Fernando Sánchez Trigueros

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SUMMARY

I am a college professor and a data scientist with over 15 years of experience in information technologies, higher education, management of research, and the administration of collaborative ventures between universities, government agencies, local organizations, and Native American communities. My research interests revolve around the convergence between social science, the environmental sciences, and information technology from a systems thinking perspective, with emphasis placed on the human dimensions of the environment and Indigenous contributions to nature-based solutions.

Keywords: Environmental Data Science, Geospatial Technologies, Natural Resource Management, Tribal and Federal Partnerships, Higher Education

POSITIONS

8/2022 – Present	Director, Elouise Cobell Land and Culture Institute, University of Montana
8/2022 – Present	Assistant Professor, Department of Native American Studies, University of Montana
8/2022 – Present	Assistant Professor, Department of Environmental Studies, University of Montana
8/2017 – 8/2022	Assistant Professor of Practice, School of Geography and Development, University of Arizona
8/2016 – 5/2017	Adjunct Instructor, Department of Geography, University of Montana
3/2016 – 8/2017	Postdoctoral Researcher, College of Humanities and Sciences, University of Montana
8/2015 – 1/2016	Research Fellow, School of Geography, University of Leeds, England
4/2015 – 7/2015	Research Fellow, Canon Foundation in Europe, The Netherlands
10/2014 – 12/2014	Research Assistant, School of Geography, University of Leeds, England
11/2013 – 7/2014	Research Assistant, School of Geography, University of Leeds, England
7/2007 – 6/2011	Doctoral Researcher, Department of History, Rovira i Virgili University, Spain

EDUCATION

DEGREES

Ph.D.	Earth Sciences and Prehistory. Rovira i Virgili University, Spain, 2013.
M.S.	Management Information Systems. University of Arizona, USA, 2022.
M.S.	Geographic Information Systems. University of Salford-Manchester, England, 2013.
M.S.	Applied Statistics. Universidad Nacional de Educación a Distancia (UNED), Spain, 2012.
M.S.	Quaternary Archaeology and Human Evolution. Universita di Ferrara, Italy, 2008.
B.A.	History (minor in Anthropology). University of Alicante, Spain, 2006

CERTIFICATES

Cert. Information Security. University of Arizona, USA, 2021.

Cert. Business Intelligence. University of Arizona, USA, 2020.

Cert. Optimization Methods. Universidad Nacional de Educación a Distancia (UNED), Spain, 2014.

TRAININGS

4/2015 – 7/2015 Department of Geography, Nara University, Japan
3/2011 – 5/2011 Institute of Archaeology, University College London, UK
1/2010 – 6/2010 Institute of Archaeology, University College London, UK
1/2009 – 6/2009 Institute of Archaeology, University College London, UK
3/2008 – 5/2008 Instituto Politécnico de Tomar, Portugal

RESEARCH AND CREATIVE SCHOLARSHIP

AWARDS

Competitive grants

As Principal Investigator

Title	Sponsor	Program	Award	Years
Centering indigenous epistemologies	Mellon Foundation	Higher Learning	$1,000,000	2023-2028
Development of an intelligent system for multimodal support of social scientific methodologies	Canon Foundation in Europe	Research Fellowships	€8,310 ($10,335)	2015
Geospatial patterns in the late Pleistocene human settlement of the Sierra de Atapuerca	Government of Spain	Faculty Capacity Building (FPU)	€59,500 ($81,515)	2007-2011

Total: $1,091,850

As Senior Partner

Title	Sponsor	Program	Award	Years
Precision forestry and rangeland innovation	National Science Foundation	NSF Engines	$822,498	2023-2025

Total: $822,498

Research contracts

As Principal Investigator

Title	Sponsor	Program or Unit	Award	Years
Social indicators and visitor modeling on the Boundary Waters	US Forest Service	Superior National Forest	$126,107	2024-2027
Tribal Interests in Fire Planning and Data Management	US Forest Service	Southern Research Station	$50,000	2023-2024
Landscape Fire Planning	US Forest Service	Pacific Southwest Research Station	$30,000	2023-2026
Tribal Geographic Information Systems	US Forest Service	Rocky Mountain Research Station	$101,360	2016-2018

Total: $307,467

As Co-Principal Investigator or Senior Partner

Title	Sponsor	Program	Award	Years
Understanding Tribal co-stewardship benefits and barriers	US Forest Service	Pacific Southwest Research Station	$40,000	2022-2026
Environmental Justice in Fuels Treatments	US Forest Service	Northern Region	$80,000	2023-2026
Tribal engagement for monitoring the effects of fire and fuels management on the Colville National Forest	US Forest Service	Rocky Mountain Research Station	$20,000	2015-2016

Total: $140,000

SCIENTIFIC SUPPORT

Research assistance

Project assisted	Project Director(s)	Sponsor	Years
Boundary Waters Canoe Area Wilderness Visitor Simulation Model	William T. Borrie	US Forest Service	2019
Arctic National Wildlife Refuge: Public Participation GIS	Steve Carver	US Forest Service	2014
Mapping support for case study descriptions of cultural resilience in fire adapted ecosystems	Steve Carver	US Forest Service	2014

Field trips

9/2015 – 12/2015 Rocky Mountain Research Station, USDA Forest Service, USA

10/2014 – 12/2014 Rocky Mountain Research Station, USDA Forest Service, USA

2/2014 – 3/2014 Rocky Mountain Research Station, USDA Forest Service, USA

SCIENTIFIC WRITING

Monographs

1. Stumpff, L.M.; **Sánchez-Trigueros, F.**; Watson, A.; Mdodi, F.; Teasdale, A. (2020). *Grassland, forest and riparian ecosystems on mixed-ownership federal lands adjacent to the Crow Reservation: developing a protective shield for sustainability of the environment and culture from impacts of climate-related disturbance*. Gen. Tech. Rep. RMRS-GTR-410. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 84 p. [URL]

Peer-reviewed articles

5. Stewart, T.; D'Evelyn, S.; Faiella, J.; **Sanchez, F.**; Mueller, K.; Montrose, L.; Walker, E.S. (2026) "Blazing a trail for fire management and smoke health collaboration: Takeaways from the 2024 Rocky Mountain Wildfire Smoke Symposium." *GeoHealth*, 10. [DOI]

4. Wynecoop, M.D.; Morgan, P.; Strand, E.; **Sanchez-Trigueros, F**. (2019) "Getting back to fire suméŝ: exploring a multi-disciplinary approach to incorporating traditional knowledge into fuels treatments". *Fire Ecology*, 15: 17. [DOI]

3. **Sánchez-Trigueros, F.**; Benito-Calvo, A.; Navazo, M.; Canals, A. (2017). "Assessing the effects of temporal ambivalence on defining palaeosystem interrelations, and applicability to the analysis of archaeological survey data". *Quaternary International*, 435 (B): 13-34 [DOI]

2. Baldauf-McBride., B.; **Sanchez-Trigueros, F.**; Carver, S.; Watson. A.; Stumpff, L.M.; Matt, R.; Borrie, W.T. (2017) "Participatory Geographic Information Systems as an organizational platform for the integration of traditional and scientific knowledge in contemporary fire and fuels management". *Journal of Forestry* 115 (1): 43-50. [DOI]

1. **Sánchez-Trigueros, F.** (2013). "Reflexiones sobre la gestión de la calidad y la incertidumbre en datos arqueológicos" [Reflections on the management of quality and uncertainty in archaeological data]. *Ligustinus* 1: 9-19. [URL]

Book chapters

2. **Sánchez-Trigueros, F.**; Tapia, M.; Schiffer, D. (accepted). "Exploring the ecological factors of violence in the City of Albuquerque, 2012-2024: temporal and spatial patterns during the police reform era." In (M. Tapia, T. Martin-Lopez, eds) *Crime, Delinquency, and Justice in the Land of Enchantment*. Albuquerque: UNM Press. (Expected release: Fall 2026)

1. **Sánchez-Trigueros, F.**; Canals, A. (2014). "Assessing positional uncertainty due to polygon-to-point collapse in the cartographic modelling of archaeological scatters". In (G. Earl, T. Sly, A. Chrysanthi, P. Murrieta-Flores, C. Papadopoulos, I. Romanowska & D. Wheatley, eds) *Archaeology in the Digital Era. Vol. II,* pp. 854-862. Amsterdam: *Amsterdam University Press*. e-ISBN 978 90 4852 728 1.

Data products

1. Douglas, M.L.; **Sanchez-Trigueros, F.**; Borrie, W.T.; Watson, A.E.; Christensen, N.A. (2020). *Social conditions, visitor flow & travel simulation model for the Boundary Waters Canoe Area Wilderness*. 2nd Edition. Fort Collins, CO: Forest Service Research Data Archive. [DOI]

Technical reports

6. Mitchell, J.; **Sanchez-Trigueros, F.**; Fields, R.; Benson, P.; Essen, M.; DeFrance, S. (2026). *Equitable Distribution of Benefits from All-Lands Fuel Treatments: Datasets for Decisions.* Agreement 23-PA-11015600-087. Report to USDA Forest Service, Northern Region. 28 p.

5. **Sanchez, F.** (2021). *Visitor segmentation and modeling of preferred travel zones in the Boundary Waters Canoe Area Wilderness, Minnesota*. Master's report to the MS in Management Information Systems, Eller College of Management, University of Arizona. 56p

4. **Sánchez-Trigueros, F.**; Matt, R.; Watson, A. (2016-2017). *Environmental change and fire: building adaptive capacity on the Flathead Indian Reservation, Montana*. Report to USDA Forest Service, Rocky Mountain Research Station. On file at the Aldo Leopold Wilderness Research Institute's archive, Missoula, Montana. 53 p.

3. **Sánchez-Trigueros, F.**; Wynecoop, M.; Carver, S. (2016). *The value of tribal engagement for monitoring the effects of fire and fuels management on cultural uses of the Colville National Forest, Northeast Washington*. Report to USDA, Northeastern Washington Collaborative Forest Landscape Restoration Program. On file at the Colville National Forest, Colville, Washington. 104 p.

2. Watson, A.E.; Carver, S.; Armatas, C.; Borrie, W.T.; Huck, J.; McBride, B.B.; **Sánchez-Trigueros, F.**; Stumpff, L.M.; Venn, T. (2014). *Traditional Phenological Knowledge: literature review and case study descriptions of cultural resilience in fire adapted ecosystems*. Project No. 12-2-01-18, Joint Fire Science Program, 27 p. [URL]

1. **Sánchez-Trigueros, F.** (2013). *Geospatial patterns in the late Pleistocene human settlement of the Sierra de Atapuerca (Burgos, Spain): spatial association, geometric probability and fuzzy statistics in the study of past land-use strategies.* PhD thesis, Universitat Rovira i Virgili. Copyright T.1419-2013, 512 p. [URL]

In preparation

2. Benson, P.; **Sánchez-Trigueros, F.** Default Assumptions Carry Distributional Consequences in Hazardous Fuel Treatment Planning.

1. Benson, P.; **Sánchez-Trigueros, F.** "For Whom? Parcel-Level Spatial Accessibility to Hazardous Fuel Treatment Benefits at the Blue Mountain Treatment Area Near Missoula, Montana." Submitted to the *American Association of Geographers Annals.*

PROFESSIONAL MEETINGS

Presentations at conferences

11. **Sanchez, F.**; Schiffer, D.; Tapia, M. "Violence in Albuquerque: Exploring Temporal and Spatial Patterns." *Southwestern Association of Criminal Justice Annual Meeting 2025*. SWACJ, Fort Worth, Texas, USA. 10/8/2025.

10. **Sanchez-Trigueros, F.**; Watson, A.; Stumpff, L.M; Zuo, C.; Wang, J.; Teasdale, A. "Reweaving traditional and scientific knowledge for grassland conservation: Lessons from the Great Plains, USA and the Qinghai-Tibetan Plateau, China". *Conserving the Wilderness of Sweeping Grasslands, 12th World Wilderness Congress*. WILD Foundation, Rapid City, South Dakota, USA. 8/30/2024.
9. **Sanchez-Trigueros, F.** "Geospatial segmentation of recreational visits in the Boundary Waters Canoe Area Wilderness, Minnesota: an unsupervised machine learning approach to travel modeling for wilderness management". *Changing Geography of National Parks and Protected Areas*, *2022 AAG Annual Meeting*. AAG, Virtual. 2/25/2022.
8. Salas-Nino, L.; **Sanchez-Trigueros, F.** "Accessibility effects of adding a new transit mode to the Bogota's Transportation System". *Conference in Advancing Transportation Equity*. Transportation Research Board, Virtual. 9/14/2021.
7. **Sanchez-Trigueros, F.**; Borrie, W.T.; Watson, A.E. "Modeling travel behavior in the Boundary Waters Canoe Area: an update on data requirements, simulation approaches, and possibilities for management support systems in wilderness recreation". *Park and protected area management in North America*, *2020 AAG Annual Meeting*. AAG, Virtual. 4/9/2020.
6. **Sánchez-Trigueros, F.**; "Evolving a genetic algorithm to solve a multiple knapsack optimization problem with allocation frictions, and its application to maximizing spatial accessibility to services with minimal reallocation costs". *GeoAI and Deep Learning Symposium: Spatial-Temporal Modeling and Data Mining*, *2019 American AAG Annual Meeting*. American Association of Geographers, Washington D.C., USA. 4/4/2019.
5. **Sanchez-Trigueros, F**. "Tribal perceptions of traditional fire management on the Flathead Reservation: dealing with fuzzy geodata in indigenous geographies". *5th Annual National Tribal GIS Conference 2014*. Southwestern Indian Polytechnic Institute, Albuquerque, New Mexico. 11/6/2014
4. **Sánchez-Trigueros, F.** "Fuzzy tagging and processing of semantic vagueness for crowd-sourcing public perceptions of environmental change". *Digital Conservation*. University of Aberdeen, Aberdeen, UK. 5/22/2014.
3. **Sanchez-Trigueros, F.;** Carver, S.; Huck, J. "Use of the Map-Me PPGIS tool for the collection of community-based ecological information". *Digital Conservation 2014*. University of Aberdeen, Aberdeen, UK. 5/23/2014.
2. **Sanchez-Trigueros, F**. "The treatment of public participation data in environmental impact assessment". *GIS Research UK 2014*. University of Glasgow, Glasgow, UK. 3/17/2014.
1. **Sanchez-Trigueros, F**. "Two exploratory techniques for the assessment of the positional uncertainty derived from the polygon-to-point collapse operation". *Computer Applications and Quantitative Methods in Archaeology 2012*. University of Southampton, Southampton, UK. 3/28/2012.

Presentations in panels and workshops

3. "Cultural Significance of Aspen." *Blackfoot Challenge Aspen Seminar*. Blackfoot Challenge. 7/21/2025
2. "Cultural Impacts of Invasive Species in Montana: Stakeholders, Values at Risk, and Management Strategies." *Science Advisory Panel: Assessing the Invasiveness of Species*. Montana Invasive Species Council (MISC), Department of Natural Resources and Conservation, Office of the Governor, State of Montana. 5/5-6/2025
1. "Tribal mapping for collaborative forest landscape restoration." *Sustainability Education Collective Conference Series*, University of Illinois Urbana-Champaign. 6/22/2023

Guest lectures

12. Addressing data uncertainty in the geosciences: A Remote Sensing Perspective. *Geosciences Seminar*, University of Montana. 10/16/2023.
11. Participatory and Indigenous GIS approaches to integrated resource management planning. *Society and Conservation Seminar*, Franke College of Forestry and Conservation, University of Montana. 5/2/2023
10. Land cover change trends between 2001 and 2019 in Indian Country: Perspectives from Earth observation and place-based knowledge. *Earth Sciences Seminar*, Department of Earth Sciences, Montana State University. 9/22/2022

9. Unsupervised Machine Learning Approaches for Knowledge Discovery in Wilderness Travel Modeling. *Computational Social Science Colloquium*, College of Social and Behavioral Sciences, University of Arizona. 4/16/2021

8. Participatory GIS, Fuzzy Geography and Tribal Consultation for Adaptive Planning in Ecosystems Management. *Native Nations Climate Adaptation Program Webinar Series*, Institute of the Environment, University of Arizona. 12/6/2017.

7. Tribal GIS in the Mountain Region: geospatial technologies and tribal consultation for adaptive planning in integrated resource management. City of Tucson & Pima County GIS Cooperative. 10/13/2017.

6. Using Boolean algebra, information theory and soft computing for the exploration of geospatial trends in fuzzy descriptions of place. *Geography Graduate Colloquium*, Department of Geography, The University of Montana. 11/28/2016.

5. Heuristic applications for geographic information analysis under constraints of data uncertainty. *Graduate Seminar in Applied Mathematics*, Department of Mathematical Sciences, The University of Montana. 10/25/2016.

4. Assembling a platform to channel collaboration between the Forest Service and the Colville Confederated Tribes in assessing the effects of fuels treatment management on cultural uses of the Colville National Forest. Natural Resources Committee, Colville Indian Agency, Nespelem, Washington. 10/20/2015.

3. Spatial humanities and Tribal GIS: applications in climate change, wildland fire and cultural landscape protection. Elouise Cobell Land and Culture Institute, The University of Montana. 12/5/2014.

2. Public Participation GIS in environmental research and planning. Payne Native American Center, The University of Montana. 2/24/2014.

1. Geospatial models for the analysis of land-use patterns among Pleistocene hominid communities: The case of the Sierra de Atapuerca (Burgos, Spain). Institute of Archaeology, University of Oxford, Oxford, UK. 12/1/2011.

SERVICE

INSTITUTIONAL SERVICE

Current

2/2026 – Present	Member, Systems Ecology Graduate Program, Univ. of Montana
8/2025 – Present	Chair, Elouise Cobell Day Planning Committee, Univ. of Montana
5/2025 – Present	Chair, Research and Creative Scholarship Committee, Univ. of Montana
1/2023 – Present	Member, Environmental Studies Scholarship Committee, Univ. of Montana
1/2023 – Present	Co-Chair, Native American Studies Scholarship Committee, Univ. of Montana
10/2022 – Present	Member, Advisory Committee, Kless Sustainability Fund, Univ. of Montana
8/2022 – Present	Member, Geographic Information Systems Certificate, Univ. of Montana

Past

8/2024 – 5/2026	Chair, Franke Global Leadership Initiative Board, Univ. of Montana
9/2024 – 8/2025	Chair, Research Committee, FARTHER Regional Innovation Engine, Univ. of Montana
8/2023 – 5/2025	Member, Research and Creative Scholarship Committee, Univ. of Montana
8/2023 – 7/2024	Member, Franke Global Leadership Initiative Board, Univ. of Montana
8/2022 – 7/2025	Member, Fulbright Scholarship Review Committee, Univ. of Montana
3/2021 – 8/2022	Member, Advisory Committee, Certificate in Computational Social Science, Univ. of Arizona
8/2021 – 8/2022	Chair, Institutional Review Board, School of Geography, Univ. of Arizona
9/2019 – 8/2021	Member, Institutional Review Board, School of Geography, Univ. of Arizona
8/2017 – 8/2022	Coordinator, M.S. in Geographic Information Systems Technology, Univ. of Arizona
8/2017 – 8/2022	Coordinator, Certificate in Geographic Information Systems Technology, Univ. of Arizona

Extraordinary

8/2023 – 5/2025 Member, Search Committee for *Assistant Professor of Native American Studies*, Univ. of Montana
1/2022 – 5/2023 Member, NAS Program Assessment
8/2022 – 5/2023 Member, Search Committee for *Assistant Professor of Environmental Studies*, Univ. of Montana
8/2022 – 5/2023 Chair, Search Committee for *Assistant Professor of Native American Studies*, Univ. of Montana
8/2021 – 3/2022 Member, Academic Program Review Committee, School of Geography, Univ. of Arizona
9/2018 – 10/2018 Member, Search Committee for *GIST Instructional Specialist, Senior* (S25545), Univ. of Arizona
11/2018 – 5/2019 Member, Search Committee for *GIST Assistant Professor of Practice* (F21747), Univ. of Arizona

SCIENTIFIC SERVICE

Review of grant proposals

Sponsor	Program	Role	Year
US Department of Agriculture, NIFA	A1541 Data Science for Food and Agricultural Systems	Peer Review Panelist	2026
US Department of Agriculture, NIFA	A1551 – Engineering for Precision Water and Crop Management (Panel A)	Peer Review Panelist	2025
US Department of Agriculture, NIFA	Capacity Building	Peer Review Panelist	2024
US Department of Agriculture, NIFA	Food and Agricultural Sciences Education	Peer Review Panelist	2023 2024
Government of Spain, Agencia Estatal de Investigacion	Generación de Conocimiento (*Knowledge Discovery*)	Peer Reviewer	2023 2024
US Department of Agriculture, NIFA	Capacity Building	Peer Review Panelist	2023
Government of the United Kingdom, Natural Environment Research Council	Landscape Decisions: Towards a new framework for using land assets	Peer Reviewer	2019

Review of scientific articles

Journals Journal of Open Source Software (2021); AlterNative: An International Journal of Indigenous Peoples (2022); Revista Ligustinus (2013-2014)

Publishers CRC Press (2020)

Conferences 12th World Wilderness Congress (2025); Computer Applications & Quantitative Methods in Archaeology (2014-2016)

Scientific edition

2007–2011 Translation and proofreading of press releases for the Institute of Human Palaeoecology and Social Evolution (IPHES) (Languages: English, French, Portuguese, Catalan).

2008 Transcription of the *2006 ICREA Conference. Plio-Pleistocene climatic changes, faunal turnovers and human dispersals* (Languages: English, French, Spanish).

Planning of conferences and workshops

Sponsor	Event	Role	Year
The WILD Foundation	12th World Wilderness Congress	Member, Planning Committee	2024
National Academies of Sciences, Engineering and Medicine	Integrating the Human Sciences to Scale Societal Responses to Environmental Change	Member, Planning Committee	2023
Society for Wilderness Stewardship	National Wilderness Workshop	Member, Planning Committee	2023
Udall Center for Studies in Public Policy, University of Arizona	Mapping the Way Ahead – Geospatial Online Tools for Public Participation	Member, Planning Committee	2022

MENTORING AND TEACHING

COURSES DEVELOPED AND TAUGHT

Graduate courses

Code	*Credits*	*Title*	*Times*	*Method*	*Organization*	*Last*
ENSC 574	3	Seminar in Environmental Analytics	2	In Person	University of Montana	SP2026
GIST 602A	3	Raster Spatial Analysis	7	Online	University of Arizona	SU2022
GIST 601B	3	Remote Sensing Science	6	Online	University of Arizona	SP2022
GIST 601A	3	Introduction to GIS	1.5	Online	University of Arizona	FA2021
GIST 602B	3	Vector Spatial Analysis	3	Online	University of Arizona	SU2020
GIST 603B	3	Web GIS	3	Online	University of Arizona	FA2019
GIST 603A	3	GIS Automation and Programming	4	Online	University of Arizona	FA2019
GIST 604A	3	Applied GIS	1	Online	University of Arizona	FA2018
GIST 604B	3	Open Source GIS	1	Online	University of Arizona	FA2018
GPHY 589	1	Laboratory in Spatial Analysis	1	In person	University of Montana	FA2016
GPHY 588	3	Spatial Analysis and Modeling	1	In person	University of Montana	FA2016
12785207	4	Spatial Archaeology	1	In person	Universitat Rovira i Virgili	SP2011

Undergraduate courses

Code	*Credits*	*Title*	*Times*	*Method*	*Organization*	*Last*
NASX 303	3	Ecological Perspectives in Native American Traditions	5	In Person	University of Montana	FA2026
ENSC 474	3	Environmental Analytics	4	In Person	University of Montana	SP2026
GIST 470	3	Geo-Databases	1	Online	University of Arizona	SP2022
GIST 457	3	Statistical Techniques in Geography	2	Blended	University of Arizona	FA2021
GIST 415	3	Open Source GIS	1	Online	University of Arizona	SP2018
GPHY 491	3	Python Programming for GIS	1	In person	University of Montana	SU2017
GPHY 489	1	Laboratory in Python Programming	1	In person	University of Montana	SP2017
GPHY 347	3	Regional Geography: Europe	1	In person	University of Montana	SP2017
GPHY 141	3	Geography of the World Regions	1	In person	University of Montana	FA2016
GPHY 491	1	Participatory and Tribal GIS	1	In person	University of Montana	SU2016
12304117	4	Digital Humanities	0.25	In person	Universitat Rovira i Virgili	SP2011

Workshops

Host	*Course name*	*Hours*	*Date*
Winter Institute in Computational Social Science	GIS and Remote Sensing	3	1/2021
Association for Fire Ecology	Participatory GIS for fire and fuels management	8	11/2019
National Tribal GIS Conference	Participatory GIS	4	11/2014
Salish Kootenai College	Public Participation GIS [FOR 380]	5	3/2014

MENTORING EXPERIENCE

Capstones or theses advised

Bachelor's	11	As primary advisor
Master's	81	As primary advisor
	7	As member of graduate committee
Doctoral	3	As member of graduate committee

Capstone courses taught

Course code	*Units*	*Course name*	*Times*	*Method*	*Organization*	*Last*
GIST 909	6	Master's Project in GIST	11	Online	University of Arizona	SU2022
GIST 498	3	BS-GIST, Senior Capstone	3	Online	University of Arizona	SU2022

CIVIC ENGAGEMENT

AFFILIATIONS

Academic

1/2018 – Present Montana Institute on Ecosystems, Montana State University & University of Montana, USA
6/2021 – 7/2022 Arizona Water Network, Arizona Institutes for Resilience, University of Arizona, USA
9/2018 – 7/2022 Institute of the Environment, University of Arizona, USA
11/2013 – 1/2015 Wildland Research Institute, Leeds, UK

Professional

10/2018 – Present American Association of Geographers
5/2018 – Present Association for Fire Ecology

ACADEMIC VOLUNTEERING

3/2017 Moderator in the National Geographic Bee, Montana State Series, Missoula.

3/2017 Support in field courses: *GPHY 291 02 ST (Mountain Field Studies: Glacier National Park)*, *GPHY 295 01 (Mountain Field Studies: Yellowstone)*, and *GPHY 391 01 (Mountain Field Studies: Rocky Mountain Front)*. Department of Geography, University of Montana.

SKILLS

TECHNICAL SKILLS

Computer technologies

Programming languages	R, Python, C, SQL, PL/SQL, Java, LaTeX, .NET, JavaScript, NetLogo, HTML, KML
Database Management Systems	Oracle, MySQL, PostgreSQL/PostGIS
Web servers and REST APIs	ArcGIS Server for REST API, MapServer
Geographic Information Systems	ArcGIS for Desktop, ArcGIS Pro, QGIS, GRASS GIS
GIS development	Python (ArcPy, PyQGIS, PyGRASS), .NET (MapWinGIS), JavaScript (Cesium.js, WebGL)
Machine Learning	Python (NumPy, SciPy, Scikit-learn, Google Earth Engine, Pandas, TensorFlow/Keras), R (randomForest, quantregForest, arules, earth, C50.0, e1071, neuralNet, RWeka)

Spatial analysis and modeling	ArcGIS (Analysis, Geostatistical Analyst, Spatial Statistics, Spatial Analyst), GeoDa, R (gstat, sp, spdep, spatstat)
Remote Sensing & LiDAR	ArcGIS (Image Analyst), R (RStoolbox, landsat8, getLandsat), FUSION
Data visualization	Python (Matplotlib), R (ggplot)
Business Intelligence	Tableau, Google Analytics
Network analysis	ArcGIS (Network Analyst), Gephy
Natural Language Processing	Python (NLTK)
Simulation	ExtendSim, Repast

ArcGIS suite

ArcGIS Server, API for Python, API for JavaScript, Model Builder, Web AppBuilder, AppStudio, StoryMaps, Collector, Survey123.

Field techniques

Global Navigation Systems	Acquisition and processing of GPS data points (device: Garmin)
Topographic modeling	Use of total stations to acquire surface 3D data points (device: Leica)
Map digitization	Capture of cartography data using tablets and heads-up digitizing systems (software: ArcGIS, GRASS, QGIS)
Survey development	Qualtrics, SurveyMonkey

SOFTWARE DEVELOPMENT

Published

Name	*VisSim 3.0*
Abstract	Model to simulate travel patterns and campsite occupancy in the Boundary Waters Canoe Area (Superior National Forest, Minnesota, US) based on the historical visitor flow census. Dynamic, discrete-event simulation to model steady-state and terminating systems, allowing for random variation of input parameters. Co-Developed in collaboration with ExtendSim Ltd. and Christensen Research.
Version	Release (3/2020) [Download]
Features	ExtendSim® model object (MOX) compatible with ExtendSim 9 and 10.

Name	*Partitions*
Abstract	Model to simulate the effects of the Modifiable Areal Unit Problem in spatial analysis. The app has been added to the NetLogo repository for educational purposes.
Version	Release (2/2019) [Download]
Features	~ 130 simple NetLogo statements.

Experimental / Under development

Name	*SEMA (Semantic Mapping Information System)*
Abstract	Light-weight Multimedia Geographic Information System. Modules: (i) geovisualization of map data, (ii) retrieval of information from text documents, and (iii) data handling.
Version	Alpha (7/2015), unpublished.
Features	> 2,500 simple Python statements.

Name	*Pyzzy*
Abstract	Toolset for the analysis of fuzzy geodata. Development for postdoctoral research on Participatory GIS.
Version	Alpha (9/2014), unpublished
Features	~ 700 simple Python statements

Name	*Accessibility*
Abstract	Script for the assessment of accessibility to resources in transport networks and estimation of optimal resource distributions.
Version	Alpha (9/2013), unpublished
Features	~ 600 simple Python statements

Name	*SpatialInteraction*
Abstract	Toolset for the statistical analysis of spatial data.
Version	Alpha (2/2013), unpublished
Features	~ 2,000 simple R statements

Name	*Ambivalence*
Abstract	Toolset for Exploratory Data Analysis with ambivalent data.
Version	Alpha (4/2015), unpublished
Features	~ 600 simple R statements

LANGUAGES

	Level (CEFRL)*	*Awarding institution*	*Grade (Certificate)*	*Date*
Spanish	Native			
English	Advanced (C1)	Educational Testing Service	85% (TOEFL iBT)	9/2009
Catalan	Intermediate (B1)	Government of Valencia	Pass	12/2005
Portuguese	Intermediate (A2)	University of Lisbon	Very Good (CIPLE)	5/2008
French	Elementary (A1)	University of Alicante	Pass	7/2006

* Common European Framework of Reference for Languages

RECOGNITIONS

ACCOLADES

Provost's Merit Award, University of Montana, 2024

MEDIA COVERAGE

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