Western Corn Belt. *ISPRS Journal of Photogrammetry and Remote Sensing*, 122, 116-125.
- ❖ Cooner, A.*, **Shao, Y.**, Campbell, J.B. 2016. Automatic Detection of Urban Damage Using Remote Sensing and Machine Learning Algorithms: The 2010 Haiti Earthquake. *Remote Sensing*, 8(10), 868; doi:10.3390/rs8100868.
- ❖ Ren, J.*, Campbell, J.B., **Shao, Y.** 2016. Spatial and Temporal Dimensions of Agricultural Land Use Changes, 2001-2012, East-Central Iowa. *Agricultural Systems*, 148, Pages 149-158.
- ❖ Chen, G., Glasmeier, A.k., Zhang, M., **Shao, Y.** 2016. Urbanization and Income Inequality in Post-Reform China: A Causal Analysis Based on Time Series Data. *PLoS ONE*. 11(7): e0158826. doi:10.1371/journal.pone.0158826.
- ❖ **Shao, Y.**, Li, G.L.*, Guenther, E.*, Campbell, J.B., 2015. Evaluation of topographic correction on sub-pixel impervious cover mapping with CBERS-2B data. *IEEE Geoscience and Remote Sensing letters*. DOI:10.1109/LGRS.2015.2419135.
- ❖ **Shao, Y.**, Campbell, J.B., Taff, G.N. and Zheng, B. 2015. An Analysis of Cropland Mask choice and Ancillary Data for Annual Corn Yield Forecasting using MODIS data. *International Journal of Applied Earth Observation and Geoinformation*, Volume 38, Pages 78–87, 2015.
- ❖ Wang, H.*, Shao, Y., Kennedy, L. 2014. Temporal generalization of sub-pixel vegetation mapping using multiple machine learning and atmospheric correction algorithms, *International Journal of Remote Sensing*, 35(20), 7118-7135.
- ❖ Resler, L.M., **Shao, Y.**, Tomback, D.F., Malanson, G.P., 2014. Predicting functional role and occurrence of Whitebark Pine (*Pinus albicaulis*) at alpine treelines: Model accuracy and variable importance, *The Annals of the Association of American Geographers*, vol. 104(4), 703-722.
- ❖ White, J.*, **Shao, Y.**, Kennedy, L., Campbell, J.B., 2013. Landscape Dynamics on the Island of La Gonave, Haiti, 1990–2010. *Land* 2(3):493-507.
- ❖ Zheng, B*., Campbell, J.B., **Shao, Y.**, Wynne, R.H., 2013. Broad-scale monitoring of tillage practices using sequential Landsat imagery, *Soil Society Journal*, 77 (5), 1755-1764.
- ❖ Macpherson, A.J., Principe, P.P., **Shao, Y.**, 2013. Controlling for exogenous environmental variables when using data envelopment analysis for regional environmental assessments. *Journal of Environmental Management*, 119, 220-229.
- ❖ **Shao, Y.**, R. Lunetta, A. Macpherson, G. Chen, J. Luo, 2013. Assessing sediment yield for selected watersheds in the Great Lakes Basin for future agricultural land use change scenarios, *Environmental Management*, 51:59–69.

- ❖ **Shao, Y.**, R. Lunetta, 2012. Comparison of support vector machine, neural network, and CART algorithms for the land-cover classification using limited training data points. *ISPRS Journal of Photogrammetry and Remote Sensing*, 70, 78-87.
 - ❖ **Shao, Y.**, G.N. Taff, S.J. Walsh, 2011. Shadow detection and building height estimation using IKONOS data. *International Journal of Remote Sensing*, 32, 6929-6944.
 - ❖ **Shao, Y.**, R. Lunetta, 2010. Sub-pixel mapping of tree canopy, impervious surfaces and cropland in the Laurentian Great Lakes Basin using MODIS time-series data. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 4(2), pages 336-347.
 - ❖ **Shao, Y.**, G.N. Taff, S.J. Walsh, 2010. Comparison of early stop criteria for neural network-based sub-pixel classification. *IEEE Geoscience and Remote Sensing letters*, 8(1), pages 113-117.
 - ❖ **Shao, Y.**, R. Lunetta, J. Ediriwickrema, J. Iiames, 2010. Mapping cropland and major crop types across the Great Lakes Basin using MODIS-NDVI data. *Photogrammetric Engineering and Remote Sensing*, 75(1), pages 73-84.
 - ❖ Lunetta, R., **Shao, Y.**, Ediriwickrema, J., Lyon, J.G., 2010. Monitoring agricultural cropping patterns in the Great Lakes Basin using MODIS-NDVI data. *International Journal of Applied Earth Observation and Geoinformation*, 12, pages 81-88.
 - ❖ **Shao, Y.**, S.J. Walsh, B. Entwisle, R.R. Rindfuss, 2008. Spatial clustering and urban settings of rural migrants in Bangkok, Thailand. *GeoCarto International*, 23, 1, pages 35 – 52.
 - ❖ Walsh, S.J., **Shao, Y.**, Mena, C.F., McCleary, A.L., 2008. Integration of Hyperion satellite data and a household social survey to characterize the causes and consequences of reforestation patterns in the Northern Ecuadorian Amazon. *Photogrammetric Engineering and Remote Sensing*, 74(6), pages 725-735.
 - ❖ Walsh, S.J., McCleary, A.L., Mena, C.F., **Shao, Y.**, J.P. Tuttle, A. González, and R. Atkinson, 2008. QuickBird and Hyperion data analysis of an invasive plant species in the Galapagos Islands of Ecuador: Implications for control and land use management, *Remote Sensing of Environment*, 112, 1927 – 1941.
- Student collaborator

REFEREED BOOK CHAPTERS AND COMMUNICATIONS

- ❖ Resler, L. M., **Shao, Y.**, Campbell, J.P. and Michaels, A*. 2017. Land Use Land Cover Change in the CCE 1991-2011: Implications for Mountain Sustainability, in press.

- ❖ Ferreira, G., Cayford, E.L., Feng, L.*, **Shao, Y.**, Casares, M.I. 2016. Use of satellite remote-sensing techniques to predict the variation of the nutritional composition of corn (*Zea mays* L) for silage. *Maydica*, 61.1 - M 7.
- ❖ **Shao, Y.**, Ren, J.*, Campbell, J.B. 2016. Multi-temporal remote sensing data analysis for agricultural application. In *Remote Sensing Applications for Societal Benefits* edited by Stephen J. Walsh and published by Elsevier, in press.
- ❖ Yu, Shaocai, Rohit Mathur, Jonathan Pleim, David Wong, Annmarie G. Carlton, Shawn Roselle, S.T. Rao, and **Shao, Y.**, 2011. Simulation of the Indirect Radiative Forcing of Climate Due to Aerosols by the Two-Way Coupled WRF-CMAQ over the Eastern United States, *NATO Science for Peace and Security Series C: Environmental Security*, 2012, 4, Part 5, 579-583.
- ❖ **Shao, Y.**, G.N. Taff, R. Lunetta, 2011. A review of selected MODIS algorithms, data products, and applications, in *Advances in Environmental Remote Sensing: Sensors, Algorithms, and Applications* – edited by Qihao, Weng and published by CRC/Taylor and Francis, pages 31-55.

GRANTS AND AWARDS

- ❖ **Shao, Y.** 2018-2019. An online Participatory Geographic Information System (GIS) for the Cit-egration project, funded by the Norwegian Research Council and The Norwegian Institute of Bioeconomy Research. \$11,500.
- ❖ Walsh, S.J. (PI), Bilborrow, R.E. (Co-PI), Brewington, L., **Shao, Y.**, Mattei, H. (collaborators), 2017-2020. Synthesis of Drivers and Patterns of LCLUC in Island Ecosystems, National Aeronautics and Space Administration, \$720,000.
- ❖ **Shao, Y.** 2015-2018. Use of remote sensing for increased precision in forage production, the Norwegian Research Council and Fram Centre. \$22,000.
- ❖ Resler, L. (PI) and **Shao, Y.** (Co-PI). Assessing Functional Role and Community Dynamics of Whitebark Pine at Alpine Treeline, Grand Tetons National Park. 2015 University of Wyoming NPS Research Station Proposal. \$5,000.
- ❖ International Travel Supplemental Grant (ITSG) Award, Virginia Tech, 2016
- ❖ Recipient of scholarship for Agro-geoinformatics conference and summer school, Shanghai, China, 2012.
- ❖ Recipient of Mentoring Project Award, Virginia Tech, 2012
- ❖ Outstanding Faculty Award, College of Natural Resources and Environment (nominated by students and student clubs and organizations), Virginia Tech, April 2014.
- ❖ Scientific and Technological Achievement Award (STAA), United States Environmental Protection Agency, 2011.

- ❖ National Research Council Fellowship, 2007-2010.

TEACHING

COURSES TAUGHT (VIRGINIA TECH)

- ❖ Geog 4084/5084G, Modeling with GIS
- ❖ Geog4984/5984G, R Programming for Geospatial Research
- ❖ Geog4334/5334G, Land change modeling
- ❖ Geog4374/5374G, Remote Sensing and Phenology
- ❖ NR6104G, Advanced Topics in Remote Sensing

COURSES TAUGHT (UNC-CHAPEL HILL)

- ❖ Geog370, Introduction to GIS, Department of Geography, UNC-Chapel Hill

THESIS/DISSERTATION COMMITTEE CHAIR

- ❖ Heng Wan, PhD student, current
- ❖ Alexander Rosenman, MS student, current
- ❖ Callie Lambert, MS student, current (co-chair with Lynn Resler)
- ❖ Ruoyu Zhang, MS, 2018
- ❖ Andy Skeen, MS, 2017
- ❖ Austin Cooner, MS, 2016
- ❖ Leyang Feng, MS, 2015
- ❖ Brandon Wheeler, MS, 2015
- ❖ Suwen Zhao, MS, 2015
- ❖ Haitao Wang, MS, 2014 (co-chair with Lisa M. Kennedy)
- ❖ Justin White, MS, 2012 (co-chair with Lisa M. Kennedy)

PROFESSIONAL SERVICES

REVIEWER FOR JOURNALS

Agricultural Systems
Agricultural and Forest Meteorology
Applied Geography
Canadian Journal of Remote Sensing
Geocarto International
Environmental Monitoring and Assessment
Environmental Science & Technology
Geography Journal
GIScience & Remote Sensing
Global and Planetary Change
ISPRS Journal of Photogrammetry & Remote Sensing
International Journal of Remote sensing
IEEE Geoscience and Remote Sensing Letters
IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing
International Journal of Applied Earth Observation and Geoinformation
International Journal of Digital Earth
Journal of the American Water Resources Association

Journal of Urban Planning and Development
Plant Ecology
Photogrammetric Engineering & Remote Sensing
Progress in Physical Geography
Remote Sensing of Environment
Remote Sensing
Scientific Reports
Scientific Data
Landscape and Urban Planning