CURRICULUM VITAE

JIUNN-DER GEOFFREY DUH
October 1, 2022

Education

Ph.D.	2004	Natural Resources & Environment, University of Michigan, Ann Arbor
M.S.	1991	Geography, National Taiwan University, Taipei, Taiwan
B.S.	1986	Geography, National Taiwan University, Taipei, Taiwan

Employment

Associate Professor, Geography, Portland State University. 2011 -

Director of GIS Programs, Geography, Portland State University. 2004 -

Coordinator of Graduate GIS Certificate Program, Geography, Portland State University. 2004 -

Assistant Professor, Geography, Portland State University. 2006 - 2011

Visiting Assistant Professor, Geography, Portland State University. 2004 - 2006

Assistant Researcher, Agricultural Engineering Research Center, Taiwan. 1995

General Manager, GAIA GIS Consultant Co. Ltd. Taipei, Taiwan. 1995

Project Manager, GAIA GIS Consultant Co. Ltd. Taipei, Taiwan. 1992 - 1994

Graduate Research Assistant, School of Natural Resources & Environment, University of Michigan. 1999 - 2004

Graduate Research Assistant, Geography, Michigan State University. 1997 - 1999

Graduate Research Assistant, Geography, National Taiwan University. 1989 – 1991

Dissertation

Knowledge-informed Simulated Annealing for Generating Prescribed Spatial Patterns in Resource Allocation, 2004. Committee: Daniel G. Brown (Chair), Joan I. Nassauer, Scott D. Campbell, Rick L. Riolo.

Refereed Publications

Chapters

Brown, D.G. and Duh, J.D. GIS as a Tool for Map Analysis and Spatial Modeling. In *The History of Cartography, Volume 6: Cartography in the Twentieth Century*, edited by M. Monmonier. The University of Chicago Press, Chicago, IL, 2015.

Duh, J.D. Topological Relationships. Invited encyclopedia entry in *Encyclopedia of Geography*. Thousand Oaks, CA: Sage Publications, 2010, pp 2848-2849.

Duh, J. D. Knowledge-Informed Simulated Annealing for Spatial Allocation Problems. Invited Chapter. In Kordic, V. (Ed) *Global Optimization: Focus on Simulated Annealing*, I-Tech Education and Publishing, 2008, pp105-118.

Duh, J.D. and Brown, D.G. Generating prescribed patterns in landscape models. In: D.J. Maguire, M.F. Goodchild and M. Batty (Eds) *GIS, Spatial Analysis and Modeling*. ESRI Press, 2005, pp 423-444.

Brown, D.G., Addink, E.A., Duh, J.D., and Bowersox, M.A. Assessing uncertainty in spatial landscape metrics derived from remote sensing data. In Lunetta, R., Lyon, J.G., Eds. *Remote Sensing and GIS Accuracy Assessment*, Boca Raton, FL: CRC Press, 2004, pp 221-232.

Brown, D.G., Jacquez, G.M., Duh, J.D., and Maruca, S. Accuracy of Remotely Sensed Estimates of Landscape Change using Patch- and Boundary-based Pattern Statistics. In: Huevelink, G. et al., eds. *Spatial Accuracy Assessment in Natural Resources and Environmental Sciences*, Delft University Press, 2000, pp. 75-82.

Duh, J.D. and Brown, D.G. Local reduction of systematic error in 7-1/2 minute DEMs by detecting anisotropy in derivative surfaces. In K. Lowell and A. Jaton, Eds. *Spatial Accuracy Assessment: Land Information Uncertainty in Natural Resources*. Chelsea, MI: Ann Arbor Press, 1999, pp 281-292.

Articles

Gober, P., Middel, A., Brazel, A.J., Myint, S.W., Chang, H., Duh, J.D., and House-Peters, L. Tradeoffs between water conservation and temperature amelioration in Phoenix and Portland: Implications for urban sustainability. *Urban Geography*. 2012, 33(7): 1030-1054.

Warden, C.R., Duh, J.D., Lafrenz, M., Chang, H., Monsere, C. Geographical analysis of commercial motor vehicle hazardous materials crashes on the Oregon state highway system. *Environmental Hazards*, 2011, 10(2): 171-184.

Middel1, A., Brazel, A.J., Gober, P, Myint, S.W, Chang, H., Duh, J.D. Land cover, climate, and the summer surface energy balance in Phoenix, AZ, and Portland, OR. *International Journal of Climatology*. 2011, 32: 2020-2032.

Duh, J.D., Shandas, V., Chang, H., and George, L. Rates of Urbanization and the Resiliency of Air and Water Quality. *Science of the Total Environment*, 2008, 400: 238-256.

Duh, J.D. and Brown, D.G. Knowledge-Informed Pareto Simulated Annealing for Multi-Objective Spatial Allocation. *Computers, Environment and Urban Systems*, 2007, 31(3): 253-281.

Brown, D.G. and Duh, J.D. Spatial simulation for translating from land use to land cover. *International Journal of Geographical Information Science*, 2004, 18(1): 35-60.

Cifaldi, R., Allan, J.D., Duh, J.D. and Brown, D.G. Spatial patterns in land cover in exurbanizing watersheds in southeastern Michigan. *Landscape and Urban Planning*,,2004, 66: 107-123.

Brown, D.G. and Duh, J.D. Reply to Huber. *Journal of Environmental Management*, 2001, 62: 233-236.

Brown, D.G., Pijanowski, B.C., and Duh, J.D. Modeling the Relationships between Land-Use and Land-Cover on Private Lands in the Upper Midwest, USA. *Journal of Environmental Management*, 2000, 59: 247-263.

Brown, D.G., Duh, J.D., and Drzyzga, S.A. Estimating error in an analysis of forest fragmentation change using North American Landscape Characterization (NALC) data. *Remote Sensing of Environment*, 2000, 71(1): 106-117.

Olson, J.M., Broomes, L., Drzyzga, S.A., Duh, J.D., Dygert, L.K., Hallden, J., Lobben, A.K., Philpotts, A., Sims, I.D., and Ware, J. Teaching and Learning Focus Group Skills: A Classroom Example Evaluating Map Design. *Cartographic Perspectives*, 1998, No. 31, Fall: 26-36.

Other (GIS software)

Duh, J.D. and Bross, L. *Basin Analysis Report Generating Tool for ArcGIS Pro* (https://github.com/PSU-CSAR/bagis-pro). Center for Spatial Analysis & Research, Geography, Portland State University, Portland, OR, 2021.

Duh, J.D., Keifer, J, and Bross, L. Online *Basin Analysis Geographic Information System – eBAGIS* (http://webservices.geog.pdx.edu/ebagis/). Center for Spatial Analysis & Research, Geography, Portland State University, Portland, OR, 2018.

Duh, J.D. and Bross, L. *Basin Analysis Geographic Information System - Parameterization Module (BAGIS-P)*(https://github.com/PSU-CSAR/vb-bagis-p). Center for Spatial Analysis & Research, Geography, Portland State University, Portland, OR, 2015.

Duh, J.D., Bross, L., and Hennings, R. *SNODAS Tools* (https://github.com/PSU-CSAR/django-snodas). Center for Spatial Analysis & Research, Geography, Portland State University, Portland, OR, 2013.

Duh, J.D., Bross, L., and Momeni, M. *Basin Analysis Geographic Information System (BAGIS) Version 2* (https://github.com/PSU-CSAR/vb-bagis). Center for Spatial Analysis & Research, Geography, Portland State University, Portland, OR, 2013.

Duh, J.D., Bross, L., and Jain, R. *Basin Analysis Geographic Information System- HRU Delineation Module (BAGIS-H)*(https://github.com/PSU-CSAR/vb-bagis-h). Center for Spatial Analysis & Research, Geography, Portland State University, Portland, OR, 2012.

Duh, J.D. and Manzione, J. *Basin Analysis Geographic Information System (BAGIS)*. Center for Spatial Analysis & Research, Geography, Portland State University, Portland, OR, 2010.

Non-Refereed Publications

Articles

Duh, J.D. and Brown, D.G. Knowledge-Informed Pareto Simulated Annealing for Multi-Objective Spatial Allocation. *Proceedings, International GeoComputation Conference 2005*. Ann Arbor, MI.

Duh, J.D. The Integration of MIS, AM/FM and GIS Techniques in the Management of Irrigation System of Irrigation Association. *Proceedings of the Annual Meeting of Chinese Geographical Information Society,* 1995. Taipei, Taiwan.

Duh, J.D. and Chu, T.H. Image Segmentation for Aerial Photographs: A Category-Guided Heuristic Approach. *Bulletin of the Geographical Society of China*, 1991.

Other (Technical report)

Duh, J.D. and Bross, L. *Basin Analysis Report Generating Tool for ArcGIS Pro Users Guide* (https://sites.google.com/site/nwccspatialservices/for-users/users-manuals/bagis-pro-users-manual). Center for Spatial Analysis & Research, Geography, Portland State University, Portland, OR, 2021.

Duh, J.D., Keifer, J, and Bross, L. Online *Basin Analysis Geographic Information System – eBAGIS* Users Guide (https://sites.google.com/site/nwccspatialservices/for-users/users-manuals/ebagis-users-manual). Center for Spatial Analysis & Research, Geography, Portland State University, Portland, OR, 2018.

Duh, J.D. and Bross, L. *Basin Analysis Geographic Information System- Parameterization Module (BAGIS-P) Users Guide*. (https://sites.google.com/site/nwccspatialservices/for-users/users-manuals/bagis-p-users-manual/bagis-p-users-manual) Center for Spatial Analysis & Research, Geography, Portland State University, Portland, OR, 2015.

Duh, J.D., Bross, L., and Hennings, R. *SNODAS Tools Users Guide*. (https://sites.google.com/site/nwccspatialservices/snodas-swe-tools) Center for Spatial Analysis & Research, Geography, Portland State University, Portland, OR, 2013.

Duh, J.D., Bross, L., and Momeni, M. *Basin Analysis Geographic Information System (BAGIS) Version 2 Users Guide*. (https://sites.google.com/site/nwccspatialservices/for-users/users-manuals/bagis-v3-users-manual) Center for Spatial Analysis & Research, Geography, Portland State University, Portland, OR, 2013.

Duh, J.D., Bross, L., and Jain, R. *Basin Analysis Geographic Information System- HRU Delineation Module (BAGIS-H) Users Guide*. (https://sites.google.com/site/nwccspatialservices/for-users/users-manuals/bagis-h-users-manual) Center for Spatial Analysis & Research, Geography, Portland State University, Portland, OR, 2013.

Duh, J.D. *Basin Analysis Geographic Information System* (BAGIS). Center for Spatial Analysis & Research, Geography, Portland State University, Portland, OR, 2010.

Presentations

Invited presentations

2018. “Spatial Literacy and GIS Application Innovation.” STEC Online Seminar Series - Innovation of Education, Culture, Science and Technology of USA. Portland, Oregon. Aug 28.

2017. "G&IS for Spatial Analysis and Modeling." Portland State University System Science Seminar Series. Portland State University, Portland, Oregon. Oct 13.

2016. “Let Knowledge Serve the City - The City is Our Classroom: RLIS and GIS Education at Portland State University.” Metro Regional Government 2016 RLIS Subscriber Meeting. Metro, Portland, Oregon. February 11.

2014. "Characterizing Computational Complexity in Geographic Optimization Problems." Portland State University System Science Seminar Series. Portland State University, Portland, Oregon. May 5.

2010. “The Mechanics of Legislative Redistricting: Automatic Redistricting Using Spatial Optimization Algorithms.” Willamette Leadership Summit. Willamette University, College of Law, Salem, Oregon. September 16.

2008. “Rates of Urbanization and the Resiliency of Air and Water Quality.” U.S.-India Joint Workshop: Coupled Human-Natural System and the Challenges of Rapid Urbanization to the Resiliency of Water Resources. Indian Institute of Science, Bangalore, India.

2007. “Geographic Simulation & Optimization - Tools for Collaborative Spatial Decision-Making.” Geography Department, University of Colorado, Boulder, Colorado. January 26.

2006. “Geographic Optimization & Spatial Decision Support Systems.” Geography Department, University of Oregon, Eugene, Oregon. October 19.

Conference presentations (* Not presenter)

2019. Duh, J.D. "Automatic Surface Change Detection Using DSMs Derived from sUAS Images." GIS in Action 27th Annual Conference. April 23, 2019. Portland, Oregon.

2019. Bross, L. Keifer, J., & Duh, J.D. "Interfacing ArcGIS Desktop and GIS Server for Web-Based Basin Analysis GIS." GIS in Action 27th Annual Conference. April 22, 2019. Portland, Oregon.

2017. Duh, J.D. "Performing Change Detection on Digital Surface Models Derived from UAS and LiDAR Systems." ASPRS Columbia River & Puget Sound Regions Technical Exchange. October 27, 2017. Vancouver, Washington.

2012. Sharp, S. (organizer), Serby, R., DiBiase, D., Breyer, B., and Duh, J.D. "Investing in our GIS Future: GIS Internships," panel discussion, URISA's 50th Annual GIS-Pro Conference. October 2, 2012. Portland, Oregon.

2012. Duh, J.D. and Bross, L. “Basin Analysis GIS - A Spatial Decision Support System for Hydrological Modeling.” 108th Annual Meeting, Association of American Geographers. February 25, 2012. New York, New York.

2011. Duh, J.D. "Basin Analysis GIS - for USDA-NRCS National Water and Climate Center Water Forecasting." GIS in Action 19th Annual Conference. March 30, 2011. Portland, Oregon.

2011. Duh, J.D. "Basin Analysis GIS - A Spatial Decision Support System for Selecting Snowpack Monitoring Sites." Oregon Academy of Science Annual Meeting. February 26, 2011. Sylvania, Oregon.

2010. Duh, J.D. “Computer simulation for pedestrian evacuation in the event of a local tsunami for the City of Seaside, Oregon.” 106th Annual Meeting, Association of American Geographers. Washington, D.C.

2010. Bross, L. and Duh, J.D.* Poster session: “Simulating a Tsunami Pedestrian Evacuation from Seaside, Oregon.” 2010 GIS in Action, Portland, OR. (Awarded the Best Technical

Poster of the meeting and the winner of 2010 URISA National Student Poster Competition.)

2007. Duh, J.D. "Monte Carlo Simulation for Characterizing Computational Complexity in Geographic Optimization." 103rd Annual Meeting, Association of American Geographers. San Francisco, CA.

2006. Duh, J.D. "GIS Tools for Learning Geographic Districting." 69th Annual Meeting of the Association of Pacific Coast Geographers. Eugene, Oregon.

2006. Duh, J.D., Kosek-Sills, S., Nassauer, J., and Brown, D.G. "Simulating Large-Lot Residential Landscape Change." 21st Annual Symposium of the US International Association for Landscape Ecology. San Diego, California.

2005. Duh, J.D. and Brown, D.G. "Knowledge-Informed Pareto Simulated Annealing for Multi-objective Spatial Allocation." GeoComputation 2005. Ann Arbor, Michigan.

2005. Duh, J.D. "Simulated Annealing for Generating Raster Categorical Maps." Oregon Academy of Science Annual Meeting. Corvallis, Oregon.

2004. Duh, J.D. "Knowledge-informed simulated annealing for generating prescribed patterns in resource allocation." 100th Annual Meeting, Association of American Geographers. Philadelphia, PA.

2001. Duh, J.D. and Brown, D.G. "Incorporating Spatial Statistics and Simulation in the Modeling of Land Cover Change." 97th Annual Meeting, Association of American Geographers. New York, NY.

2000. Brown, D.G. and Duh, J.D. "Using spatial simulation to translate between land-use and land-cover." GIScience 2000 Abstracts, Savannah, GA, Santa Barbara: University of California Regents, p. 234-235.*

2000. Duh, J.D. and Brown, D.G. "Modeling Land Cover Change in the Grand Traverse Bay Area, Michigan." 96th Annual Meeting, Association of American Geographers. Pittsburgh, PA.

1999. Duh, J.D. and Brown, D.G. "Relationships between Socioeconomic Measures of Development and Landscape Indices in Northern Lower Michigan." 95th Annual Meeting, Association of American Geographers. Honolulu, HI.

1999. Brown, D.G. and Duh, J.D. "Estimating error in fragmentation metric values obtained using remote sensing for change analysis." 5th World Congress, International Association for Landscape Ecology. Snowmass, CO.*

1998. Duh, J.D., Lobben, A.K, and Philpotts, A.E. Poster session: "Qualitative focus group evaluation of a physical geography multimedia lesson." 94th Annual Meeting, Association of American Geographers. Boston, MA.*

1998. Duh, J.D. and Brown, D.G. "Local reduction of systematic error in 7-1/2 minute DEMs by detecting anisotropy in derivative surfaces." Third International Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences. Quebec City, Quebec, Canada.

1998. Brown, D.G. and Duh, J.D. “Application of North American Landscape Characterization (NALC) Data for Studying Regional-Scale Landscape Pattern and Change.” Thirteenth Annual Meeting United States Regional Association IALE. East Lansing, MI, March 20, 1998.*

1997. Duh. J.D. “Requirements for cartographic/geographic animation software.” Annual Meeting East Lake Division, AAG. East Lansing, MI.

1993. Duh, J.D. and Lai, C.K. “Current status of the standardization of NGIS databases.” National Geographic Information System Standard Workshop, Researches and Development Committee, Executive Yuan, Taiwan, ROC.

Honors, Grants, and Fellowships

2022-2023. PI. USDA National Water and Climate Center (NWCC) Spatial Services - Enhancing Basin Analysis Modeling and Climate Data Characterization. USDA, NRCS NR223A750023C013 ($70,000).

2022-2023. PI. USDA Forest Service - Design and Validation of a Spatially Aware Variant of the BioSum Modeling Framework. USDA, Forest Service 22-JV-11261979-041 ($179,998).

2021-2022. PI. USDA National Water and Climate Center (NWCC) Spatial Services - Watershed Snow Water Equivalent and Stream Network Characterization. USDA, NRCS NR213A750023C015 ($70,000).

2020-2021. PI. USDA National Water and Climate Center (NWCC) Spatial Services - NWCC Spatial Services – Enhancing Basin Analysis & Hybrid Stream Flow Modeling. USDA, NRCS NR2074820007C001 ($70,000).

2019-2022. PI. USDA Forest Service - Modeling Economic Drivers and Restoration Strategies on Forest Resilience. USDA, Forest Service 19-JV-11261979-067 ($170,820).

2019-2021. PI. USDA National Water and Climate Center (NWCC) Spatial Services - Enhancing Basin Analysis Modeling. USDA, NRCS NR193A750001C012 ($70,000).

2018-2019. PI. USDA National Water and Climate Center (NWCC) Spatial Services - Enhancing GIS Data Services. USDA, NRCS NR1874820007C002 ($70,000).

2018-2019. PI. USDA National Water and Climate Center (NWCC) Spatial Services - Enhancing GIS Data Services. USDA, NRCS NR1874820007C002 ($70,000).

2018. PI. Provost's Challenge: Flexible Degree Round 3 – Enhancing Geography and GIS Flexible Degrees. Portland State University, Office of Academic Innovation ($65,284).

2018. PI. Provost's Challenge: Flexible Degree Round 3 – Competency-based GIS Education. Portland State University, Office of Academic Innovation.

2017-2018. PI. USDA National Water and Climate Center (NWCC) Spatial Services – Integrating Climate Data in Watershed Analysis. USDA, NRCS 68-7482-17-011 ($70,000).

2015-2017. PI. PSU Faculty Enhancement Grant: Developing UAS-Based Photogrammetry System for Geographic Applications ($7,680).

2015-2016. PI. Provost's Challenge: Flexible Degree - Training 21st Century Spatial Literacy and Information Technology Workforce through Geography and GIS. Portland State University, Office of Academic Innovation ($83,685).

2015-2016. Associate Professor/IPA. Web-Based Spatial Decision-Support System for Resources Management. US Army Corps of Engineers ($20,000).

2014-2017. PI. USDA National Water and Climate Center (NWCC) Spatial Services – Watershed Analysis Internet GIS. USDA, NRCS 68-7482-14-516 ($205,301).

2012-2014. Associate Professor/IPA. Spatial Decision-Support System for the Implementation of Performance-Based Budgeting. US Army Corps of Engineers ($93,983).

2011-2014. PI. USDA National Water and Climate Center (NWCC) Spatial Services – Watershed Characterization Modeling. USDA, NRCS 68-7482-11-523 ($180,083).

2010-2012. PI. USDA National Water and Climate Center (NWCC) Spatial Services – HRU Delineation Modeling. USDA, NRCS 68-7482-10-514 ($181,771).

2010-2011. John Eliot Allen Outstanding Teacher Awards. College of Liberal Arts and Sciences, Portland State University.

2010. PSU Professional Travel Grant Awards for attending the 106th Association of American Geographers Annual Meeting. Washington, D.C.

2010. Faculty advisor of the winner of 2010 Urban and Regional Information Systems Association (URISA) National Student Poster Competition - Bross, L. and Duh, J.D. "Simulating a Tsunami Pedestrian Evacuation from Seaside, Oregon."

2009. PI. USDA National Water and Climate Center (NWCC) Spatial Services - Basin Analysis Modeling. USDA, NRCS 68-7482-9-534 ($102,857).

2009. Co-PI with Chang, H. Shandas, V. etc. NOAA Integrated Water and Land Planning as a Climate Adaptation Strategy: Comparisons of Portland, Oregon and Phoenix, Arizona ($299,996).

2009. Co-PI with Shandas, V, Chang, H, etc. PSU Miller Grant Sustainability: Carb-WON Districts: Carbon and Water Observatory Networks for Eco-Districts ($186,767).

2008. Co-PI with Shandas, V, Chang, H, George, L, etc. NSF U.S.-India Joint Workshop: Coupled Natural-Human Systems and the Challenge of Rapid Urbanization to the Resiliency of Water Systems ($49,313).

2008. ASPRS Conference Management Award. The American Society for Photogrammetry and Remote Sensing 2008 National Conference, Portland, Oregon.

2008. Co-PI with Chang, H. PSU Internationalization Mini-Grants. Interactions of Land Cover Change and Flood Hazards in North Korea ($1,000).

2008. PI. PSU Faculty Enhancement Grant: Developing Micro-Simulation GIS for Tsunami Evacuation Planning ($6,100).

2007. National Taiwan Normal University Summer Visiting Scholar ($ 1,180).

2007. PSU Faculty Development Grant ($1,000) – Creating Tsunami Emergency Response GIS Database.

2005-2006. John Eliot Allen Outstanding Teacher Awards. College of Liberal Arts and Sciences, Portland State University.

2005. PSU Professional Travel Grant Awards for attending the 8th International Conference on GeoComputation, Ann Arbor, Michigan.

2005. PI. Northwest Academic Computing Consortium Proof of Concept Grant: Optimization Techniques for Geovisualization and Spatial Decision-Making ($10,000).

2004. Eugene and Emily Grant Scholarship, School of Natural Resources & Environment, University of Michigan ($5,000).

2002-2003. USDA Forest Service. Developing GIS simulation for integrating landscape ecological knowledge into landscape designs (Co-PI with Dan Brown). School of Natural Resources & Environment, University of Michigan ($54,170).

2001-2002. CARAT/Rackham Information Technology Fellowship, University of Michigan.

Other Research Activities

Proposals submitted

2021. Co-PI with Scjafer, B (Johns Hopkins University), Cal, R.B. (Portland State University), et al. NSF Research Traineeship (NRT) Program: Education in Renewable Energy - Next-gen Wind Energy Systems (eRENEW). ($2,963,831) – Pending.

2018. PI. Oregon Watershed Enhancement Board. Utilizing Multispectral UAV-Imagery to Monitor Stream and Riparian Restoration Effectiveness. ($95,431) – Unfunded.

2015. Co-PI with de Rivera, C., Strecker, A., et al. NSF REU: Eco-Informatics for Bioinvasions ($374,750) – Unfunded.

2013. PI. PSU Provost's Challenge proposal: reTHINK Spatial Literacy Education - Digital Earth, Environment, and Society and Online GIS Curriculum - Unfunded.

2010. Co-PI with Shandas, V., Scheller, R. NSF Geography and Spatial Sciences: The Impact of Urban Growth and Climate Variability on the Resiliency of Water Resources in Rapid Urbanizing Regions of the World ($388,217) – Unfunded.

2009. PI. USGS Earthquake Hazards Program: Developing Micro-Simulation GIS for Tsunami Evacuation Planning ($34,720) – Unfunded.

2009. PI with Shobe, H. and Banis, D. PSU Miller Grant Sustainability Round II: Community Mapping for Promoting Civic Engagement in Sustainable Practice ($26,402) – Unfunded.

2007. PI. NSF Operations Research Program (05-5514): Coupling Heuristics with Geographic Characteristics for Solving Geographic Districting Problems ($167,499) – Unfunded.

2007. Co-PI. OTREC (2007-2008): Multiscale Identification and Modeling of Deer Vehicle Accident Hotspots in North Central Oregon ($74,600) – Unfunded.

2006. PI. NSF Geography and Regional Science Program (05-579): CAREER – Geographic Optimization Theory and Techniques for Spatial Decision-Making ($490,321) – Unfunded.

2006. PI. OTREC (2006-2007): Developing Micro-Simulation GIS for Tsunami Evacuation Planning ($38,585) – Unfunded.

2006. Co-PI. NSF Partnerships for International Research and Education (PIRE) pre-proposal: International Challenges to Air and Water Quality in Rapidly Urbanizing Regions of South and Southeast Asia – Not invited for proposal submission.

Other Teaching, Mentoring and Curricular Achievements

Courses taught (* New course developed)

GEOG 4/510 GIS for Marketing Workshop*
GEOG 4/575 Digital Compilation and Database Design
GEOG 4/576 3D Terrain Analysis & Visualization*
GEOG 4/577 Photogrammetry & LiDAR*
GEOG 4/581 Satellite Digital Image Analysis
GEOG 4/582 Satellite Image Classification and Change Detection
GEOG 4/588 GIS I – Introduction
GEOG 4/590 GIS Programming*
GEOG 4/592 GIS II – Applications
GEOG 4/593 Digital Terrain Analysis*
GEOG 591 Professionalism in GIS

Current students

Thesis advisee:
- Tasha Albertson-Herberholz, MS. Geography, Portland State University.
- Jordan Hamann, MS. Geography, Portland State University.
- Lauren McKinney-Wise, MS. Geography, Portland State University. (co-advising with David Banis)
- Alex Troy, MS. Geography, Portland State University.

Dissertation committee:
- Hue Duong, PhD. Earth, Environment, and Society, Portland State University.

Thesis committee:
- Alec Dyer, MS. Geography, Portland State University.

MS in GIS committee:
- Connie Rodriguez, MS in GIS, Portland State University.
- Scott Milleson, MS in GIS, Portland State University.
- Marty Marquis, MS in GIS, Portland State University.

Completed students

Thesis advisee:

- Andrew Fritter, MS. 2021. Geography, Portland State University. “Relationship Between Image Spectroscopy Spatial Resolution and Crown Level Tree Species Classification Accuracy”
- Andrew Muller, MS. 2021. Geography, Portland State University. “Assessment of Vertical Accuracy from UAV-LiDAR and Structure from Motion Point Clouds in Floodplain Terrain Mapping”
- Alicia Milligan, MS. 2021. Geography, Portland State University. (co-advising with David Banis). “My Mountain, Your Mountain, Our Mountain: Incorporating Emotional and Sensory Experiences in Mapping Sense of Place in Mount Hood National Forest”
- Lauren Sharwood, MS. 2021. Geography, Portland State University. “Modeling Environmental Factors Related to Drought-Induced Tree Mortality based on Lidar and Hyperspectral Imagery”
- Debbie Blackmore, MS. 2016. Geography, Portland State University. “Use of Water Indices Derived from Landsat OLI Imagery and GIS to Estimate the Hydrologic Connectivity of Wetlands in the Tualatin River National Wildlife Refuge”
- Jeremy Grotbo, MS. 2016. Geography, Portland State University. “The “ADaM cube”: Categorizing Portland, Oregon’s Urbanization Using GIS and Spatial Statistics”
- Lesley Bross, MS. 2015. Geography, Portland State University. “Using Landsat TM Imagery to Monitor Vegetation Change Following Flow Restoration to the Lower Owens River, California”
- Jarrett Keifer, MS. 2014. Geography, Portland State University. "Agricultural Classification of Multi-Temporal MODIS Imagery in Northwest Argentina Using Kansas Crop Phenologies"
- Craig Warden, MS. 2009. Geography, Portland State University. “Geographic Analysis of Commercial Motor Vehicle Hazardous Materials Crashes on the Oregon State Highway Systems”

PhD dissertation committee:
- Sebastian Busby, PhD. 2021. Earth, Environment, and Society, Portland State University. “Post-Fire Tree Mortality and Regeneration Patterns as Proxies of Conifer Forest Resilience”
- Kenya Williams, PhD. 2021. Urban Studies and Planning, Portland State University. “The Soniferous Experience of Public Space: A Soundscape Approach”
- Selamawit Tesfayesus Mehary, PhD. 2018. Civil and Environmental Engineering, Portland State University.
- Matthew Holdgate, PhD. 2015. Biology, Portland State University.
- Veronika Megler, PhD. 2014. Computer Science, Portland State University.
- Jeremy Parra, PhD. 2012. Environmental Sciences and Management, Portland State University.
- Nadezhda D. Gillett, PhD, 2010. Environmental Sciences and Management, Portland State University.
- Hongwei Dong, PhD, 2010. Urban Studies, Portland State University.

Thesis committee:
- Max Gersh, MS. 2021. Environmental Science and Management, Portland State University. “Forest Fire Effects on the Spatio-temporal Variability of Landscape Snow Albedo”

- Jean-Carl Ende, MS. 2020. Urban Studies, Portland State University. “Gas Stations and the Wealth Divide - Analyzing Spatial Correlations Between Wealth and Fuel Branding”
- Bryce Glenn, MS. 2020. Geography, Portland State University. “Assessing Airborne Radar to Map Glacier Elevations in Alpine Terrain Including Estimated Glacier Volume Change”
- Amanda Temple, MS. 2019. Geography, Portland State University. “Devising an Urban Connectivity Model for the Northern Red-legged Frog in the Portland Metropolitan Area, Oregon”
- Jeffrey Ramsey, MS. 2019. Geography, Portland State University. “Tree Canopy Cover and Potential in Portland, OR: A Spatial Analysis of the Urban Forest and Capacity for Growth”
- Judah Detzer, MS. 2018. Geography, Portland State University. "Characterizing Temperature Variability States Across Southern South America and Associated Synoptic-Scale Meteorological Patterns"
- Benjamin Fahy, MS. 2018. Geography, Portland State University. "Evaluating the Impact and Distribution of Stormwater Green Infrastructure on Watershed Outflow"
- Alexander Nagel, MS. 2017. Geography, Portland State University. "Analyzing Dam Feasibility in the Willamette River Watershed"
- Matthew Bonnette, MS. 2017. Geography, Portland State University. "The Effects of Scale Variation on Single-Family Residential Water Use in Portland, Oregon"
- Eric Watson, MS. 2016. Geography, Portland State University. “Use of Distance Weighted Metrics To Investigate Landscape-Stream Temperature Relationships Across Different Temporal Scales”
- Zack Herzfeld, MS. 2016. Geography, Portland State University. “Effects of Spatially Distributed Stream Power on Check Dam Function in Small Upland Watersheds: A Case Study of the Upper Laja River Watershed, Guanajuato, Mexico”
- Jill Master, MS. 2014. Geography, Portland State University. "Predicting hourly stream temperature as a function of vegetative shading for low-flow headwater streams in the Western Cascade Mountains"
- Elizabeth Breyer, MS. 2013. Geography, Portland State University. "Household Water Demand and Neighborhood Context: A Multilevel Approach."
- Madeline Steele, MS 2013. Geography, Portland State University. "Effects of HRU Size on PRMS Performance in 30 Western U.S. Basins."
- Beth Bambrick, MS 2012. Geography, Portland State University.
- Catherine Clark, MS 2012. Geography, Portland State University. "Modeling Prehistoric Occupation and Use of the Powder River Basin, Wyoming."
- Steve Sobieszczyk, MS 2010. Geology, Portland State University. "Using Turbidity Monitoring and LiDAR-Derived Imagery to Investigate Sources of Suspended Sediment in the Little North Santiam River Basin, Oregon, Winter 2009-2010."
- Joe Narus, MS 2010. Geography, Portland State University. “Coal to Oil in China:Scientific Development or Crossing the River by Feeling the Stones?”
- Craig Ducey, MS 2010. Geography, Portland State University. “Characterizing Spatial Patterns in Landscape Heterogeneity at Lava Cast Forest, Central Oregon”
- Lily House-Peters, MS 2010. Geography, Portland State University.
- David Wickham, MS. 2009. ESM, Portland State University. “Calculating the Volume of the May 18, 1980 Eruption of Mount St. Helens”

- Sarah Praskievicz, MS. 2009. Geography, Portland State University. “Impacts of Climate Change and Urban Development on Water Resources in the Tualatin River Basin”
- Michael Hekkers, MS. 2009. Geography, Portland State University. “Spatial Variation of Mount Rainier’s Glaciers for the Last 12,000 Years”
- Josh Theule, MS. 2008. Geology, Portland State University. “Determining Landslide Susceptibility along Natural Gas Pipelines in Northwest Oregon, USA”
- Chad Cary, MS. 2006. Geography, Portland State University. “Comparison of the Spatial Variation between ASCE Penman-Monteith Reference Evapotranspiration and Potential Evaporation in Oregon”
- David Graves, MS. 2005. Geography, Portland State University. “An Assessment of the Impacts of Climate Change on the Upper Clackamas River Basin with a Distributed Hydrologic Model”
- David Kuhn, MS. 2005. Geography, Portland State University. “Fuel Model Development and Fire Simulation Analysis in the Wildland-Urban Interface: The Case of Forest Park, Portland, Oregon”

Research papers advised:

- Kyle Goodman, MS. 2017. Geography, Portland State University. "Environmental Justice and GIS: A Comparison of Three GIS Methods for Estimating Vulnerable Population Exposed to Brownfield Pollution in Portland, Oregon"
- Josh Schane, MS. 2016. Geography, Portland State University. “Comparing Unmanned Aerial Systems (UAS) Structure-From-Motion Digital Surface Modeling to Laser Imaging Detection and Ranging (LIDAR)”
- Daniel Logan, MS. 2014. Geography, Portland State University. "The Risks of the Rose City: Assessing the Social Vulnerability of Communities to Multiple Environmental Hazards in the Portland Metropolitan Area."
- Sara Loreno, MS. 2014. Geography, Portland State University. "The Cost of Hauling Timber: A Comparison of Raster- and Vector- Based Travel-Time Estimates in GIS."
- Jamie Ludwig, MS. 2012. Geography, Portland State University. “Quantifying Accessibility for Wheelchair Users in Urban Areas Using GIS Network Analysis: A Case Study in the Boise Neighborhood, Portland, Oregon.”
- Dan Craver, MS. 2010. Geography, Portland State University. "Influence of Wetland Landscape Structure on Duck Nest Success at Malheur National Wildlife Refuge, Oregon."
- David Rosen, MS. 2009. Geography, Portland State University. “Methods for Correcting Topographically Induced Radiometric Distortion on Landsat Thematic Mapper Images for Land Cover Classification”
- Beth Goralski, MS. 2008. Geography, Portland State University. “Monitoring Western Juniper (Juniperus occidentalis) Afforestation in Central Oregon using Remote Sensing Techniques”
- Tyler Vick, MS. 2008. Geography, Portland State University. “Comparing Pixel- and Object-Based Classification Methods for Determining Land-Cover in the Gee Creek Watershed, Oregon”
- Celia Cornett, MS. Current. Geography, Portland State University. “Migration of a Legacy Tree Inventory to a Spatial Database Using GPS”
- Mark Isley, MS. 2006. Geography, Portland State University. “Managing Property Records Using a Geographic Information System”

- Nate Martin, MS. 2006. Geography, Portland State University. “Using Artificial Neural Network Activation Strength for Categorical Reclassification: A Model to Assist Implementation of a Multi-Layer Perceptron Artificial Neural Network Classifier within Idrisi Kilimanjaro”
- Matthew Hampton, MS. 2005. Geography, Portland State University. “Highway Interchanges, Transportation and Land Use: An Exploration of Changes in Transportation Volumes and Land Use Factors within Interchange Catchments”

Research papers reader:
- Taylor Gibson, MS. 2017. Geography, Portland State University. "A Comparative Analysis of Bike-share Programs in Portland and Seattle"
- Alexandra Santora, MS. 2017. Geography, Portland State University. "Sedimentation Patterns in an Urban Beaver System: Fanno Creek, Oregon"
- Raymond Hennings, MS. 2014. Geography, Portland State University. “Stream Temperature Management in the Tualatin Watershed. Is it improving salmonid habitat?”

MS in GIS committee:
- Spencer Keller, MS in GIS 2022. Portland State University. “Building Roseburg Public Library’s Community Demographics Dashboard”

Other Community Outreach Achievements

2008. ASPRS 2008 Annual National Conference Technical Program co-chair.

2007 – 2009. Technical reviewer for the Oregon Department of Transportation Wildlife Movement Strategy Working Group.

2007 – 2009. Academic sponsor for Oregon Department of Transportation & Oregon Emergency Management (OEM) Emergency Mass Evacuations Project.

Significant Professional Development Activities

June 18-25, 2005. Participant, Geography Faculty Development Alliance workshops, University of Colorado, Boulder.

Governance Activities for the University, College, Department

University

2020 – Present. Faculty Senate Academic Computing Infrastructure Committee member.
2004 - Present. Director of GIS Programs.
2016 - 2021. Board member of Confucius Institute at PSU, Office of International Affairs
2018 - 2020. Faculty Senate Academic Requirements Committee chair.
2015 - 2020. Faculty Senate Academic Requirements Committee member.
2018. Portland State University Co-op Education Task Force member.
2016 - 2017. Faculty Senate Undergraduate Curriculum Committee member.
2013. Research and Strategic Partnerships, Ad hoc research misconduct committee

College

2019. CLAS Communication Manager search committee.
2015. CLAS Associate Dean for Research and Graduate Programs search committee.

Department

2021 - Present. Director of MS in GIS Program and Chair of MS in GIS Graduate Committee
2014 - Present. Geography undergraduate advisor
2009 - Present. CSAR ArcGIS Server Developer and System Administrator
2004 - Present. Director of Graduate GIS Certificate Program
2014 - Present. Pay, Promotion, and Tenure committee (2015, 2021 chair)
2017. Geography Program Coordinator search committee
2016. Political Ecologist faculty search committee chair
2004 - 2006, 2013 - 2016. Student ASPRS (GIS Club) faculty advisor.
2015. Graduate Admissions & Awards committee
2004 - 2010. Technology Committee, Chair
2007. Environmental Geography faculty search committee
2006. Curriculum Committee
2005 - 2006. Library liaison

Professionally-related Service

Journal article and proposal reviews

Applied Geography, 2008.
Annals of the Association of American Geographers, 2005.
Cartography and Geographic Information Science, 2008.
Computers & Geosciences, 2005.
Computers, Environment & Urban Systems, 2006.
Environment and Planning B, 2005.
Hydrological Sciences Journal, 2021.
International Journal of Geographical Information Science, 2006 – 2018.
Journal of Forestry, 2000.
Journal of Geography 2007.
Landscape and Urban Planning, 2006 – 2007.
NSF Geography and Regional Science Program, 2007.
NSF Software Infrastructure for Sustained Innovation (SI2) program, 2011.
Photogrammetric Engineering and Remote Sensing, 2007.
The Professional Geographer, 2005 – 2006.
The Science of the Total Environment, 2009.

2008. ASPRS National Conference Technical Program co-chair.

1999-2000. AAG GIS Specialty Group student councilor.

1998. Graduate student representative to faculty. Geography, Michigan State University.

1997-1998. Webpage design and maintenance for Geography, Michigan State University. The webpage received four outstanding ratings in GEO World Magazine. (Reference: Aangeenbrug, R.T. and Althausen, J.D. 1998. Web access opens GIS Curricula. *GEO World*, 11(4): 58- 60.)

1995-1996. Board member. Taiwan Geographic Information Society.

Memberships in Professional Societies

Association of American Geographers (AAG)

Association of Pacific Coast Geographers (APCG)

American Society for Photogrammetry and Remote Sensing (ASPRS)

International Association for Landscape Ecology (IALE) – US Chapter

Urban and Regional Information Systems Association (URISA)