Fernando Sánchez-Trigueros, PhD

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WORK HISTORY

8/2017 – Present	Assistant Professor of Practice, School of Geography & Development, University of Arizona
8/2016 – 5/2017	Adjunct Instructor, Department of Geography, The University of Montana
3/2016 – 8/2017	Postdoctoral Researcher, College of Humanities and Sciences, The University of Montana
8/2015 – 1/2016	Postdoctoral 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	Postdoctoral Research Assistant, School of Geography, University of Leeds, England
11/2013 – 7/2014	Postdoctoral Research Assistant, School of Geography, University of Leeds, England
7/2007 – 6/2011	Doctoral Researcher, Department of History, Rovira i Virgili University, Spain

EDUCATION

Ph.D. Quaternary Science. Rovira i Virgili University, Spain, 2013.

Thesis: *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.*

Award: *Cum laude*, with international distinction of "European Doctor" awarded by the European Union.

M.S. Geographic Information Systems. University of Salford-Manchester, England, 2013.

Thesis: *Measuring accessibility to libraries in urban networks and estimation of optimal resource distribution*

Award: Merit.

M.S. Applied Statistics. Universidad Nacional de Educación a Distancia (UNED), Spain, 2012.

Award: Outstanding.

M.A. Quaternary Archaeology and Human Evolution. Universitá di Ferrara, Muséum National d'Histoire Naturelle, Universitat Rovira i Virgili, Universidade de Trás-os-Montes e Alto Douro, 2008.

Thesis: *Neighborhood analysis in a raster data model and geometrical properties of kernel functions*

Award: International distinction of "Erasmus Mundus" awarded by the European Union.

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

B.A. History. University of Alicante, Spain, 2006

RECORD OF RESEARCH (Original figures and equivalent in US dollars)

Management of research programs

Identifier	16-JV-11221639-024 (USFS) / M65060 (UM)
Title	Tribal Geographic Information Systems
Terms	Research Joint Venture Agreement
Sponsors	US Forest Service, USDA (80 %), The University of Montana, USA (20 %)
Total value	$126,700
Length	8/2016 – 12/2018 (29 months)

Projects awarded as Principal Investigator ($111,850)

Title	*Awardee(s)*	*Award*	*Start/End*	*Sponsor(s)*
Tribal engagement for monitoring the effects of fire and fuels management on culturally important plants of the Colville National Forest	Fernando Sanchez Alan Watson (USFS) Steve Carver (U. Leeds)	$20,000	6/2015 8/2016	Northeast Washington Collaborative Forest Landscape Restoration Program, USDA
Development of an intelligent system for multimodal support of social scientific methodologies	Fernando Sanchez	€8,310 ($10,335)	4/2015 7/2015	Canon Foundation in Europe
Geospatial patterns in the late Pleistocene human settlement of the Sierra de Atapuerca	Fernando Sanchez	€59,500 ($81,515)	7/2007 6/2011	Ministry of Science of Spain

Projects awarded as Co-Principal Investigator ($78,000)

Project name	*Awardee(s)*	*Award*	*Start/End*	*Sponsor(s)*
Fostering new ways of collaboration between the USFS and the Spokane Tribe to assess the effects of fire and fuels management on cultural uses on and off the reservation	Monique Wynecoop (USFS) Fernando Sanchez Vernon Stearns (Spokane) Alan Watson (USFS)	$10,000	2/2017 12/2017	Northeast Washington Collaborative Forest Landscape Restoration Program, USDA
Grassland ecosystems, changing fire regimes, flood and drought: Crow phenological knowledge at the hub of resistance to social and ecological impacts from climate change.	Alan Watson (USFS) Fernando Sanchez Linda M. Stumpff (UM)	$13,000	8/2016 8/2017	Climate Hubs, USDA
Land management trends on tribal lands and comparison with values and benefits in federal wilderness.	Alan Watson (USFS) Fernando Sanchez Linda M. Stumpff (UM)	$10,000	8/2016 2/2016	Forest Service, USDA
Tribal GIS on the Flathead Reservation: the contribution of local and technical knowledge in adaptation planning for forest management	Roian Matt (Flathead) Alan Watson (USFS) Fernando Sanchez (UM)	$45,000	2/2016 8/2017	Bureau of Indian Affairs, DOI

Research assistance

Project name	*Role*	*Supervisor(s)*	*Sponsor(s)*
Boundary Waters Canoe Area Wilderness Visitor Simulation Model	Research fellow	Prof. William T. Borrie	University of Montana
Arctic National Wildlife Refuge: Public Participation GIS	Research assistant	Steve Carver (U. Leeds) Alan Watson (USFS)	Forest Service, USDA University of Leeds
Traditional Phenological Knowledge: mapping support for case study descriptions of cultural resilience in fire adapted ecosystems	Research assistant	Steve Carver (U. Leeds) Alan Watson (USFS)	Forest Service, USDA University of Leeds

PUBLICATIONS

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

4. Wynecoop, M.D.; Morgan, P.; Strand, E.; **Sanchez-Trigueros, F**. (2019) "Getting back to fire sumés: 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

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. [URL]

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

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 the U.S. Department of Agriculture, 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 the U.S. Department of Agriculture, 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

3. **Sánchez-Trigueros, F.**; Borrie, W.; Watson, A. **"**Five decades of visitor flow simulation modeling on the Boundary Waters Canoe Area Wilderness: an overview of methods, technologies, and data requirements".
2. **Sánchez-Trigueros, F. "**Participatory and Tribal GIS in the Columbia River Basin: Overlapping indigenous knowledge and forest management for climate change vulnerability assessment and adaptive planning in fire ecosystems".
1. **Sánchez-Trigueros, F.**; Carver, S. "Placing fuzziness at the interface of environmental management and community-based knowledge: a geospatial, soft systems approach to ecological knowledge transfer".

CONFERENCES

Oral presentations

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 American Association of Geographers 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 Association of Geographers Annual Meeting*, 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 2014*. 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: setting up smart systems for the synthesis and mapping of vague definitions". *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.

INSTITUTIONAL SERVICE

5/2020 – Present	Supervisor, GIST Research Assistants, School of Geography and Development, University of Arizona
9/2019 – Present	Member, Institutional Review Board, School of Geography and Development, University of Arizona
8/2017 – Present	Coordinator, M.S. in Geographic Information Systems Technology, University of Arizona Online.
9/2018 – 10/2018	Member, Search Committee for *GIST Instructional Specialist, Senior* (Code S25545), School of Geography & Development, University of Arizona
11/2018 – 5/2019	Member, Search Committee for *GIST Assistant Professor of Practice (2 positions)* (Code F21747), School of Geography & Development, University of Arizona

TEACHING AND CURRICULAR DEVELOPMENT

Graduate courses (8 credit units in person, 52.5 credit units online, *: under development)

Code	*Units*	*Title*	*Times taught*	*Method*	*Organization*	*Most recent*
GIST 602B	3	Vector Spatial Analysis	3	Online	University of Arizona	SU2020
GIST 601B	3	Remote Sensing Science	2	Online	University of Arizona	SP2020
GIST 602A	3	Raster Spatial Analysis	3	Online	University of Arizona	SP2020
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
GIST 601A	3	Geographic Information Science	0.5	Online	University of Arizona	FA2017
GPHY 589 01	1	Laboratory in Spatial Analysis	1	In person	University of Montana	FA2016
GPHY 588 01	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 (12 credit units in person, 6 credit units online)

Code	*Units*	*Title*	*Times taught*	*Method*	*Organization*	*Most recent*
GIST 457	3	Statistical Techniques in Geography	1	Online	University of Arizona	FA2020*
GIST 415	3	Open Source GIS	1	Online	University of Arizona	SP2018
GPHY 491 01	3	Python Programming for GIS	1	In person	University of Montana	SU2017
GPHY 489 01	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 01	3	Geography of the World Regions	1	In person	University of Montana	FA2016
GPHY 491 80	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 (17 h)

Course name	*Host organization*	*Hours*	*Date*
Participatory GIS for fire and fuels management	Association for Fire Ecology	8	11/2019
Participatory GIS	National Tribal Geographic Information Support Center	4	11/2014
Public Participation GIS [FOR 380]	Salish Kootenai College	5	3/2014

MENTORING EXPERIENCE (UM: University of Montana; UA: University of Arizona)

Graduate supervision and advising

	UM	*UA*	
B.S. capstone projects	0	4	As primary advisor
M.A. theses	4	0	As member of graduate committee
M.S. projects	0	41	As primary advisor

Capstone courses coordinated (45 credit units)

Course code	*Units*	*Course name*	*Times taught*	*Method*	*Organization*	*Most recent*
GIST 909	6	Master's Project in GIST	7	Online	University of Arizona	SP2020
GIST 498	3	BS-GIST, Senior Capstone	1	Online	University of Arizona	FA2019

OUTREACH

Guest lectures at academic institutions (9)

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.

Using Boolean algebra, information theory and soft computing for the exploration of geospatial trends in fuzzy descriptions of place. *GPHY 500 01: Geography Graduate Colloquium*, Department of Geography, The University of Montana. 11/28/2016.

Heuristic applications for geographic information analysis under constraints of data uncertainty. *M610-01: Graduate Seminar in Applied Mathematics*, Department of Mathematical Sciences, The University of Montana. 10/25/2016.

Python applications for geospatial analysis and modeling. Department of Geography, The University of Montana. 4/28/2016.

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.

Features and applications of the MapMe Public Participation GIS. School of Geography, University of Leeds, Leeds, United Kingdom. 3/12/2014.

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

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, United Kingdom. 12/1/2011.

Spatial information systems and the human sciences in the digital age. Department of History and in History of Art, Rovira i Virgili University, Tarragona, Spain. 4/29/2010.

Guest lectures at government institutions (2)

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

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.

PROFESSIONAL SERVICES

11/2019	Proposal review for the *Landscape Decisions: Towards a new framework for using land assets* program, UK Research and Innovation, Natural Environment Research Council.
2/2019–3/2019	Review of the book proposal *Geographic Information Systems and Crime Mapping* for CRC Press/Taylor and Francis Group.
6/2007–6/2011	Translation and proofreading of press publications for the Institute of Human Palaeoecology and Social Evolution (IPHES). Languages: English, French, Portuguese, Catalan.

6/2008 Transcription of the *2006 ICREA Conference. Plio-Pleistocene climatic changes, faunal turnovers and human dispersals*, for the Institute of Human Palaeoecology and Social Evolution (IPHES). Languages: English, French, Spanish.

TRAINING

Course	*Year*	*Awarding body*
Principal Investigator	2016	Office of Research and Sponsored Programs, The University of Montana
Human Subjects Protection	2017	Institutional Review Board, The University of Montana

TECHNICAL SKILLS

Programming languages and API's	EXP.
R	10 years
Python	7 years
C	3 years
SQL	2 years
Java	2 years
LaTeX	2 years
.NET	1 year
JavaScript	1 year
Markup: HTML, XML, KML, CSS	1 year
NetLogo	1 year
Scripting: sh, bash	1 year
Database management	
MySQL	2 years
PostgreSQL/PostGIS	1 year
Web servers	
ArcGIS Server	1 year
MapServer	<1 year
Visualization / 3D modeling	
Python	
Matplotlib,	2 years
PyOpenGL	<1 year
Simulation IDE	
Repast	<1 year
ExtendSim	<1 year
Natural Language Processing	
Python	
NLTK	1 year

Geographic Information Systems	EXP.
ArcGIS	10 years
QGIS	11 years
GRASS GIS	11 years
GIS programming	
Python	
ArcPy	7 years
PyQGIS	2 years
PyGRASS	1 year
GDAL/OGR	1 year
PyPROJ (PROJ.4)	<1 year
.NET	
MapWinGIS.ocx	<1 year
JavaScript	
Cesium.js, WebGL	<1 year
Data science	
Python	
NumPy	7 years
SciPy	6 years
Scikit-learn	1 year
Earth (Google Earth Engine)	1 year
Pandas	< 1 year
R	
ts, randomForest, quantregForest, earth	1-2 years
Weka	<1 year
Other spatial analysis	
GeoDa	4 years
CrimeStat	2 years
R	
gstat, sp, spdep, spatstat	10 years

Other technical skills

Field	*Activities*	*Software/Devices*
Global Navigation Satellite Systems	GPS data capture and input in a GIS	Garmin
Topographic surveying	Data capture with total station	Leica
Cartographic digitizing	Data capture with tablet/heads-up systems	ArcGIS, GRASS, QGIS
Digital learning	Production of e-learning content	D2L, Moodle
Web analytics	Website traffic statistical analysis	Google Analytics
Online surveying	Designing and using survey instruments	Qualtrics, Survey123, Map-Me

ArcGIS suite

ArcGIS Pro, ArcMap, ArcGIS Online, ArcGIS Server, ArcGIS API for Python, ArcGIS API for JavaScript, Model Builder, Web AppBuilder, AppStudio, StoryMaps, Collector, Survey123, Business Analyst Online, Insights, Maps for Office, Drone2Map.

SOFTWARE DEVELOPMENT

Published

Name	*VisSim 3.0*
Abstract	Model to simulate travel patterns and campsite occupancy based on a historical visitor flow census. This implementation is adapted to the Boundary Waters Canoe Area Wilderness (Superior National Forest, Minnesota, US) and uses a catalog of nearly 12,000 real trips collected in this Wilderness to simulate visitor flow. This version of the model uses a dynamic, discrete event simulation approach to model either a steady-state or terminating system, while allowing for random variation of input parameters.
Version	Released: 3/2020 [Download]
Features	The app (22 MB) is an 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 current implementation uses agents to randomly partition a raster space. To show MAUP effects using a case study, a layer of corn and olive tree fields is included in the model to estimate different maintenance costs as a function of alternative partitions of the farmland. The spatial resolution of the model has been simplified in the web app version to speed up the online processing of the model. The model has been added to the NetLogo repository for educational purposes.
Version	Released: 2/2019 [Download] (Web site under construction)
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 (e.g., import data in standard formats like CSV, Excel, Shapefile, GeoTIFF). Development for postdoctoral research on Participatory GIS and Multimedia GIS.
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. Development for graduate research on spatial analysis and optimization.
Version	Alpha (9/2013), unpublished
Features	~ 600 simple Python statements

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

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

AFFILIATE APPOINTMENTS

Current

1/2018 – Present	Affiliate, Montana Institute on Ecosystems, Montana State University & The University of Montana, Missoula, Montana
9/2018 – Present	Affiliate Faculty, Institute of the Environment, University of Arizona, Tucson, Arizona
9/2017 – Present	Member, Review College, National Research Agency (*Agencia Estatal de Investigación*), Technology Transfer Secretary (*Secretaría de Transferencia de Tecnología*), Government of Spain
9/2017 – Present	Faculty Affiliate, Department of Geography, The University of Montana, Missoula, Montana
8/2015 – Present	Alumnus, Canon Foundation in Europe
6/2011 – Present	Alumnus, University College London

Past

9/2015 – 12/2015	International Visitor, Rocky Mountain Research Station, US Forest Service, Missoula, Montana
4/2015 – 7/2015	Visiting Research Fellow, Department of Geography, Nara University, Nara, Japan
10/2014-12/2014	International Visitor, Rocky Mountain Research Station, US Forest Service, Missoula, Montana
4/2014 – 12/2016	Member, Review College, Computer Applications & Quantitative Methods in Archaeology
2/2014 – 3/2014	International Visitor, Rocky Mountain Research Station, US Forest Service, Missoula, Montana
11/2013 – 1/2015	Research Collaborator, Wildland Research Institute, Leeds, UK
8/2013 – 7/2014	Scientific Consultant, Scientific Committee, *Revista Ligustinus*, Seville, Spain
3/2011 – 5/2011	Visiting Researcher, Institute of Archaeology, University College London, London, UK
1/2010 – 6/2010	Visiting Researcher, Institute of Archaeology, University College London, London, UK
1/2009 – 6/2009	Visiting Researcher, Institute of Archaeology, University College London, London, UK

PROFESSIONAL AFFILIATIONS

- American Association of Geographers
- National Wilderness Stewardship Alliance
- Association for Fire Ecology
- Council on Undergraduate Research

ACADEMIC VOLUNTEERING

3/2017	Moderator in the National Geographic Bee, Montana State Series, Missoula.
3/2017	Field support in 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, The University of Montana.

8/2016 Contributor to and reviewer of Ellersick, T. (2016). *Tribal Engagement Roadmap Highlights Report*, FS-1075. Forest Service Research and Development, Forest Service, US Department of Agriculture.

LANGUAGES

	Level (CEFRL)*	*Awarding institution*	*Grade (Certificate)*	*Date*
Spanish	Native			
English	Advanced (C1)	Educational Testing Service	100 (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