

DI YANG

Wyoming Geographic Information Science Center
University of Wyoming
Department 4008, 1000E, University Avenue
Wyoming, WY 82070 USA
Phone: (361) 228-2913
Email: dyang1@uwyo.edu
Web: www.dr-diyang.com

AREAS OF SPECIALIZATION AND INTERESTS

Remote sensing applications on human-environment interactions, Geospatial analytics, digital image processing, machine learning and GeoAI, citizen science, cloud-based big data analysis and management, land change science.

EDUCATION

Ph.D. *2013 - 2019*

University of Florida

Major: Geography, Department of Geography.

Minor: Forest Resources and Conservation, School of Forest Resources & Conservation

Certificate: Tropical Conservation & Development (TCD)

Dissertation: Forest Mosaics: Spatial Forest Management Patterns from Stands to Regional Scales in Southeastern U.S. Coastal Plain and Piedmont

M.S. *2011 - 2013*

Texas A&M University - Kingsville

Major: Environmental Engineering, Department of Environmental Engineering.

Thesis: MODIS-Landsat Data Fusion for Estimating Vegetation Dynamics-A Case Study for Two Ranches in West Texas

B.S. *2007 - 2011*

Liaoning University of Petroleum and Chemical Technology

Major: Environmental Science

EXPERIENCE

Assistant Professor *2020 - Present*

Wyoming Geographic Information Science Center (WyGISC), University of Wyoming

Postdoctoral Research Associate *2019 - Present*

Spatial Analysis Lab, Montana Natural Heritage Program, University of Montana.

- Develop methods for measuring biodiversity indicators using Airborne Observatory Platform datasets. (NSF #1703062)

- Build a Geographical Information System that combines NEON site-level biodiversity products with additional ground-based occurrence datasets and satellite observations.
- Develop an optimized framework for spectral and structural variation metrics for predicting baseline biodiversity attributes

Microsoft Azure AI Compute Grant Team Leader

2019 - Present

CitizenScaping: Linking People and Pixel Using Artificial Intelligence. Microsoft.

- Apply AI to automatically classify land management practices at the regional and continental scale by incorporating citizen science with earth observations
- Develop a multitemporal land-use mapping framework by Ag-Analytics API
- Develop an online end-to-end data platform for interactions with end-users

Instructor/Teaching Assistant

2016 - 2019

GEO 2422 - Extreme Weather, GEA 3600 - Geography of Africa, GEO 2200 - Physical Geography, Department of Geography, University of Florida.

Dean's Research Assistant

2015 - 2016

Department of Geography, University of Florida.

- Worked closely with UF-Geography Faculty, the Land Use and Environmental Change Institute (LUECI) and the other Departments to promote research collaborations.

Microsoft Azure AI Research Awardee

2015 - 2016

Climate Data Initiative: Monitor and Query Climate Effects on Vegetation Changes Using Data Fusion Methods. Microsoft.

- Designed a MapReduce remote sensing data fusion algorithm
- Applied the data fusion algorithm in building a high spatio-temporal resolution earth observation dataset
- Developed a user-friendly cloud-based query system to map and retrieved vegetation changes and disturbances

Research Assistant

2013 - 2015

NSF Macrosystems Biology Project: Building forest management into Earth system modeling: Scaling from stand to continent. EF #1241860. Department of Geography, University of Florida.

- Analyzed forest disturbance detection using satellite imagery and various change detection algorithms, which resulted in new hypotheses about regional-level processes

Teaching Assistant

2012 - 2013

Co-Instructor of Course Even 6329 - Environmental Monitoring and Measurements, Department of Environmental Engineering, Texas A&M University - Kingsville.

Research Assistant

2011 - 2012

Department of Environmental Engineering, Texas A&M University - Kingsville.

- Developed a multi-sensor satellite data fusion algorithm for combining MODIS and Landsat and collaborated with Texas A&M University Wildlife Department focusing on remote sensing data fusion applications on monitoring vegetation dynamics on Texas ranches.

GRANTS

2019	Azure Compute Credit Grant , Microsoft	\$15,000
2019	NEON Summit Travel Grant , National Science Foundation	\$658
2019	University of Florida Open Access Publishing Fund (UFOAP)	\$1,500
2018	Graduate School Doctoral Dissertation Award , University of Florida	\$9,000
2013-2018	Graduate Student Geography Department Travel Grant	\$1,200
2015-2018	Graduate Student Council Travel Grant , University of Florida	\$1,050
2017	Digital Globe Imagery Research Grant	Unlimited Data Access
2017	Land Use and Environmental Change Institute (LUECI) Travel Grant , University of Florida,	\$900
2017	Office of Research Travel Grant , University of Florida	\$400
2015-2016	Microsoft Azure Research Award , Microsoft	\$20,000
2013-2015	College of Liberal Arts and Sciences Doctoral Fellowship , University of Florida	\$12,000

AWARDS

2020	NEON Early Career Award , NEON	\$1,500
2018	Ary Lamme Service to Geography Awards , University of Florida	\$500
2018	Top Student Research Articles in Geographic Techniques , University of Florida	\$500
2018	NASA-MSU Professional Enhancement Award	\$620
2017	Annual Best Paper Award , Transactions of the Chinese Society of Agricultural Machinery	
2017	Best Paper Award in Geospatial Analysis and Techniques , University of Florida	\$150
2013	Outstanding Master Thesis Award , Texas A&M University-Kingsville	\$500
2011-2012	Merit Scholarship , Frank H. Dotterweich College of Engineering, Texas A&M University-Kingsville	\$1,000
2012	1st Prize in the 4th Annual Javelina Symposium, Texas A&M University-Kingsville	\$500

PUBLICATIONS UNDER REVIEW/ IN PREP

Yang D, Binford M, Waylen P. Mapping Regional Forest Management Units: A Road-based Framework in Southeastern U.S. Coastal Plain and Piedmont. *Forest Ecology and Management*. Under Review

Yang D, Binford M. Linking Forest Management to Surrounding Lands: A Citizen-Based Approach Towards the Regional Understanding of Land-Use Transitions. *Frontiers in Ecology and the Environment*. In Prep

Huang TK, Wan H, **Yang D**. Telecoupled Payments for Ecosystem Services Can Address International Impediments to the Conservation of Migratory Species: A Case Study of Endangered Black-faced Spoonbill. *Conservation Biology*. Under Review

Li Y, Cao G, **Yang D**. A Novel Active Contour Model via Optimal Transport Theory for Image Segmentation. *Pattern Recognition*. Under Review

BOOK CHAPTER

Yang D. Mapping Regional Landscape by Using OpenStreetMap (OSM): A Case Study to Understand Forest Patterns in Maya Zone, Mexico. *Volunteered Geographic Information and the Future of Geospatial Data*, February 2017, 138-157; IGI-Global., ISBN: 9781522524465, DOI:10.4018/978-1-5225-2446-5.

PUBLICATIONS

Merz L, **Yang D**, Hull V. A Metacoupling Approach to Watershed Management: The Case of an Irrigation Project in the Transnational Limpopo River Watershed. *Sustainability*. 2020, 12(5):1879. DOI: 10.3390/su12051879

Herrero H, Waylen P, Southworth J, Khatami R, **Yang D**, Child B. A Healthy Park Needs Healthy Vegetation: The Story of Gorongosa National Park in the 21st Century. *Remote Sensing*. 2020, 12(3):476. DOI: 10.3390/rs12030476.

Yang D, Wan H, Huang TK, Liu J. The Role of Citizen Science in Conservation Under the Framework of Telecoupling. *Sustainability*. 2019, 11; 1108. DOI: 10.3390/su11041108

Kapsar K, Hovis C, Silva R, Buchholtz E, Carlson A, Dou Y, Du Y, Furumo P, Li Y, Torres A, **Yang D**, Wan H, Zaehring J, Liu J. Telecoupling Research: The First Five Years. *Sustainability*. 2019, 11(4): 1033. DOI: 10.3390/su11041033

Yang D, Yang A, Qiu H, Zhou Y, Herrero H, Fu C-S, Yu Q, Tang J. A Citizen-Contributed GIS Approach for Evaluating the Impacts of Land Use on Hurricane-Harvey-Induced Flooding in Houston Area. *Land*. 2019; 8(2):25. DOI: 10.3390/land8020025

Yang D, Fu C, Smith A, Yu Q. Open Land-Use Map: A Regional Land-Use Mapping Strategy for Incorporating OpenStreetMap with Earth Observations. *Geo-Spatial Information Science*. 20(3): 269-281, 2017. DOI: 10.1080/10095020.2017.1371385

Marsik M, Staub CG, Kleindl WJ, Hall J, Fu C, **Yang D**, Stevens FR, Binford MW. Regional-scale management maps for forested areas of the Southeastern United States and the US Pacific Northwest. *Nature Scientific Data*. 2018 Aug 28; 5:180165. DOI:10.1038/sdata.2018.1651

Yang D, Su H, Yong Y. MODIS-Landsat Data Fusion for Estimating Vegetation Dynamics-A Case Study for Two Ranches in Southwestern Texas. In *Proceedings of the 1st Int. Electron. Conf. Remote Sens.*, Sciforum Electronic Conference Series, Vol. 1, 2015, d016; DOI: 10.3390/ecrs-1-d016

Yu Q, Jiang Q, **Yang D**, Yue D *et al.* Incorporating Temporal and Spatial Variations of Groundwater into Constructing Water-based Ecological Network: A Case Study in Deng Kou County. *Water*, 2017, 9(11): 864. DOI: 10.3390/w9110864

Cao G, Chu Y, **Yang D**, Southworth J. A New Different Image Creation Methods Based on Deep Neural Networks for Change Detection. *International Journal of Remote Sensing*. 38(23): 7161-7175, 2017. DOI: 10.1080/01431161.2017.1371861

Wang G, Qiang Y, **Yang D**, Zhang Q, Yue D, Liu J. Hierarchical Ecological Network Structure Based on Complex Network Analysis. *Nongye Jixie Xuebao/Transactions of the Chinese Society of Agricultural Machinery* 07/2019; 50(7):258-265. DOI: 10.6041/j.issn.1000-1298.2019.07.028

Su K, Yu Q, Yang D, Zhang Q, Yang L, Sun X. Simulation of Forest-Grass Ecological Network Based on Multi-scene Model in Typical Desert-Oasis Ecotone. *Nongye Jixie Xuebao/Transactions of the Chinese Society of Agricultural Machinery* 07/2019

Liu J, Zhang Q, **Yang D**, Yue D, Yu Q, Lan Y. Simulation of Ecological Land Transition in Baotou City Based on MCR-ANN-CA Model. *Nongye Jixie Xuebao/Transactions of the Chinese Society of Agricultural Machinery* 02/2019; 50(2):187-194. DOI: 10.6041/j.issn.1000-1298.2019.02.021

Zhu J, Yu Q, **Yang D**, Xu C, Yue D, Chen X. Extraction and Optimization of Microscopic Image Vein Network Based on eCognition Software. *Nongye Jixie Xuebao/Transactions of the Chinese Society of Agricultural Machinery* 01/2019; 50(1):51-57. DOI: 10.6041/j.issn.1000-1298.2019.01.005

Zhu J, Yu Q, **Yang D**, He W, Xu C, Kong X. Ecological Balance of Leaf Ecological Characteristics and Their Correlation to Thermal Effects of Underlying Surfaces. *Nongye Jixie Xuebao/Transactions of the Chinese Society of Agricultural Machinery* 11/2018; 49(11):201-209. DOI: 10.6041/j.issn.1000-1298.2018.11.024

Zhang L, Yue D, **Yang D**, Luo Z, Xu Y, Yu Q. GIS Design and Experiment of Soil Erosion Intensity Calculating Based on Hadoop. *Nongye Jixie Xuebao/Transactions of the Chinese Society of Agricultural Machinery* 09/2018; 49(9):160-165. DOI: 10.6041/j.issn.1000-1298.2018.09.019

Huang Y, Yue D, **Yang D**, *et al.* Simulation of Heat Island Based on Data Assimilation and CA Model in Baotou City. *Resources Science*, 2017, 39(11):2197-2207. DOI: 10.18402/resci.2017.11.01

Ma H, Yue D, **Yang D**, Zhang Q, Huang Y. Interpolation of Groundwater Depth based on Data Assimilation. *Nongye Jixie Xuebao/Transactions of the Chinese Society of Agricultural Machinery* 04/2017; 48(4):206-214. DOI: 10.6041/j.issn.1000-1298.2017.04.027

Yu Q, Yue D, **Yang D**, H. Ma, Zhang Q. Layout Optimization of Ecological Nodes Based on BCBS Model. *Nongye Jixie Xuebao/Transactions of the Chinese Society of Agricultural Machinery* 12/2016; 47(12):330-336. DOI: 10.6041/j.issn.1000-1298.2016.12.041

Yu Q, Yue D, **Yang D**, Zhang Q, Ma H, Li Y. Simulation on Ecological Land Use Expansion Based on EnKF-MCRP Model. *Nongye Jixie Xuebao/Transactions of the Chinese Society of Agricultural Machinery* 06/2016; 47(9):285-293., DOI: 10.6041/j.issn.1000-1298.2016.09.039. (Annual Best Paper Award)

TEACHING EXPERIENCE

Extreme Weather (GEO 2242)

- Introduced climatology with a focus on extreme events and climate variability. Responsible for all aspects of the course, University of Florida.
- Average enrollment: 140.

Physical Geography (GEO 2200)

- Instructor of both online and in-class covering all aspects of physical geography. Responsible for all aspects of the course (online exams, quizzes, assignments, grading).
- Developed online teaching modules and designing an interactive discussion forum. Average enrollment: in-class, 40; online, 100.

Geography of Africa (GEA 3600)

- Instructor of the online course.
- Developed the online course framework.
- Grader of all exams, scientific essays and quizzes.
- Average enrollment: 170.

Instructor, nation-wide workshop “Working with NEON Field and Airborne Observatory Platform (AOP) Data to Map Biodiversity”, Swarthmore College, Swarthmore, Pennsylvania. Enrollment: 21; October 16-18, **2019**

- Designed and created tutorials for introducing early NEON science
- Developed a geovisualization framework for displaying the LiDAR dataset with fieldwork samples
- Designed and wrote the tutorials for teaching undergraduate how to map forest biodiversity based on remotely sensed data

Organizer, lecturer and facilitator, campus-wide workshop “Google Earth Engine JavaScript API for Remote Sensing in Geographic Applications”, University of Florida, Gainesville, Florida. Enrollment: 45; October 26, **2017**

- Designed and created tutorials and gave presentations for introducing Google Earth Engine by using API JavaScript.
- Made applied research methods accessible to a broad audience through outreach, social media, and other mixed media outlets
- Promoted the academic communications of remote sensing related departments.

INVITED TALKS

February 2020, Yang D. Spatial Vegetation Biodiversity Patterns from Stands to Regional Scales in Eastern United States. Systems Ecology Seminar. University of Montana, Missoula

February 2019, Yang D. Application of Remote Sensing Techniques to Petroleum Exploration. National Institute of Technology of Mexico, Coahuila, Mexico.

February 2017, Yang D. Forest Mosaics: Spatial Forest Management Patterns from Stands to Regional Scales in Southeastern U.S. Coastal Plain and Piedmont. Department of Geography Colloquium, University of Florida.

October 2013, Yang D. MODIS-Landsat Data Fusion for Estimating Vegetation Dynamics. Department of Geography Colloquium, University of Florida.

CONFERENCE PRESENTATIONS

Yang D, Mitchell J, Glenn N. Spatial Vegetation Diversity Patterns from Stands to Regional Scales Incorporating Airborne Observatory Platform (AOP) Datasets with Satellite Data in Northeastern U.S. 2019 AGU Annual Meeting, San Francisco, United States. December 9th – 13th, 2019

Stoy P, Kleindl W, Binford M, Desai A, Dietze M, Duffy P, Fu C, Rollinson C, Schultz C, Starr G, Marsik M, **Yang D**, Staudhammer. Integrating Management into Models of Forest Function at Local to Continental Scales. 2019 12th North American Forest Ecology Workshop, Flagstaff, Arizona, United States, June 23rd -27th, 2019

Marsik M, Staub C, Kleindl W, Hall J, Fu CS, **Yang D**, Stevens F, Binford M. Regional-scale Management Maps for Forested Areas of the Southeastern United States and the U.S. Pacific Northwest. 2019 AAG Annual Meeting, Wethington D.C. United States. April 3rd -7th, 2019

Fu C, **Yang D**, Binford M. Characterizing Forest Disturbance Regimes: Impact Assessment of Management in US Forests. 2019 AAG Annual Meeting, Wethington D.C. United States. April 3rd -7th, 2019

Yang D, Fu C, Binford M. Linking Forest Management to Surrounding Lands: A Citizen-Based Approach Towards the Regional Understanding of Land-Use Change. 2018 AGU Annual Meeting, Washington D.C. United States. December 10th - 14th, 2018

Fu C, **Yang D**, Binford M. The Role and Impact of Land Ownership on Forest Disturbance in the Southeastern United States. 2018 AGU Annual Meeting, Washington D.C. United States. December 10th -14th, 2018

Staudhammer C, Binford M, Desai A, Dietze M, Duffy P, Fu C, Klendl W, Rollinson C, Schultz C, Marsik M, Starr G, Stoy P, **Yang D**. The Future of US Forest Function under Changing Climate, Disturbance, and Forest Management. 2018 AGU Annual Meeting, Washington D.C. United States. December 10th - 14th, 2018

Yang D, Yang A, Qiu H, Fu C, Binford M. Contributions of Citizen Science to Regional Landscape Ecology: The Impact of Land-Use on Flooding Due to Hurricane Harvey. 2018 US-IALE Annual Meeting, Chicago, Illinois, United States. April 9th - 13th, 2018

Yang D, Fu C, Binford M. Open Land-Use Map: A Regional Mapping Strategy for Incorporating OpenStreetMap with Earth Observations. 2017 AGU Annual Meeting, New Orleans, Louisiana, United States. December 11th - 15th, 2017.

Yang D, Fu C, Binford M. Design and Implementation of a Self-Supervised Cloud Computing Framework to Link Forest Management to Surrounding Lands. 2017 US-IALE Annual Meeting, Baltimore, United States. April 9th - 14th, 2017.

Yang D, Marsik M, Fu C, Ozdes M, Smith A, Binford M. Design and Implementation of a Self-Supervised Cloud Computing Framework to Link Forest Management to Surrounding Lands. 2017 AAG Annual Meeting, Boston, United States. April 5th - 9th, 2017.

Binford M, Marsik M, Fu C, **Yang D**. Mapping the Distribution and Spatial Characteristics of Forest Management in Two Major Forested Areas of the USA. 2017 AAG Annual Meeting, Boston, United States. April 5th - 9th, 2017.

Ozdes M, Smith A, **Yang D**, Southworth J. Evaluation of Vegetation Change in Kruger National Park Using a Markov Chain Monte Carlo Model. 2017 AAG Annual Meeting, Boston, United States. April 5th - 9th, 2017.

Smith A, **Yang D**, Ozdes M, Southworth J. Vegetation Dynamics and Undernutrition: A Spatiotemporal Analysis of NDVI and Child Stunting in Zambia. 2017 AAG Annual Meeting, Boston, United States. April 5th - 9th, 2017.

Yang D, Ozdes M, Smith A, Binford M. Open Source Land-Use Mapping: A Strategy for the Southeastern U.S. Coastal Plain and Piedmont. Southeastern Division of the Association of American Geographers Annual Meeting. November 21st, 2016, Columbia, USA.

Marsik M, Binford M, Fu. C, **Yang, D**, Staub C, Hall J. Mapping Forest Management at Regional Scales in the Southeast U.S. AAG Annual Meeting. March 29th - April 2nd, San Francisco, USA.

Yang D, Marsik M, Fu. C, Hall J, Binford M. Estimating Forest Management Units from Road Network Maps in the Southeastern U.S. AGU Annual Meeting. December 13th - 19th, 2015, San Francisco, USA. Poster

Yang D, Stevens F, Staub C, Hall J, Binford M. How smoothing Affects Disturbance Detection in Decomposed MODIS Time Series? AAG Annual General Meeting. April 8th - 12th, 2014, Tampa, Florida, USA. Poster

Yang D, Su H. MODIS-Landsat Data Fusion for estimating Vegetation Dynamics-A Case Study for Two Ranches in West Texas, 14th Annual CREST-RESSACA Environmental and Energy Sustainability Conference", April 26th - 27th, 2012, Houston, Texas. Poster

WORKSHOPS

NEON Summit, Earth Lab, University of Colorado Boulder, Boulder, Colorado. Enrollment:172; October 15-16, **2019**

Sharing Across Scales in Citizen Science and Crowdsourcing, Wilson Center, Washington D.C. Enrollment: 120; December 14, **2018**

SERVICE

Reviewer: Sustainability	<i>2020 - Present</i>
Reviewer: Science of the Total Environment	<i>2019 - Present</i>
Reviewer: University of Florida-IFAS Extension Administration	<i>2019 - Present</i>
Reviewer: Ecological Applications	<i>2019 - Present</i>
Reviewer: Applied Sciences	<i>2019 - Present</i>
Reviewer: Water	<i>2019 - Present</i>
Reviewer: International Journal of Environmental Research and Public Health	<i>2019 - Present</i>
Reviewer: The Egyptian Journal of Remote Sensing and Space Sciences	<i>2019 - Present</i>
Reviewer: ISPRS International Journal of Geo-Information	<i>2019 - Present</i>
Grant Reviewer: Graduate Student Council, University of Florida	<i>2018</i>
APN (Asia-Pacific Network for Global Change Research) External Reviewer	<i>2018</i>
Reviewer: Remote Sensing Letters	<i>2018 - Present</i>
Book Reviewer: Volunteered Geographic Information and the Future of Geospatial Data	<i>2017</i>
Reviewer: International Journal of Remote Sensing	<i>2015 - Present</i>
Judge: Outstanding Student Paper Award - American Geophysics Union	<i>2019</i>
Geography Department Graduate Student Representative, University of Florida	<i>2017 - 2018</i>
Volunteer: American Association of Geographers Annual Meeting, Boston, Massachusetts.	<i>2016</i>
Chinese Students Association - President, Texas A&M University - Kingsville	<i>2012 - 2013</i>
Volunteer: 9 th Annual Pathways Student Research Symposium. College Station, Texas.	<i>2011</i>

TECHNICAL EXPERTISE

- Programming/Software: MATLAB, R, JavaScript, ArcGIS, IDL
- Data Visualization: MATLAB, ArcMap, Google Earth Engine, ENVI, Tableau, JMP
- Web Design: HTML, CSS, JavaScript

PROFESSIONAL ORGANIZATIONS

- Institute of Electrical and Electronics Engineers (IEEE)
- Regional Association of the International Association for Landscape Ecology (US-IALE)
- American Geophysical Union (AGU)
- American Academy of Environmental Engineers and Scientists (AAEE)

LANGUAGES

- Chinese (native proficiency)
- English (full professional proficiency)
- Spanish (minimum professional proficiency)