

## HUAN GU

Graduate School of Geography,  
Clark University,  
950 Main Street, Worcester, Massachusetts, 01610

Phone: 508.421.3862 (office)  
Email: HuGu@clarku.edu  
guhuan114031@gmail.com

## RESEARCH INTERESTS

- Carbon cycle modeling, carbon stock and flux consequences of forest disturbances
- Remote sensing for characterization of forest structure, biomass, species and forest growth
- Airborne lidar, hyperspectral, multispectral remote sensing
- Spatial analysis, quantitative methods and ecological modeling

## EDUCATION

**University of Wisconsin-Madison,**  
Madison, Wisconsin, United States

**Doctor of Philosophy, Forestry**      **Minor: Statistics**  
Sep. 2009 to Jan. 2015

**Wuhan University,**  
Wuhan, Hubei, China

**Master of Engineering, Photogrammetry and Remote Sensing**  
Sep. 2007 to Jun. 2009

**China University of Geosciences,**  
Wuhan, Hubei, China

**Bachelor of Engineering, Geographic Information System**  
Sep. 2003 to Jun. 2007

## PROFESSIONAL EXPERIENCE

**Postdoctoral Researcher,** Graduate School of Geography, Clark University      Feb. 2015 to Present  
*Translating forest change to carbon emissions/removals*, funded by NASA Carbon Monitoring System awards to Chris A. Williams.

**Graduate Research Assistant,** Department of Forest and Wildlife Ecology, University of Wisconsin-Madison      Sep. 2009 to Jan. 2015

**Graduate Research Assistant,** State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University      Sep. 2007 to Jun. 2009

## PEER-REVIEWED PUBLICATIONS

Williams, C.A., **Gu, H.**, MacLean, R., Masek, J.G., and Collatz, G.J. (in press). Disturbance and the carbon balance of US forests: A quantitative review of impacts from harvests, fires, insects, and droughts. *Global and Planetary Change*.

**Gu, H.**, Singh, A., and Townsend, P.A. (2015). Detection of gradients of forest composition in an urban area using imaging spectroscopy. *Remote Sensing of Environment*, 167, 168-180.

Zhang, G., Qiang, Q., Luo, Y., Zhu, Y., **Gu, H.**, and Zhu, X. (2012). Application of RPC model in orthorectification of spaceborne SAR imagery. *The Photogrammetric Record*, 27(137), 94-110.

## PAPER IN PROGRESS (Full drafts only)

**Gu, H.,** Williams, C.A., Ghimire, B., Zhao F., and Huang C. (in review). High-resolution forest carbon flux mapping and monitoring in the Pacific Northwest with time since disturbance and disturbance legacies inferred from remote sensing and inventory data. *Biogeosciences*.

**Gu, H.,** and Townsend, P.A. (in review). Mapping forest structure in an urban area using small-footprint leaf-off lidar data. *Urban Ecosystems*.

**Gu, H.,** and Townsend, P.A. (in preparation). Variations in forest growth and aboveground carbon flux across a rural-to-urban gradient in Southern Wisconsin. *Urban Ecosystems*.

## **OTHER PUBLICATIONS**

**Gu, H.** (2015). Mapping forest structure, species gradients and growth in an urban area using lidar and hyperspectral imagery. The University of Wisconsin-Madison Dissertation. *ProQuest Dissertations and Theses*, Order No. 3680343.

Allison, R.B., and **Gu, H.** (2013). Case study demonstrating a protocol for use of nondestructive tree decay detection in combination with multi-source remote sensing data to predict probability of property damage from tree failure. *Forest Products Laboratory General Technical Report, FPL-GTR-226*, 53-61 (USDA Forest Service).

**Gu, H.,** Zhang, G., and Yan J. (2008). An in situ single-pointed wavelet-based method for noise reduction in SAR images. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, 37, 337-342.

## **PRESENTATIONS (Presenting author only)**

**Gu, H.,** Williams, C.A., Collatz, G.J., Masek, J.G., Moisen, G.G., Schleeweis, K., Ghimire, B., Zhao F., Huang C., and Saatchi S. Wall-to-wall assessment of carbon stock and flux consequences of forest disturbances in the Pacific Northwest United States using remote sensing and forest inventory data. *2015 AGU fall meeting*, San Francisco, California, Dec 14-18, 2015.

**Gu, H.,** Williams, C.A., Collatz, G.J., Masek, J.G., Moisen, G.G., Schleeweis, K., Ghimire, B., Zhao F., and Huang C. Translating forest change to carbon emissions/removals linking disturbance products, biomass maps and carbon cycle modeling in a comprehensive carbon monitoring framework. *NASA CMS Science Team Meeting*, Pasadena, California, Nov 16-18, 2015.

**Gu, H.,** Williams, C.A., Collatz, G.J., Masek, J.G., Ghimire, B., and Moisen, G.G. Continental-scale carbon budget impacts of forest disturbance by fires, insects, and harvests in the US: mean, variability, uncertainty and trend. *2015 NASA Carbon Cycle & Ecosystem Joint Science Workshop*, Hyattsville, Maryland, Apr 20-24, 2015.

**Gu, H.,** Townsend, P.A., and Singh, A. Assessment of urban tree growth from structure, nutrients and composition data derived from airborne lidar and imaging spectroscopy. *2014 AGU fall meeting*, San Francisco, California, Dec 15-19, 2014.

**Gu, H.,** Townsend, P.A., and Singh, A. Variation in urban forest composition and function detected using hyperspectral and lidar data. *2014 US-IALE Annual Symposium*, Anchorage, Alaska, May 18-22, 2014.

Allison, R.B., and **Gu, H.** Case study demonstrating a protocol for use of nondestructive tree decay detection in combination with multi-source remote sensing data to predict probability of property damage from tree failure. *18<sup>th</sup> International Nondestructive Testing and Evaluation of Wood Symposium*, Madison, Wisconsin, Sep 24-27, 2013.

**Gu, H.,** Spaier, B., Kingdon, C.C., and Townsend, P.A. How tree inventories assist ecosystem science. *Sustainable Atwood*, Madison, Wisconsin, Oct 24, 2012.

**Gu, H.,** Singh, A., and Townsend, P.A. Using functional data analysis to estimate urban forest structure from discrete lidar data and hyperspectral imagery. *ForestSAT 2012*, Corvallis, Oregon, Sep 11-14, 2012.

**Gu, H.,** and Townsend, P.A. Mapping urban forest productivity and growth rate by remote sensing imagery. *SMA 47<sup>th</sup> Annual International Urban Forestry Conference*, Milwaukee, Wisconsin, Sep 25-28, 2011.

**Gu, H.,** Zhang, G., and Yan J. An in situ single-pointed wavelet-based method for noise reduction in SAR Images. *The 21<sup>th</sup> ISPRS Congress*, Beijing, China, Jul 3-11, 2008.

## ACTIVITIES

**Developed Master of Science exam question.** Designed one of the two questions for MS Exam in Department of Statistics, University of Wisconsin-Madison, 2013.

**Sustainable Atwood tree ambassador.** Worked with Atwood neighborhood for 2011 sustainable Atwood tree inventory and EAB education and outreach grant.

## PROFESSIONAL MEMBERSHIPS

American Geophysical Union (AGU) 2014 - 2015  
US Regional Association of the International Association for Landscape Ecology (US-IALE) 2014

## PROFESSIONAL SERVICE

Manuscript reviewer for: *Remote Sensing, International Journal of Remote Sensing, Canadian Journal of Remote Sensing, Journal of Mountain Science, Challenges*

## GRANTS AND AWARDS

**Vilas conference presentation funds,** Graduate school, University of Wisconsin-Madison (\$600) 2014 - 2015

**Travel scholarship,** Department of Forest and Wildlife Ecology, University of Wisconsin-Madison (\$500) 2014 - 2015

**Wisconsin Ecology community building grant,** Wisconsin ecology, University of Wisconsin-Madison (\$800) 2014

**US-IALE sponsored student travel award,** US Regional Association of the International Association for Landscape Ecology (\$500) 2014

**Vilas conference presentation funds,** Graduate school, University of Wisconsin-Madison (\$600) 2013 - 2014

**Travel scholarship,** Department of Forest and Wildlife Ecology, University of Wisconsin-Madison (\$400) 2013 - 2014

**Global Stewards sustainability prize,** The Nelson Institute for Environmental Studies, University of Wisconsin-Madison (\$2000) 2012

**Research assistantship from McIntire-Stennis formula grant**, College of Agricultural & Life Science, University of Wisconsin-Madison 2009 - 2014

**Distinguished graduate award**, State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University 2009

**Trimble scholarship**, Trimble Navigation Limited, U.S. (RMB 5000) 2009

**The third prize in national English contest for college students (NECCS, Class A)** 2008

**Graduate fellowship**, State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University 2007 - 2009

**Outstanding undergraduate scholarship**, Faculty of Information Engineering, China University of Geosciences 2003 - 2007

## **SKILLS**

R, MATLAB, ArcGIS, Python, ENVI, GDAL, ERDAS Imagine, C++