Curriculum Vitae

Notarization. I have read the following and certify that this *curriculum vitae* is a current and accurate statement of my professional record.

Signature *Weishu Gong* Date 08/10/2024

In general, do not list a work or activity more than once.

I. Personal Information

wsgong@umd.edu
4600 River Road, Suite 300, Riverdale, MD 20737
(send mail to 2181 LeFrak, University of Maryland, College Park, MD 20742)
Department of Geographical Sciences.
https://scholar.google.com/citations?hl=en&user=wBtEUnIAAAAJ

I.A. Academic Appointments at UMD

Assistant Research Professor *July.2024—Present*
Department of Geographical Sciences
Post-Doctoral Associate *Jun. 2022—Jun.2024*
Department of Geographical Sciences
Faculty Assistant *Jan. 2022—May. 2022*
Department of Geographical Sciences
Graduate Research Assistant *Sep. 2019—Dec. 2021*
Department of Geographical Sciences
Teaching Assistant *for MPS GIS Program* *Jan.2018—Aug.2019*
Department of Geographical Sciences
Graduate Research Assistant *Jun. 2016—Dec. 2017*
Department of Geographical Sciences
Graduate Teaching Assistant *Sep. 2015—May. 2016*
Department of Geographical Sciences

I.B. Administrative Appointments at UMD

None

I.C. Other Employment

Research Associate *Jul. 2013—Jul. 2015*
Center for Spatial Information Science and Systems, George Mason University
Graduate Research Assistant *Sep. 2011—May. 2013*
Department of Civil, Environmental and Geodetic Engineering, Ohio State University
Intern *Jan.2011—Jul.2011*
ERDAS, Inc. (now part of Hexagon AB)

I.D. Educational Background

Doctor of Philosophy, Geographical Sciences *Dec. 2021*
University of Maryland, College Park, MD
Doctoral Dissertation: *Fine Resolution Assessment of the Carbon Fluxes from Contemporary Forest Dynamics*
Master of Science, Geodetic Science *May. 2013*
The Ohio State University, Columbus, OH

Master Thesis: *Potential of MSL rover location compared with MER*
Bachelor of Science, GIS and Computer Cartography *Dec. 2010*
University of Maryland, College Park, MD
Undergraduate Student, *Sep. 2006—Jun.2007*
Remote Sensing Science &Technology
Wuhan University, Wuhan, Hubei, China
Transferred to University of Maryland in Sep. 2007

II. Research, Scholarly, Creative and/or Professional Activities

Research Interests:
Remote Sensing
Forest Disturbance Monitoring
Carbon Budget Model
Land Use/Land Cover Change

II.A. Books *(Include full citation information and ISBN)*
None

II.B. Chapters
None

II.C. Refereed Journals

II.C.1. Refereed Journal Articles

Zhenhua Zou, Chengquan Huang, Megan W Lang, Ling Du, Greg McCarty, Jeffrey C Ingebritsen, Jane Harner, Rusty Griffin, **Weishu Gong,** Jiaming Lu. (2024). Hotspots of wetland loss to impervious surfaces in the conterminous United States. *Science of The Total Environment*, 174787.

Gong, W., Huang, C., Zhao, F., & Lu, J. (2024). Estimation of annual harvested wood products based on remote sensing and TPO survey data. *Geo-spatial Information Science*, 1-13.

Chen, B. Y., Liu, Q., **Gong, W.**, Tao, J., Chen, H. P., & Shi, F. R. (2024). Evaluation of energy-environmental-economic benefits of CNG taxi policy using multi-task deep-learning-based microscopic models and big trajectory data. *Travel Behaviour and Society*, *34*, 100680.

Teng, W., Chen, B. Y., Lam, W. H., **Gong, W.**, Shi, C., & Tam, M. L. (2023). Bi-objective reliable eco-routing considering uncertainties of travel time and fuel consumption. *Transportmetrica B: Transport Dynamics*, *11*(1), 1071-1091.

Wang, S., Fang, L., **Gong, W.**, Wang, W., & Tang, S. (2023). Retrieval of Aerosol Optical Depth and FMF over East Asia from Directional Intensity and Polarization Measurements of PARASOL. *Atmosphere*, *15*(1), 6.

Zou, Z., Huang, C., Lang, M. W., Du, L., McCarty, G., Ingebritsen, J. C., Herold, N., Griffin, R., **Gong, W.**, & Lu, J. (2023). Use of High-Resolution Land Cover Maps to Support the Maintenance of the NWI Geospatial Dataset: A Case Study in a Coastal New Orleans Region. *Remote Sensing*, *15*(16), 4075.

Chang, X., Xing, Y., **Gong, W.**, Yang, C., Guo, Z., Wang, D., ... & Yang, S. (2023). Evaluating gross primary productivity over 9 ChinaFlux sites based on random forest regression models, remote sensing, and eddy covariance data. *Science of The Total Environment*, *875*, 162601.

Chang, X., Wang, D., Xing, Y., Wang, J., &**Gong, W.** (2023). Dynamic Responses of Landscape Pattern and Vegetation Coverage to Urban Expansion and Greening: A Case Study of the Severe Cold Region, China. *Forests*, *14*(4), 801.

Wang, S., **Gong, W.,** Fang, L., Wang, W., Zhang, P., Lu, N., ... & Sun, X. (2022). Aerosol Retrieval over Land from the Directional Polarimetric Camera Aboard on GF-5. *Atmosphere, 13*(11), 1884.

Fang, L., Hasekamp, O., Fu, G., **Gong, W.,** Wang, S., Wang, W., ... & Tang, S. (2022). Retrieval of Aerosol Optical Properties over Land Using an Optimized Retrieval Algorithm Based on the Directional Polarimetric Camera. *Remote Sensing, 14*(18), 4571.

Chang, X., Xing, Y., Wang, J., Yang, H., & **Gong, W.** (2022). Effects of land use and cover change (LUCC) on terrestrial carbon stocks in China between 2000 and 2018. *Resources, Conservation and Recycling,* 182, 106333.

Lu, J., Huang, C., Tao, X., **Gong, W.,**& Schleeweis, K. (2022). Annual forest disturbance intensity mapped using Landsat time series and field inventory data for the conterminous United States (1986-2015). *Remote Sensing of Environment.* 275: 113003

Gong, W., Huang, C., Houghton, R. A., Nassikas, A., Zhao, F., Tao, X., ... & Schleeweis, K. (2022). Carbon fluxes from contemporary forest disturbances in North Carolina evaluated using a grid-based carbon accounting model and fine resolution remote sensing products. *Science of Remote Sensing, 5,* 100042.

Chengquan HUANG, **Weishu GONG,** Yong PENG , Remote Sensing and Forest Carbon Monitoring—a Review of Recent Progress, Challenges and Opportunities"[J]. Journal of Geodesy and Geoinformation Science. 2022,5(2):124-147. DOI:10.11947 /j.JGGS.2022.0212

Xi, Z., Xu, H., Xing, Y., **Gong, W.,** Chen, G., & Yang, S. (2022). Forest Canopy Height Mapping by Synergizing ICESat-2, Sentinel-1, Sentinel-2 and Topographic Information Based on Machine Learning Methods. *Remote Sensing, 14*(2), 364.

Liu, Yanan, **Weishu Gong,** and Xiangyun Hu. Estimation of Forest Gross Primary Productivity in North-East China by a Physiologically-based Model Driven with Remote Sensing Data. In *IGARSS 2019-2019 IEEE International Geoscience and Remote Sensing Symposium, pp. 7375-7378. IEEE, 2019.*

Liu, Y., **Gong, W.,** Xing, Y., Hu, X., & Gong, J. (2019). Estimation of the forest stand mean height and aboveground biomass in Northeast China using SAR Sentinel-1B, multispectral Sentinel-2A, and DEM imagery. *ISPRS Journal of Photogrammetry and Remote Sensing, 151,* 277-289.

Liu, Y., **Gong, W.,** Hu, X., & Gong, J. (2018). Forest type identification with random forest using Sentinel-1A, Sentinel-2A, multi-temporal Landsat-8 and DEM data. *Remote Sensing, 10*(6), 946.

Tang, L. L., Cai, X. B., **Gong, W. S.,** Lu, J. Z., Chen, X. L., Lei, Q., & Yu, G. L. (2018). Increased vegetation greenness aggravates water conflicts during lasting and intensifying drought in the Poyang Lake Watershed, China. *Forests, 9*(1), 24.

Tan, Xicheng, Song Guo, Liping Di, Meixia Deng, Fang Huang, Xinyue Ye, Ziheng Sun, **Weishu Gong,** Zongyao Sha, and Shaoming Pan. (2017). Parallel agent-as-a-service (p-aaas) based geospatial service in the cloud. *Remote Sensing, 9*(4), 382.

Liu, J., Guo, B., Jiang, **W., Gong,** W., & Xiao, X. (2016). Epipolar rectification with minimum perspective distortion for oblique images. *Sensors, 16*(11), 1870.

Tan, Xicheng, Liping Di, Meixia Deng, Fang Huang, Xinyue Ye, Zongyao Sha, Ziheng Sun, **Weishu Gong,** Yuanzheng Shao, and Cheng Huang. Agent-as-a-service-based

geospatial service aggregation in the cloud: A case study of flood response. *Environmental modelling & software 84* (2016): 210-225.

Li, J., Feng, L., Pang, X., **Gong, W.,**& Zhao, X. (2016). Radiometric cross calibration of gaofen-1 wfv cameras using landsat-8 oli images: A simple image-based method. *Remote Sensing, 8*(5), 411.

Feng, L., Li, J., **Gong, W.,** Zhao, X., Chen, X., & Pang, X. (2016). Radiometric cross-calibration of Gaofen-1 WFV cameras using Landsat-8 OLI images: A solution for large view angle associated problems. *Remote Sensing of Environment,* 174, 56-68.

Gong, Weishu. "Discussions on localization capabilities of MSL and MER rovers." *Annals of GIS* 21, no. 1 (2015): 69-79.

Gong, W. (2013). *Potential of MSL rover localization compared with MER* (Dissertation, The Ohio State University).

II.C.2. Invited Reviews of Journal Articles

IEEE GIScience & Remote Sensing(2022). Manuscript ID: TGRS-2022-0053,
A forest type-specific threshold method for improving forest disturbance and agent attribution mapping

IEEE GIScience & Remote Sensing(2022). Manuscript ID: TGRS-2022-0401,
Mapping Forest Canopy Height over Japan Using Multi-Source Remote Sensing and GEDI Data

Remote Sensing(2022). Manuscript ID: remotesensing-1985348,
Correcting underestimation and overestimation in Pol InSAR forest canopy height estimation using microwave penetration depth

International Journal of Remote Sensing(2022). Manuscript ID:TRES-PAP-2022-0269,
Topographic Induction as Alternative Method to Topographic Correction in Remote Sensing Images.

Resources, Conservation & Recycling(2022). Manuscript ID: RECYCL-D-22-01171,
Carbon Emissions from Tropical Deforestation: Implications for C Management for mitigating climate change

Geocarto International(2022). Manuscript ID: TGEI-2022-0362,
Modelling of stand parameters using Landsat 8 OLI and Sentinel-2 satellite images by machine learning techniques: a case of study from Turkey.

Remote Sensing of Environment(2022). Manuscript ID: RSE-D-22-00963,
Improved fine-scale tropical forest cover mapping using Planet and Sentinel-1 imagery.

Photogrammetric Engineering & Remote Sensing(2023).Manuscript ID: PERS-23-00001,
A novel index for mapping Impervious Surface area increase, a significant indicator of Urban Pluvial Flooding in megacities of Pakistan based on GEE, Sentinel Application Platform (SNAP) and Remote Sensing Data.

Remote Sensing (2023). Manuscript ID: remotesensing-2217147,
Classification of Forest LiDAR Data Using Adapted Deep Learning Pipeline Algorithm and Geometric Feature Analysis

Remote Sensing(2023). Manuscript ID: remotesensing-2218142,
Assessing the effects of forest structure and above-ground biomass of boreal forest on Vegetation Optical Depth (VOD)

Annals of GIS(2023). Manuscript ID TAGI-2022-0149,
Comparison of performance of Landsat-9 OLI-2and Sentinel-2B Imagery In Estimating Chlorophyll-a (Chl-a) Concentration for Inland Shallow Water Lakes

Geo-spatial Information Science(2023). Manuscript ID TGSI-2022-0219,

Perimeter-Area Soil Carbon Index (PASCI):Modeling and estimating soil organic carbon using relevant explicatory waveband variables in machine learning environment.

IEEE GIScience & Remote Sensing(2023). Manuscript ID: TGRS-2022-0469, Mapping Forest Canopy Height over Japan Using Multi-Source Remote Sensing and GEDI Data

II.C.3. Perspectives, Opinions, and Letters

Chengquan HUANG, **Weishu GONG,** Yong PENG , Remote Sensing and Forest Carbon Monitoring—a Review of Recent Progress, Challenges and Opportunities"[J]. Journal of Geodesy and Geoinformation Science. 2022,5(2):124-147. DOI:10.11947 /j.JGGS.2022.0212

II.D. Published Conference Proceedings

II.D.1. Refereed Conference Proceedings

Gong, W., Huang, C., Houghton, R. A., Lu, J., & Zou, Z. (2023, July). Assessing Carbon Fluxes from Contemporary Forest Disturbances Using a Grid-based Carbon Accounting Model. In *IGARSS 2023-2023 IEEE International Geoscience and Remote Sensing Symposium* (pp. 1309-1312). IEEE.

Xiao, X., Guo, B., Shi, Y., **Gong, W.,** Li, J., & Zhang, C. (2013, October). Robust and rapid matching of oblique UAV images of urban area. In *MIPPR 2013: Pattern Recognition and Computer Vision* (Vol. 8919, pp. 223-230). SPIE.

II.E. Conferences, Workshops, and Talks

II.E.1. Keynotes

None

II.E.2. Invited Talks

Gong,Weishu ,Fine Resolution Assessment of the Carbon Fluxes from Contemporary Forest Dynamics. Invited Seminar, online meeting hosted by College of Forest, Nanjing Forestry University, China. July 28, 2023

Gong, Weishu, Development of A Grid-Based Bookkeeping Carbon Accounting Model Using Fine Resolution Remote Sensing Products. Invited Seminar, online meeting hosted by Centre for Forest Operations and Environment, Northeast Forestry University, China. May 2, 2022

Gong, Weishu, A Grid-Based Bookkeeping Carbon Accounting Model for Evaluating Carbon Fluxes from Contemporary Forest Dynamics. Invited presentation at "carbon peaking and carbon neutrality goals" seminar, online meeting hosted by State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, China. April 24, 2022

II.E.3. Refereed Presentations

Gong, W., Huang, C., Houghton, R. A., Lu, J., & Zou, Z. (2023, July). Assessing Carbon Fluxes from Contemporary Forest Disturbances Using a Grid-based Carbon Accounting Model. In *IGARSS 2023-2023 IEEE International Geoscience and Remote Sensing Symposium* (pp. 1309-1312). IEEE.

Gong, W., Huang, C., Zhao, F., Houghton, R. A., Nassikas, A., Lu, J., & Shi, Y. (2018, December). Assessing the Impacts of Management Styles on the Trends of Aboveground Carbon Fluxes in Eastern US Forestland 1986-2015. In *AGU Fall Meeting Abstracts* (Vol. 2018, pp. B31J-2617).

Gong, Weishu, Zhao, Feng, Huang, Chengquan et al. "A Spatial Carbon Budget Bookkeeping Model for Forest Disturbances," *ForestSat,* College Park, MD, USA. Oct. 2018

Gong, Weishu. "Using Landsat Time Series to Estimate Timber Product Output (TPO) In the US," *Annual Meeting of the Association of American Geographers,* Boston, MA ,USA. Apr. 2017

Gong, Weishu. "An Assessment of the Surface Radiation Budget over the Tibetan Plateau using Observed Data and Global Circulation Model Simulations," *Annual Meeting of the Association of American Geographers,* Seattle, WA, USA. Apr. 2011

II.F. Professional and Extension Publications

None

II.G. Book Reviews, Notes, and Other Contributions

None

II.H. Completed Creative Works and Scholarship

None

II.I. Significant Works in Public Media

Technical reports "Carbon fluxes from contemporary forest disturbances in North Carolina evaluated using a grid-based carbon accounting model and fine resolution remote sensing products", published in the U.S. Forest Service Newsletters, U.S Department of Agriculture.
https://research.fs.usda.gov/treesearch/64135

Technical reports in NASA Newsletters: "Development of a grid-based bookkeeping carbon accounting model for fine scale (30m) carbon estimation"
https://cce-signin.gsfc.nasa.gov/pub_docs/quad_chart_23173.pdf

II.J. Sponsored Research and Programs – Administered by the Office of Research Administration (ORA)

Mar. 2024—Feb. 2027 **Principal Investigator**
Estimation of carbon fluxes from forest disturbances in the Amazon
Funding agency: EMDO, USA
Award amount: $600K

Jun.2022—Feb.2024 **Principal Investigator**
Annual Assessment of Multi-Decadal Forest Carbon Fluxes in Eastern United States
Funding agency: PIESAT Australia
Award amount: $502K

Jan. 2022—May. 2022 **Participated as Faculty Assistant**
High Resolution Assessment of Forest Carbon Sources and Sinks in Southeast United States
Funding agency: EMDO, USA
Award amount: $81K

- Project manager and technical lead
- Data processing
- Model development
- Validation and synthesis of results

Jan. 2020—Dec. 2021 **Participated as Graduate Research Assistant**
High Resolution Assessment of Forest Carbon Sources and Sinks in Southeast United States
Award amount: $81K

- Project manager and technical lead
- Data processing
- Model development
- Validation and synthesis of results

Jan. 2019—Dec. 2019 **Participated as Graduate Research Assistant**
Assessment of Industrial Forests over North America: Disturbances, Biomass Extraction, and Growth Vigor
Funding agency: NASA
Award amount: $823K

- Model programming

Jan. 2018—Dec. 2018 **Participated as Graduate Research Assistant**
Role of Forest Disturbance and Regrowth in the US Carbon Budget
Funding Agency: NASA
Award amount: $1.1M

- Model programming

Jul. 2016—Dec. 2017 **Participated as Graduate Research Assistant**
Project 1:Towards Annual Monitoring of FIA Plots by Integrating Forest Vegetation Simulator and Remote Sensing
Funding agency: USDA Forest Service
Award amount for UMD: $185K

- Data processing

Project 2: Carbon Consequences of Land Management: A Multi-Region Assessment
Funding agency: USGS
Award amount for UMD: $477K

- Data processing

Jul. 2013—Jul. 2015 **Participated as Research Associate**
Project 1: The Committee on Earth Observation Satellites (CEOS): Atmospheric Composition Portal (ACP) project funded by NASA

- Assisted research in building contextual metadata for atmospheric remote sensing datasets, including automated information gathering and natural language processing/text mining

Project 2: NSF EarthCube end user workshop

- Assisted research in data collection

Sep. 2011—Jun. 2013 **Participated as Graduate Research Assistant**
Project: The Mars Exploration Rovers (MER) Project
Funding Agency: NASA

- Generated traverse maps of Opportunity rover for drive planning on daily basis

- Produced topographic products from rover images

Sep. 2010—Dec. 2010 **Undergraduate Independent Study**

- Studied the application of Web GIS, especially the application of Google Map API
- Created a webpage with a Google Map application

Sep. 2009—Dec. 2010 **Undergraduate Independent Research**

- Conducted independent research about the radiation budget on Tibetan Plateau
- Analyzed data from many different sources in various formats
  Researched the significance of radiation budget change on the Tibetan Plateau

III. Teaching, Extension, Mentoring, and Advising

III.A. Courses Taught

Jan.2018—Aug.2019
MPS GIS Program, Department of Geographical Science, U. of Maryland, College Park

- Web Programming
  Lab instructor
- Programming for GIS
  Lab instructor
- GIS Modeling
  Lab instructor

Sep. 2015—May. 2016
Undergraduate Courses, Department of Geographical Science, U. of Maryland, College Park

- Introductory GIS class
  Lab instructor

IV. Service and Outreach

IV.A. Editorships, Editorial Boards, and Reviewing Activities

IV.A.1. Editorships

Guest Editor

Special Issue " Application of Laser Scanning Technology in Forestry" for the journal **Forests (ISSN 1999-4907).** This special issue belongs to the section "Forest Inventory, Modeling and Remote Sensing". 2024.

Special Issue "Remote sensing Application in Terrestrial Ecosystem Carbon Accounting" for the journal ***Geo-spatial Information Science***

Special Issue "Remote Sensing and machine learning in advancing carbon neutrality" for the journal ***Geo-spatial Information Science***

IV.A.2. Editorial Boards

Editorial Board Member
Review Editor for Terrestrial Carbon Cycle

Journal of Frontiers in Remote Sensing
https://www.frontiersin.org/journals/remote-sensing/editors

Editorial Board Member
Journal of Geodesy and Geoinformation Science
http://jggs.chinasmp.com/EN/column/column2.shtml

Early Career Editorial Board Member
Geo-Spatial Information Science
https://www.tandfonline.com/action/journalInformation?show=editorialBoard&journalCode=tgsi20

IV.A.3. Reviewing Activities for Journals and Presses
Remote Sensing of Environment
Resources, Conservation & Recycling
GIScience & Remote Sensing
Remote Sensing
Geocarto International
Geo-spatial Information Science
International Journal of Remote Sensing
Photogrammetric Engineering & Remote Sensing
Annals of GIS

IV.B. Committees, Professional & Campus Service
None

IV.C. External Service and Consulting
Co-Chair of WGIII/1 "Remote sensing data processing and understanding", International Society for Photogrammetry and Remote Sensing, ISPRS
https://www2.isprs.org/commissions/comm3/wg1/

IV.D. Non-Research Presentations
None

IV.E. Media Contributions
None

IV.F. Community & Other Service
Professional Memberships
- Association of American Geographers
- American Geophysical Union

IV.G. Service Awards and Honors

Outstanding performance as ***Post-Doctoral Associate*** in the Department of Geographical Sciences, University of Maryland. ***2024***

Dean's Fellowship, College of Behavioral and Social Science, UMD. Sep.2015--May.2016