Guofan Shao, Ph.D.
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Department of Forestry and Natural Resources
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Academic Preparation

1991-1994: Post-Doc Education, GIS, Department of Environmental Sciences, University of Virginia
1986-1989: Ph.D., Ecological Modeling, Institute of Applied Ecology, Chinese Academy of Sciences
1982-1985: M.A., Forest Mensuration, Northeastern Forestry University, China
1978-1982: B.A., Forestry, Northeastern Forestry University, China

Technical Certifications

ENVI Introduction. Research Systems Inc (RSI). Indianapolis, Jan. 2005
Advanced ArcGIS. Environmental Systems Research Institute (ESRI), Indianapolis, 2004
IMAGINE Essentials, Advantage, and Professional. ERDAS, Atlanta, July 1997
ArcView and Programming with Avenue. ESRI, Charlotte, NC, 1996
Using GRID of ARC/INFO. ESRI, Washington, D. C., 1995
Programming ecological models, Terrestrial Ecology, United Kingdom, 1988
Spatial data modeling and cartographic programming with ARC/INFO. ESRI, Germany, 1988

Professional Working Experience

Jul. 08 - Present: Professor, Department of Forestry and Natural Resources, Purdue University
Jun. 05 - Aug. 05: Summer Research Fellow, John Kennedy Space Center, NASA
Jul. 02 - Jul. 08: Assoc. Prof., Department of Forestry and Natural Resources, Purdue University
Jan. 97 - Jun. 02: Assist. Prof., Department of Forestry and Natural Resources, Purdue University
Feb. 94 - Dec. 96: Res. Scientist, Department of Environmental Sciences, University of Virginia
Jun. 89 - Dec. 90: Research Assistant, Institute of Applied Ecology, Chinese Academy of Sciences

Associate Editor (in Charge of Remote Sensing)

Journal of Forestry Research (Springer) (2013-Present)
International journal of sustainable development & world ecology (Taylor & Francis) (2012-Present)

Remote Sensing Expertise

Technological: Satellite Remote Sensing, Photogrammetry, Lidar, Drone Remote Sensing
Applicational: Landscape Mapping, Vegetation Assessment, Biodiversity Monitoring
Analytical: Image Data Classification, Accuracy Assessment, Change Detection Error Propagation
Regular Remote Sensing Courses Taught Every Year Since 1997:

FNR 35700: Fundamental Remote Sensing, 3 credits, campus wide
FNR 55800: Remote Sensing Analysis and Applications, 3 credits, campus wide
FNR 37010: Summer Practicum on GPS, Topo Maps, and Aerial Photographs, 1 credit, FNR only

Five Synergistic Activities

- Dr. Shao organized a transatlantic multi-university remote sensing education project funded by the US department of Education in 1998-2000.
- Dr. Shao was invited to participate in an international gap-model workshop funded by GCTE, IGBP, NSF, and USDA Forest Service in 1999, remote sensing and GIS accuracy assessment symposium funded by EPA in 2001, and NASA's national workforce development education and training initiative meetings in 2002 and 2003.
- Dr. Shao jointly initiated the concept of and co-authored the first paper on digital forestry in 2006 and the first paper on landsenses ecology in 2016.
- Dr. Shao jointly invented AI-based tree survey methodology with engineering researchers in 2019.
- Dr. Shao was an invited author for two remote sensing chapters for the Encyclopedia of Environmetrics in 2012 and 2016, an optical remote sensing chapter for International Encyclopedia of Geography in 2014 and 2019, and three remote sensing review papers for Journal of Forestry Research in 2015, 2017, and 2020.

Selected 10 Journal Papers or Book Chapters (out of 184) (H-Index = 35)

Sun, L., L.N. Tang, G.F. Shao, Q.Y. Qiu, T. Lan, J.Y. Shao. 2020. A machine learning-based classification system for urban built-up areas using multiple classifiers and data sources. *Remote Sensing* 12, 91; doi:10.3390/rs12010091

Shao, G.F., L.N. Tang, J.F. Liao. 2019. Overselling overall map accuracy misinforms about research reliability. *Landscape Ecology* 34(11): 2487–2492.

Shao, G.F. 2019. Optical remote sensing. In: *International Encyclopedia of Geography: People, the Earth, Environment, and Technology*. D. Richardson (ed.). Wiley & Sons, Inc., P2390–2395.

Shao, G., G.F. Shao, J. Gallion, M.R. Saunders, J.R. Frankenberger, S.L. Fei. 2018. Improving lidar based forest aboveground biomass estimation with the regard to site productivity in temperate hardwood forests. *Remote Sensing of Environment* 204: 872–882.

Chen, X., G. Zhou, Y. Chen, G. Shao, Y. Gu. 2017. Supervised multiview feature selection exploring homogeneity and heterogeneity with ℓ1,2-norm and automatic view generation. *IEEE Transactions on Geoscience and Remote Sensing* 55(4): 2074–2088.

Tang, L.N., G.F. Shao. 2015. Drone remote sensing for forestry research and practices: a review. *Journal of Forestry Research* 26(4): 791–797. DOI 10.1007/s11676-015-0088-y

Li. C.G., G.F. Shao. 2011. Object-oriented classification of land use/cover using digital aerial orthophotograpghy. *International Journal of Remote Sensing*. 33 (4): 922–938.

Shao, G.F., J.G. Wu. 2008. On the accuracy of landscape pattern analysis using remote sensing data. *Landscape Ecology* 23: 505–511.

Shao, G.F., B.W. Duncan. 2007. Effects of band combinations and GIS masking on fire-scar mapping at local scales in East-Central Florida, USA. *Canadian Journal of Remote Sensing* 33 (4): 250–259.

Zhao, G., G.F. Shao, K. Reynolds, M. Wimberly, T. Warner, J. Moser, K. Rennolls, S. Magnussen, M. Koehl, H. Anderson, G. Mendoza, L. Dai1, A. Huth, L. Zhang, J. Brey, Y. Sun, R. Ye, B. Martin, F. Li. 2005. Digital Forestry: A White Paper. *Journal of Forestry* 103 (1): 47–50.