

An-Min Wu

Spatial Sciences Institute
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CURRENT FULL-TIME APPOINTMENT

University of Southern California

2016 – Lecturer, Spatial Sciences Institute

Teach in Population, Health, and Place program (Interdisciplinary Ph.D. degree), online Graduate Information Science and Technology Program (M.S. degree and post-graduate certificate), Human Security and Geospatial Intelligence (M.S. degree and post-graduate certificate), Spatial Economics and Data Analysis (M.S. degree), undergraduate direct research (B.S. degree in Geodesign) and general education.

Courses taught: Principles of Spatial Data Analysis, Spatial Databases, Spatial Analysis, Geospatial Technologies Project Management, Spatial Data Acquisition, Concept of Spatial Thinking, The Water Planet (laboratory).

EDUCATION

- 2014 Ph.D. Land and Atmospheric Science, Geographic Information Science minor, University of Minnesota – Twin Cities
Dissertation title: Hillslope redistribution of soil organic carbon in the depressional landscape in Minnesota
- 2004 M.S. Soil Science, The Pennsylvania State University
Thesis title: Development of a vineyard site assessment model for Southeastern Pennsylvania using geospatial technologies
- 2002 M.EPC Environmental Pollution Control, The Pennsylvania State University
Capstone research: Distribution of soil test phosphorus in Pennsylvania
- 1998 B.S. Horticultural Science, Landscape Architecture division, National Taiwan University, Taiwan

PROFESSIONAL APPOINTMENTS

University of Minnesota – Twin Cities

2014 – 2016 Postdoctoral Research Associate, Department of Soil, Water, and Climate

PUBLICATIONS

Refereed Article Published

- 2019 Wu, A. and Kemp K. Global measures of spatial association. *The Geographic*

- 2017 *Information Science and Technology Body of Knowledge 2.0*. (1st Quarter 2019 Edition), Ed. John P. Wilson (Ed.). DOI: 10.22224/gistbok/2019.1.12
 Fissore, C., Dalzell, B.J., Berhe, A.A., Voegtle, M., Evans, M., and **Wu, A.**
 Influence of topography on soil organic carbon dynamics in a Southern California grassland. *CATENA*, 149, 140-149.

Conference and Symposium Proceedings

- 2015 **Wu, A.**, Nater, E.A., Perry, C.H., Dalzell, B.J., and Wilson, B.T. 2015. Change detection for soil carbon in the forest inventory and analysis, In: *Pushing Boundaries - New Directions in Inventory Techniques & Applications*. Proceedings of FIA Science Symposium 2015, Portland, Oregon.
- 2015 Nater, E.A., Fissore, C., Perry, C.H., **Wu, A.**, Dalzell, B., and Wilson, B.T. 2015. Extrapolating existing soil organic carbon data to estimate soil organic carbon stocks below 20cm. In: *Pushing Boundaries - New Directions in Inventory Techniques & Applications*. Proceedings of FIA Science Symposium 2015, Portland, Oregon.

Refereed Article Under Review

- Wu, A. and Johnston, J. Assessing spatial characteristics of soil lead contamination in the residential neighborhoods near the Exide battery smelter. *Case Studies in the Environment*. (Accepted with minor revision)

AWARDS AND HONORS

- 2014 Wilford Gardner Fellowship, World Congress of Soil Science Travel Fellowship, funded by National Science Foundation via Soil Science Society of America.
- 2009 Graduate Fellowship, University of Minnesota
- 2004 Graduate Student Ambassador, American Congress on Survey and Mapping (ACSM) & Cartography and Geographic Information Society (CaGIS)
- 2004 Member, Gamma Sigma Delta, Agricultural Honor Society, PennState Chapter

GRANTS

- 2019 – 2020 Telling stories with maps and data: A West Hawai'i Coastal Water Quality Map Story. University of Southern California Undergraduate Research Associates Program (URAP); PI; Co-PI: Dr. Karen Kemp; \$4,650
- 2018 – 2019 Assessing residential soil lead contamination using geospatial analysis in Southeast Los Angeles County, California. University of Southern California Undergraduate Research Associates Program (URAP); PI; Co-PI: Dr. Jill Johnston at USC Keck School of Medicine; \$3,300
- 2017 – 2018 Upscaling effects on soil carbon prediction in the depression landscapes in Minnesota. University of Southern California Undergraduate Research Associates Program (URAP); PI; \$2,400
- 2013 Baker and Kuehnast Endowment Travel Grant; \$1,500

- 2013 Howe Graduate Scholarship, University of Minnesota; semester tuition & stipend
- 2010 Martin Travel Grant, Department of Soil, Water, and Climate, University of Minnesota; \$800
- 2010 Professional Travel Grant, Graduate and Professional Student Assembly, University of Minnesota; \$500
- 2004 Tuition Grant-in-aid, The Pennsylvania State University; semester tuition & stipend

PRESENTATIONS

Conferences and Abstracts

- 2019 Egelkrout, K. and **Wu, A.** Soil arsenic pollution at residences near Exide battery recycling plant in Vernon, California. Map Gallery, 2019 ESRI User Conference. San Diego, CA. July 8-12, 2019 (Poster Presentation).
- 2019 **Wu, A.** and Jelinski, N. Human influences on soil pollution: Modeling soil lead with urban environmental characteristics using regression, support vector machine and random forest. American Association of Geographers Annual Meeting. Washington DC. April 3-7, 2019 (Oral Presentation)
- 2019 Ouile, T. and **Wu, A.** Coastal vulnerability assessment for archaeology sites on San Clemente Island and San Nicolas Island, California. Los Angeles Geospatial Summit. Los Angeles, CA. February 22, 2019 (Poster Presentation)
- 2018 **Wu, A.**, Hansen, A., LaBine, K., and Jelinski, N. Spatial distributions of soil lead across scales in the Twin Cities Metropolitan Areas, United States. 21st World Congress of Soil Science. Rio de Janeiro, Brazil. August 12-17, 2018. (Poster Presentation)
- 2018 **Wu, A.** and Swift, J. Approaches to today's spatial database education challenges. Association of American Geographers Annual Meeting. New Orleans, LA. April 10-14, 2018. (Oral Presentation)
- 2018 Gilmore, A. and **Wu, A.** Modelling soil carbon in depressionnal landscapes of Minnesota. Los Angeles Geospatial Summit. Los Angeles, CA. February 23, 2018. (Poster Presentation)
- 2017 **Wu, A.** Identifying terrain attribute effects on soil organic carbon stocks in US Forests. Association of American Geographers Annual Meeting. Boston, MA. April 5-9, 2017. (Oral Presentation)
- 2015 **Wu, A.**, Nater, E.A., Perry, C.H., Dalzell, B.J., and Wilson, B.T. Minimum detectable change of soil carbon in the U.S. Forest Inventory and Analysis database. American Geophysical Union Fall Meeting. San Francisco, CA. December 14-18, 2015. (Poster Presentation)
- 2015 Fissore, C., Dalzell, B.J., Berhe, A.A., Voegtle, M., Evans, M., and **Wu, A.** Soil organic carbon relationships with terrain attributes in a southern California hillslope system. American Geophysical Union Fall Meeting. San Francisco, CA. December 14-18, 2015. (Poster Presentation)
- 2015 **Wu, A.**, Nater, E.A., Perry, C.H., Dalzell, B.J., and Wilson, B.T. Change

- detection for soil carbon in the FIA database. FIA Science Symposium. Portland, Oregon. December 8-10, 2015. (Oral Presentation)
- 2014 **Wu, A.**, Nater, E.A., Dalzell, B.J., and Perry, C.H. Soil carbon variability and change detection in the forest inventory analysis database of the United States. American Geophysical Union Fall Meeting. San Francisco, CA. December 15-19, 2014. (Poster Presentation)
- 2014 **Wu, A.**, Bell, J.C., and Nater, E.A. Soil carbon storage potential under the impact of post-settlement deposition in depressional landscapes in Minnesota. 20th World Congress of Soil Science. Jeju, South Korea. June 8-13, 2014. (Poster Presentation)
- 2013 Dalzell, B.J., Nater, E.A., Yoo, K., Fissore, C., and **Wu, A.** Terrain influences on soil organic carbon translocation and burial: Applications of high-resolution digital elevation models. American Geophysical Union Fall Meeting. San Francisco, CA. December 9-13, 2013. (Poster Presentation)
- 2013 **Wu, A.** and Bell, J.C. Spatial prediction of post-settlement deposition in depressional landscapes of Minnesota. 10th Biennial Meeting of Commission 1.5 Pedometrics, Division 1 of the International Union of Soil Science (Pedometrics 2013). Nairobi, Kenya. August 26-31, 2013. (Oral Presentation)
- 2012 **Wu, A.**, Bell, J.C., and Nater, E.A. Understanding the spatial distribution and quantity of soil organic carbon in depressional landscape of Minnesota. American Geophysical Union. San Francisco, CA. December 3-7, 2012. (Poster Presentation)
- 2012 Nater, E.A., Dalzell, B.J., Fissore, C., **Wu, A.**, Yoo, K., and Ginakes, P. Legacy of topography and land use on erosion and soil organic carbon burial. American Geophysical Union. San Francisco, CA. December 3-7, 2012. (Oral Presentation)
- 2011 Dalzell, B.J., Fissore, C., Nater, E.A., Yoo, K., and **Wu, A.** Redistribution of soil organic carbon in agricultural soils. Geological Society of America Annual Meeting, Minneapolis, MN. October 9 – 12, 2011. (Oral Presentation)
- 2011 **Wu, A.**, Bell, J. & Nater, E. Upslope influencing area terrain analysis – For landscape soil carbon modeling. MN GIS/LIS Consortium Annual Conference, St. Cloud, MN. October 5 – 7, 2011. (Poster Presentation)
- 2010 **Wu, A.**, Bell, J. & Nater, E. Spatial variability of soil carbon and post-settlement alluvium in the glaciated landscape of Minnesota. ASA-CSSA-SSSA Annual Meetings, Long Beach, CA. October 31 – November 3, 2010. (Poster Presentation)
- 2004 **Wu, A.**, Day, R.L. & Petersen, G.W. A vineyard site assessment model for Southeastern Pennsylvania using GIS. ASA-CSA-SSSA Annual Meeting, Seattle, WA. October 31 – November 4, 2004. (Poster Presentation)
- 2004 **Wu, A.** Vineyard suitability analysis for Southeastern Pennsylvania. American Society of Enology and Viticulture – Eastern Section Annual Meeting, Roanoke, VA. July 13-16, 2004. (Oral Presentation)

Invited Presentations

- 2017 Using spatial modeling to link soil organic carbon changes to anthropogenic effects and efforts. USC Spatial Sciences Institute Brown Bag Series. November 7, 2017.
- 2004 Grape vineyard site selection. Vineyard Soil Workshop, Lancaster, PA. May 2004.

Guest Lectures

- 2018 Introduction to Spatial Databases. SSCI 301 Maps and Spatial Reasoning. October 2018.
- 2017 Climate change. SSCI 265Lg The Water Planet. April 2017.

TEACHING EXPERIENCE

Courses Taught

University of Southern California

- SSCI 265Lg: The Water Planet - laboratory (Spring 2017)
- SSCI 490: Direct Research (Fall 2018)
- SSCI 581 (online): Concept of Spatial Thinking (Fall 2016)
- SSCI 582 (online): Spatial Databases (Fall 2016, Summer 2017, Fall 2017, Spring 2018, Fall 2018, Spring 2019, Summer 2019)
- SSCI 583 (online): Spatial Analysis (Spring 2017, Summer 2017, Spring 2018)
- SSCI 585 (online): Geospatial Technologies Project Management (Fall 2018)
- SSCI 587 (online): Spatial Data Acquisition (Fall 2018)
- SSCI 594b (online): Master's Thesis (Summer 2018)
- SSCI 683: Principles of Spatial Data Analysis (Spring 2017, Spring 2018, Spring 2019)

Graduate Teaching Assistantships

University of Minnesota

- SOIL 4511: Field Study of Soils (Summer, 2013 - 2014)
- SOIL 2125: Basic Soil Science (Spring 2009)

The Pennsylvania State University

- SOILS 450: Environmental GIS (Fall, 2000 - 2003)
- SOILS 510: GIS Applications (Spring, 2001 - 2003)

Other Teaching Activities

- University of Minnesota Soil Judging Team, Assistant Coach (Fall 2013)
- Land Analysis Curriculum Development Workshop (for K-12), McVeytown, PA. Assistant Instructor (Summer 2002)

STUDENT ADVISEMENT

Doctoral

Member, Thesis Committee for:

Noha Najem, Petroleum Engineering, Viterbi School of Engineering, University of Southern California

Master's

M.S., Geographic Information Science and Technology, University of Southern California

Advisor & Chair of Thesis Committee for:

- 2019 Ray Calnan. Thesis title: Exploring the impact of the natural gas leak on home values in Porter Ranch, California
- 2018 Tori Ouile. Thesis title: Coastal Vulnerability Assessment for Archaeological Sites on San Clemente Island and San Nicolas Island, California
- 2018 Marisa McGinnis. Thesis title: A Spatiotemporal Analysis of Environmental Risk Factors of Lyme Disease in the Northeastern United States
- 2018 Robert Williams. Thesis title: Suitability Analysis for Wave Energy Farms off the Coast of Southern California: An Integrated Site Selection Methodology

Member, Thesis Committee for:

Present Steven Sloan

- 2019 Ephriam Daniels, Jonathan Rodriguez, Michael Babcock, Shaughn Galloway, Monica Finnstrom, Richard Windisch
- 2018 Alexandra Motyka, Phillip Connor, Christine Schuarel, Michael Thibodaux, Donald Borer
- 2017 Ryan Mock, Samantha Bamberger, Quentina Borgic, Trevor Denson, Julia Goldsworth

Bachelor's

Present Sarah Ta, Geodesign, Undergraduate Research Associates Program (URAP), University of Southern California, Co-Advisor

- 2019 Kenneth Egelkrout, BS, Economics & Mathematics, Undergraduate Research Associates Program (URAP), University of Southern California. Advisor.
Research presented at USC Undergraduate Research Symposium (April 2019) and ESRI User Conference Map Gallery (July 2019)
- 2018 Jose Rico, BS, Geodesign, URAP, University of Southern California. Advisor.
- 2018 Michelle Bollinger, BS, Geodesign, Direct Research (SSCI 490), University of Southern California. Mentor.
- 2017 – 2018 Amanda Gilmore, BS, Geodesign. URAP, University of Southern California. Advisor.
Research presented at Los Angeles Geospatial Summit (February 2018) and USC Undergraduate Research Symposium (April 2018)

RESEARCH EXPERIENCE

University of Minnesota

- 2014 – 2016 Postdoctoral Research Associate
Evaluated spatial and temporal sampling strategies for soil organic carbon stocks and stocks changes in the Forest Inventory Analysis (FIA) database
- 2011 – 2013 Graduate Research Assistant
Supervised field crews in soil sample collection, laboratory analysis and GIS analysis for N and C in grassland and agricultural landscapes in Minnesota
- 2008 Graduate Research Assistant
Mapped regional land use and agricultural census data for terrestrial carbon sequestration projection in Midwest, USA

The Pennsylvania State University

- 2004 – 2005 Research Project Assistant (full-time), Geospatial Technology Program
Prepared spatial databases for web-based GIS in Pennsylvania vineyard suitability
- 2004 Graduate Research Assistant
Coordinated with growers and grape experts for regional site selection criteria and developed spatial climatic datasets critical for Pennsylvania's vineyard *terroir*

PROFESSIONAL SERVICE

International

- 2014 – 2018 Advisory Board Member, Pedometrics Commission, International Union of Soil Sciences

National / Regional

- 2019 – 2020 Chair, California Geographic Information Association
- 2019 Conference Planning Committee and Student Scholarship Committee, the 25th Annual CalGIS Conference. Fresno, CA.
- 2019 Organizer and Moderator, Closing Keynote Address: "How Do We Use GIS to Address Issues of Our Changing Environment?" The 25th Annual CalGIS Conference. Fresno, CA
- 2019 Chair and Organizer, Teaching with GIS in California's K-12 Education (panel), the 25th Annual CalGIS Conference. Fresno, CA
- 2019 Organizer and Moderator, Student Showcase Lightning Talk, the 25th Annual CalGIS Conference. Fresno, CA
- 2018 – 2019 Vice Chair (Chair-Elect), California Geographic Information Association
- 2018 Chair and Co-Organizer, GI Science Education: Advancements in Teaching Spatial Databases, American Association of Geographers Annual Meeting. New Orleans, LA.
- 2017 – 2019 Membership Committee, California Geographic Information Association
- 2017 – 2018 Board of Directors, California Geographic Information Association
- 2017 GISCorps volunteer

- 2017 Reviewer, GIS&T Body of Knowledge, University Consortium for Geographic Information Science (UCGIS)
- 2015 Judge, Geoscience Projects, Los Angeles County Science Fair
- 2014 Judge, Twin Cities Regional Science Fair

University

University of Southern California

- 2019 – 2020 Senator, University Academic Senate
- 2018 Moderator, the Environment and Food Panel, China: Finding Solutions Conference, USC U.S.-China Institute
- 2017 USC Libraries Visualization Specialist Search Committee

Dana and David Dornsife College of Letters, Arts, and Sciences

- 2019 – 2020 Secretary, Dornsife Faculty Council
- 2018 – 2020 Member, Dornsife Faculty Council; Election Caucus
- 2017 – 2018 Member, Dornsife Faculty Council; Research, Policy and Documentation Caucus

Spatial Sciences Institute

- 2019 ESRI EDC Student of the Year committee
- 2019 PhD Endowed Fellowships committee
- 2019 Population, Health, and Place PhD Admission Committee
- 2018 Merit Review Committee
- 2018 Population, Health, and Place PhD Admission Committee
- 2018 Thesis Prize Committee
- 2017 Thesis Prize Committee

University of Minnesota

- 2013 – 2014 Board member, Minnesota-China Academic and Agricultural Program
- 2012 Interim Senate, Council of Graduate Students
- 2012 Student Representative Alternative, Graduate Education Committee
- 2009 – 2011 Departmental Representative, Council of Graduate Students

PROFESSIONAL DEVELOPMENT

- 2018 – FAA Part 107 Small Unmanned Aircraft System (sUAS) Certification
- 2018 ESRI Data Science & Machine Learning Workshop at USC. Los Angeles, CA
- 2018 GISP Certification Workshop, CalGIS/GIS-Pro 2018. Palm Springs, CA
- 2017 – 2018 New Faculty Institute, USC Center for Excellence in Teaching
- 2013 – Professional Soil Scientist In-Training (SSIT#143692)

- 2013 Boreas Leadership Program: Communication and Media, Systems Thinking, Interactive Leadership. Institute on the Environment, University of Minnesota
- 2012 Professional Development Workshop, Earth Science Women Network (ESWN), Boulder, CO
- 2011 Preparing Future Faculty Program Core Course I: Teaching in Higher Ed. University of Minnesota
- 2010 Leadership Development Workshop I and II, American Society of Agronomy. Long Beach, CA
- 2009 ESRI International User Conference Student Assistant. San Diego, CA
- 2007 Project Management Training, American Management Association. San Francisco, CA

NON-ACADEMIC PROFESSIONAL WORK

Magellan Navigation (Formerly Thales Navigation), San Dimas, California

2006 – 2008 Project Manager, Mapping

2005 – 2006 Mapping Engineer / GIS Analyst

PROFESSIONAL MEMBERSHIPS

American Association of Geographers

Association for Women Geoscientists

American Geophysical Union (2009 – 2013)

California Geographic Information Association (2017-)

Minnesota GIS/LIS Consortium

Soil Science Society of America

LANGUAGES

English (excellent command/highly proficient)

Mandarin Chinese (native)

Taiwanese (native)