DR. DEANA D. PENNINGTON: CURRICULUM VITA
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EDUCATION

PhD 2002 Department of Geosciences, Oregon State University
Major: Physical Geography Minors: Geographic Techniques, Geology
MS 1982 Geology and Mineralogy, Ohio State University
BS 1981 Geology and Mineralogy, Ohio State University
Postdoc 2002, Long Term Ecological Research Network Office, University of New Mexico
Graduate Certificate 2007, College of Education, Organizational Learning, Univ. of New Mexico

EXPERIENCE

May 2023-present, University of Texas at El Paso, Title: Vice Provost for Faculty Affairs

- Faculty searches, hiring, resignations, retirements
- Faculty assessment: annual merit, tenure and promotion, and post-tenure review
- New chair and faculty orientations
- Faculty recognition and awards
- Monthly meetings with chairs
- Oversee three institutional centers

May 2019-May 2023, University of Texas at El Paso, Title: Associate Dean of Science

- Faculty development and mentoring
- Faculty assessment: annual merit, tenure and promotion, and post-tenure review
- Faculty recognition and awards
- New faculty orientation

Aug 2014-present, University of Texas at El Paso, Title: Associate Professor/Professor of Earth, Environmental and Resource Sciences

- Teach courses on interdisciplinary environmental problem solving, geographic information science and technology, computing in earth and environmental science
- Lead development of geographic information science and technology curriculum, including a Graduate Certificate Program, across multiple departments and colleges
- Engage in research; grant writing; grant management
- Contribute to department, college, and university efforts

Aug 2010-Aug 2014, University of Texas at El Paso, Cyber-ShARE Center of Excellence, El Paso, TX 79902; Title: Research Assistant Professor/Research Associate Professor
Associate Director of Cyber-ShARE Center of Excellence: Develop new UTEP, national, and international collaborations; oversee interdisciplinary processes; mentor Cyber-Share students; promote development of new interdisciplinary research at UTEP

Aug 2001 – July 2010, University of New Mexico, Long Term Ecological Research Network Office, Albuquerque, NM 87131-0001

Title: Visiting Lecturer/Research Assistant Professor/Research Associate Professor
Lead and participate on interdisciplinary research projects:

- 2001 NSF Long Term Ecological Research Network Office – NPACI research in collaboration with San Diego Supercomputer Center
- 2002 NSF Sevilleta Long Term Ecological Research Station - Remote sensing/GIS specialist
- 2003-2008 NSF Science Environment for Ecological Knowledge (SEEK) Project – Information Technology Research (ITR) project
- 2006-2010 NSF CI-Team projects

Mar 1999 – Aug 2001, Oregon State University, Department of Geosciences, 104 Wilkinson Hall, Corvallis, OR 97331; Title: Graduate Research Assistant
Dissertation research on GIS modeling and simulation of socio-environmental system: broad scale land cover patterns from historic wildfire processes, comparison with current managed forest patterns from remotely-sensed imagery, and forecasting of possible future patterns based on various scenarios. Interaction of landscape patterns with other ecosystem processes: point (biodiversity), network (streamflow), and field (carbon storage).

Nov 1994 – Jun 1997, JSI Fundraising Software, Williamsburg, Virginia; Title: Conversion Manager/Programmer
Leadership and change management – Led conversion programming department from being non-profitable, behind schedule and low morale situation to a profitable, on schedule, well-managed operation. Devised new business models for this department and two other interacting departments to generate new sources of profit
Manager – of data conversion process, including scheduling, personnel assignment, and problem resolution. Designed a new pricing mechanism based on project size and complexity that resulted in increased profits, and profits that more closely reflected project scope and time requirements
Supervision – of 6 software programmers. Custom programming specification design, training, issue and conflict resolution.
Liaison – between software developers, conversion programmers and clients. Interacted directly with clients during conversion, especially during problematic conversions.
Programming – initially hired as a conversion programmer/analyst and promoted to manager after 1 year. Continued to analyze customer databases and code more complex data conversions.

Jan 1983 – May 1989, Chevron Oil Corporation, Hobbs, New Mexico (office now closed)
Title: Development Geologist
Oil field exploration and development – Analyzed subsurface rock properties through a combination of well-bore logging, seismic, and computer mapping technologies. Proposed drilling locations for new oil wells. Collected and analyzed geologic information during drilling. Recommended tests, evaluated outcomes.
Collaborated with other geologists, engineers and field staff
Selected as lead geologist on highly successful new exploration and development project during final two years
Consulted as a key expert within the geology department and across departments; consistently evaluated as excellent performance

PROFESSIONAL AFFILIATIONS

American Geophysical Union
University Council on Water Resources
International Environmental Modeling and Software Society

HONORS AND RECOGNITION

2020 USDA Partnership Award for Program Improvement through Global Engagement
2019 UTEP Outstanding Efforts in Securing Extramural Funding (fall)
2018 UTEP Outstanding Efforts in Securing Extramural Funding (fall)
2017 UTEP Outstanding Efforts in Securing Extramural Funding (spring)
2016 UTEP Outstanding Efforts in Securing Extramural Funding (spring and fall)
2014 UTEP Research Faculty Fellow
2014 UTEP Outstanding Efforts in Securing Extramural Funding
2012 UTEP Outstanding Efforts in Securing Extramural Funding
2004 NSF Letter of appreciation from Dr. Mary Cutter, Assistant Director of Biology
2000 Finalist, AAG GIS Specialty Group Best Student Paper
1998 Oregon Scholar Award

TEACHING AND TRAINING EXPERIENCE

2015-2024 Director, UTEP Geospatial Information Science & Technology Graduate Certificate Program - a collaborative program between geology, biology, sociology & anthropology, criminal justice, and electrical and computer engineering

Classroom experience (*indicates new course; **existing course but new to me)
Summer 2016, Summer 2017, Fall 2017 and every semester thereafter: Interdisciplinary Environmental Problem Solving
Fall 2018 Special Topics: *WebGIS
Fall 2017 **Physical Geography
Spring 2017 **Computer Applications in the Geosciences
Fall 2016, Fall 2015 *Geocomputation
Spring 2015 *Sustainable Socio-Environmental Systems
Spring 2016, Fall 2014 *Spatial Analysis and Modeling in Earth and Environmental Science
Spring 2014 **Introduction to Geographic Information Systems
Fall 2010 Multi-institutional Virtual Seminar on Species Distribution Modeling
Spring 2008 *Multi-institutional Virtual Seminar on Cyberinfrastructure in Earth Science
Winter/Spring 1999 Teaching Assistant-Oregon State University
Fall 89 Instructor - College of the Southwest, Hobbs, New Mexico, Physical Geology
Spring 1981-Winter 1982 Teaching Assistant - Ohio State University

Geospatial and Informatics Training Workshops – Lead or instructor
3/2010 Training on agent-based modeling, Santa Fe Complex
2/2010 Videoconference training on introductory data management
6/2009 Biodiversity Informatics, Northern Arizona University

5/2008 Pan-American Advanced Studies Institute (PASI) on Cyberinfrastructure for International Collaborative Biodiversity and Ecological Informatics, La Selva Biological Field Station, Costa Rica.
1/2008 SEEK Ecological Niche Modeling in the Kepler Workflow System
1/2007 SEEK New Faculty & Postdoc Training Workshop on Ecoinformatics
1/2006 SEEK New Faculty & Postdoc Training Workshop on Ecoinformatics
5/2005 Natl. Inst. for Technology & Liberal Education GIS in Landscape Ecology Workshop
1/2005 SEEK New Faculty & Postdoc Training Workshop on Ecoinformatics
1/2004 SEEK New Faculty & Postdoc Training Workshop on Ecoinformatics
11/2003 Advanced GIS for Organization of Biological Field Stations personnel

Students advised

Adviser or Co-Adviser
2024-present Eli Nyawunu – Gological Science PhD student (co-advise)
2024-present Tomas Lizarraga – Environmental Science MS student (co-advise)
2017-2023 Katalina Salas – Environmental Science PhD student
2014-2023 John Olgin – Geological Science PhD student
2014-2023 Perry Houser – Geological Science MS student
2018-2021 Habibur Howlider – Environmental Science PhD student
2018-2021 Carlos Reyes – Environmental Science MS student
2014-2017 Mariana Guereque – Environmental Science PhD student
2016-2017 Eahsan Shariary – Environmental Science MS student
2015-2017 Ivy Treviso – Environmental Science MS student
2014-2017 Stephanie Robinson – Geological Science MS student
2015-2016 Andrea Everett – Environmental Science MS student (co-adviser)
2014-2015 Armando Reyes – Geological Science MS student
2015-2016 Kelsey Mason – Geological Science MS student (co-adviser)
2013-2016 Joaquin Reyna – Computer Science MS student (co-adviser)
2014-2015 Norma Rivera – Computer Science MS student (co-adviser)
2012-2013 Antonio Garza – Computer Science MS student (co-adviser)

Student Awards

Sept 2021 Katalina Salas: Great Minds in STEM award
June 2021 Katalina Salas: Graduate Archer Fellowship – Congressional Research
April 2021 Katalina Salas: 2nd place, Three Minute Thesis (3MT)
May 2021 Carlos Reyes: Best Environmental Science Graduate Student
May 2021 Carlos Reyes: Graduate School Commencement Banner Bearer
June 2019 Carlos Reyes: Diana Natalicio Environmental Internship award
June 2018 Katalina Salas: Diana Natalicio Environmental Internship award
June 2017 Ivy Trevizo: Diana Natalicio Environmental Internship award

Committee Member

2022-present Miguel Cortez – Environmental Science & Engr. PhD student
2019-present Maria Fuentes – Interdisciplinary Health Sciences PhD student
2019-present Jessica Kelsch – Geological Science PhD student
2019-present Martha Gallegos – Geological Science PhD student

2019-present Raquel Guzman – Geological Science PhD student
2021-2023 Rosa Espana – Environmental Science MS student
2020-2024 Judith Hoyt – Geological Science PhD student
2020-2024 Mia Trevino – Environmental Science MS student
2017-2022 Valeria Guerrero – Geology PhD student
2019-2021 Wissam Atwah - Environmental Science & Engr. PhD student
2017-2021 Marisol Dominguez - Environmental Science & Engr. PhD student
2019-2021 Rebeka Isaac – Sociology and Anthropology MS student
2019-2021 Sarah Mccord – Environmental Science & Engr. PhD student
2017-2021 Jiye Guo – Geological Science PhD student
2018-2021 Isayu Eibedingil - Environmental Science & Engr. PhD student
2020-2020 Kingsley Fasesin – Geological Science PhD student
2016-2019 Paulami Banerjee – Environmental Communication PhD student
2017-2018 Joel Castro – Computational Science MS student
2016-2017 Smriti Tamrakar – Computer Science MS student
2015-2016 Gabriela Tarin – Environmental Science MS student
2012-2015 Octavio Lerma – Computational Science PhD student
2012-2014 Omar Ochoa – Computer Science PhD student
2012-2013 Hugo Porras – Computer Science MS student
2008-2010 Crystal Krause – Biology PhD student NAU
2006-2007 Crystal Krause – Geography MS student

Postdoctoral Researchers mentored
2013-2014 Aida Gandara – Computer Science postdoc
2013-2014 Nick Del Rio – Computer Science postdoc
2012-2013 Leo Salayandia – Computer Science postdoc
2006-2007 Jennifer Fallstad Shah - Bioinformatics postdoc (Sponsoring scientist)
2004-2007 Jianting Zhang - SEEK project postdoc - Geography
2003-2006 Samantha Romanello Katz - SEEK project postdoc – Science education

RESEARCH INTERESTS

Keywords: Socio-environmental systems; sustainability science; interdisciplinary teamwork; earth and environmental data science; knowledge exchange, integration, and synthesis; interdisciplinary education

I returned for my Ph.D. after a decade of work in the petroleum industry followed by a decade of work in the newly emerging software industry. I specifically sought to conduct research that combined my background in earth science with my software programming skills; hence, I chose Physical Geography with an emphasis on Geographic Information Science (GISci) applied to scenario analysis of socio-environmental systems. I have worked in a variety of thematic areas, most involving surface processes (Figure 1). In every case, challenges arose in: 1) effectively synthesizing what is known across key components of the system; 2) finding and integrating diverse data; 3) identifying appropriate models with disparate variables, spatial and temporal scales, and varying degrees of openness; and 4) communicating across disciplinary perspectives, assumptions, vocabulary, and research foci. Since receiving my Ph.D., I have developed lines of research in each of these areas with the goal of eventually being effective at tackling the exceedingly complex, "wicked" challenges in what is now known as "sustainability science." Sustainability science intends to marshal all necessary knowledge, expertise, data, methods, and technologies to converge on solutions to societal problems. Towards that end, I conduct research almost entirely within collaborative teams that change through time and have included numerous computer scientists, software developers, information managers, social scientists, physical scientists, learning scientists, and scholars from the humanities, as well as stakeholders outside of academia. My role has also changed through time, from conducting targeted research myself, to advising student research, to leading small and large research teams.

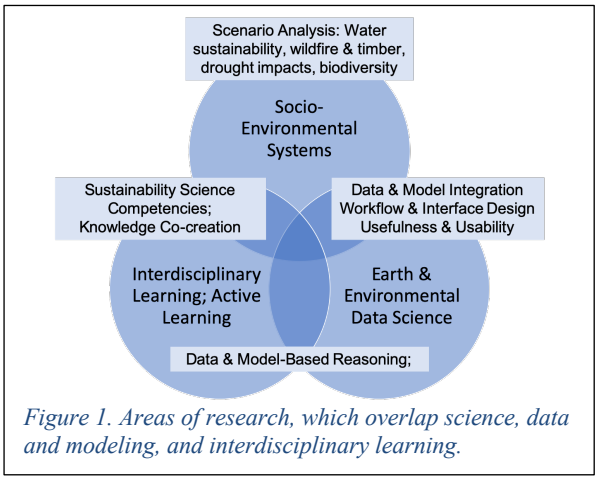

Figure 1. Areas of research, which overlap science, data and modeling, and interdisciplinary learning.

GRANTS

(Active)

NIH Award #1P50MD019494-01 *UTEP Center for Investigator Training and Community Engagement in Transdisciplinary Minority Health Disparities.* $3,837,500, PI Duarte-Gardea (Public Health). 2024-2029. This project is implementing a specialized community engaged research-training program for equitable academic and community partnerships to participate in the design and implementation of collaborative research projects aimed at eliminating health disparities in the Paso del Norte region. The conceptual framework of the Center of Excellence includes a syndemics model to implement an interdisciplinary and transdisciplinary approach that leverages long existing institutional community-engaged culture and networks to train investigators and community partners on health research and intervention development. I am Senior Personnel in the Administrative Core.

NIH Award #5U54CA280922-02 *UTEP FIRST: United Toward Equity and Progress: Faculty Institutional Recruitment for Sustainable Transformation*. $15,510,679. 2023-2028. PI: Wiebe. The UTEP FIRST program will operationalize strategic inclusive excellence initiatives that will provide an integrative and cohesive theme for addressing the defined FIRST program goals of: (1) fostering sustainable institutional culture change; (2) promoting institutional inclusive excellence by hiring a diverse cohort of new faculty; and (3) supporting faculty development,

mentoring, sponsorship, and promotion. A novel, interdisciplinary, and multi-factorial mentoring model will support minority and underrepresented faculty hired and mentored in a cohort and cluster model. As Co-PI, I contribute to the Administrative Core.

DoE Award #. *Mitigating the Burden of the Covid-19 Pandemic on Hispanic-Student Success.* $3,000,000. PI: Wiebe. 2022-2027. The objectives are to: 1) increase the number of academic departments that engage students in curricular and co-curricular practices grounded in evidence, inclusive teaching, and equitable learning; 2) adopt knowledge- and data-driven approaches to advance departmental student-success goals; and 3) improve student-support structures to include students' academic, social-emotional, and basic needs. The project's strategic actions are expected to lead to systemic change in teaching and learning, resulting in increased Hispanic-student success. It will further contribute to the knowledge base of how best to support Hispanic students in higher education, especially contributing to the literature on Hispanic servingness and transformational change in higher education. I am Co-PI on this project and lead efforts on training chairs and program directors on data-driven decision making. I also supervise faculty high impact classroom practices training initiatives.

(Ended)
NSF Award #1835897, *ELEMENTS: DATA: HDR: SWIM to a Sustainable Water Future*, $599,451, PI Villanueva Rosales (computer science), Co-PIs **Pennington** and Heyman (social science). 2019-2022. We collaborate on research, development, and testing of an online modeling system for water resources. As Co-PI, I conduct research on water modeling systems and on participatory modeling processes, including data- and model-based reasoning processes.

NSF Award #1840464 *Planning Grant: Engineering Research Center for One Water*, $99,971, PI Walker (civil engineering), 2018-2020. Co-PIs: **Pennington**, Hargrove (natural resource science), Heyman (social science), Santiago (civil engineering).

USDA Award #2015-68007-23130. PI: Hargrove (agricultural science). Co-PIs: Heyman (social science), **Pennington**, Walker (civil engr), Gutzler (climate science), Ward (economics), Mayer (hydrology), Zheng (groundwater). Total amount $4,900,000. *Sustainable water resources for irrigated agriculture in a desert river basin facing climate change and competing demands: From characterization to solutions*, 2015-2020. We are collaboratively conducting socio-environmental modeling of as aspects of water resources in the middle Rio Grande region. As Co-PI, I lead the modeling team, am responsible for managing interdisciplinary team building activities, and have developed a semester-long graduate course on interdisciplinary environmental problem solving.

NSF Award#: HRD-1242122. PI: Gates (computer science). Co-PIs: **Pennington**, Tweedie (ecology), Velasco (geophysics), Villanueva Rosales (computer science). Total Amount: $5,000,000 *Cyber-ShARE Center of Excellence*, 2012-2020. This collaboration aims to partner computer scientists with earth, environment, and ecological scientists to develop cutting edge computing and data science approaches for these fields. As Co-PI, I partnered with Villanueva Rosales leading a subproject focused on developing semantic approaches for field science, that ultimately led to our collaborative work on water. I was Associate Director of the Center until 2018.

NSF Award# DGE-1545404. **PI: Pennington**. CoPIs: Danielson (geology), Parnell (geology), Vincent (environmental science). Collaborative Research: NRT-IGE: *Employing Model-Based Reasoning in Socio-Environmental Science (EMBeRS)*, $500,000, 2015-2019. This was the most recent grant focused on interdisciplinary team science.

NSF Award# DGE-1545404. **PI: Pennington**. Supplement: NRT-IGE: *Employing Model-Based Reasoning in Environmental Science (EMBeRS)*, $35,000, 2016-2019. This supplement supported a doctoral student developing educational materials on earth data science.

NSF Award#: DBI-1356707. Lead PI: Beach. **UTEP PI: Pennington**. Total Amount: $798,568. UTEP Amount: $174,792 Collaborative Research: ABI Development: *Transforming Biodiversity Analysis with Landscapes, Automation, and Provenance*, 2014-2018

NSF Award#: GEO-1202745. Lead PI: Ellins. UTEP PI: Serpa. Co-PI: **Pennington**. Total Amount: $111,500 *Diversity and Innovation for Geosciences in Texas (DIG Texas)*, 2012-2015.

NSF Award#: OCI-1135525. **Lead PI: Pennington**. Co-PIs: Benedict, Beach. Total Amount: $1,000,000 CI-TEAM Diffusion Project: The Virtual Learning Commons: STEM Research Communities Learning about Data Management, Geospatial Informatics, and Scientific Visualizations; 2011-2015. This is a continuation of more than a decade of research on interdisciplinary team science.

National Socio-Environmental Synthesis Center (SESYNC) Award: http://www.sesync.org/project/pursuit/embers **PI: Pennington**. Amount: Costs for three working meetings with 12 national and 3 international participants. *Teaching and Employing Model-Based Reasoning in Socio-Environmental Synthesis (EMBERS).* This is a continuation of more than a decade of research on interdisciplinary team science.

NASA Award#: NNX12AF52A. **PI: Pennington**. Co-PIs Beach, Benedict. Total Amount: $200,000 ROSES A-37 Earth, Life and Semantic Web (ELSeWeb): An Earth observation-driven, Semantic Web system for computational modeling of the impact of changing environments on health and disease; 2011-2013.

Raytheon Award . **PI: Pennington**, Co-PI: Villanueva Rosales, Cebrerio. Total Amount: $36,000 Geocaching from Space – STEM Student Software Application; 2012-2013.

NSF Award #: OCI-0753336. **PI: Pennington**. Total Amount: $1,000,000 CI-TEAM Implementation Project: Advancing Cyberinfrastructure-Based Science Through Education, Training, and Mentoring of Science Communities; 2008-2010. Institution: University of New Mexico. This is a continuation of more than a decade of research on interdisciplinary team science.

NSF Award#: OCI-0636317. **PI: Pennington**. Total Amount: $250,000 CI-TEAM Demonstration Project: Advancing Cyberinfrastructure-Based Science Through Education, Training, and Mentoring of Science Communities; 2006-2008. Institution: University of New

Mexico. This was a pilot project that began more than a decade of research on interdisciplinary team science.

NSF Award#:0225665. PI: Michener (ecology). Many Co-PIs across multiple institutions. **Pennington: Sr. Personnel**. Total Award Amount: $12,500,000; *ITR Collaborative Research: Enabling the Science Environment for Ecological Knowledge*; 2002-2008. Institution: University of New Mexico

NSF Award#:0080529. PI: Collins. Co-PIs: many, including **Pennington**. Total Award Amount: $1,500,000; 2000 - 2003 *Sevilleta LTER III: Long Term Ecological Research in a Biome Transition Zone;* PI: Collins. Institution: University of New Mexico

SCIENTIFIC COMMUNICATION

Peer-Reviewed Publications

*indicates student

ψ indicates full paper published in a peer-reviewed conference. This is common practice for publishing in the computer and information science communities.

Peer-Reviewed Articles in Progress:

*Salas, K. and **Pennington, D.** (resubmitted November 2024). Developing stakeholder scenario analysis competencies with models of future water sustainability in the Middle Rio Grande basin.

*Olgin, J. and **Pennington, D.** (in revision). Data quality issues in citizen science data collected using the NASA GLOBE *Clouds* protocol.

*Houser, P., and **Pennington, D.** (in preparation). Geologic mapping using integration of semantic data.

Accepted, in press, or published:

1. Hargrove, W. L., Heyman, J. M., Mayer, A., Mirchi, A., Granados-Olivas, A., Ganjegunte, G., Gutzler, D., Pennington, D. D., Ward, F., Garnica, L. A., Sheng, Z., Kumar, S., Walker, W. S. (2023). The Future of Water in a Desert River Basin Facing Climate Change and Competing Demands: A Holistic Approach to Water Sustainability in Arid and Semi-Arid Regions. *Journal of Hydrology* 46:101336. Available online at URL: https://www.sciencedirect.com/science/article/pii/S221458182300023X
2. ψ Garnica Chavira, L., Villanueva-Rosales, N., Heyman, J., *Salas, K., and **Pennington, D. D.**, (2022). Supporting regional water sustainability decision-making through integrated modeling. 8th IEEE International Smart Cities Conference. September 26-29, 2022. Paphos, Cyprus.
3. ψ *Vargas Acosta, R. A., Garnica Chavira, L., Villanueva-Rosales, N., and **Pennington, D.** D. (2022). Automating multivariable workflow composition for model-to-model integration. IEEE eScience 2022 Democratizing Science. October 11-14, 2022, Salt Lake City, Utah. DOI: https://zenodo.org/badge/DOI/10.5281/zenodo.7159028.svg

4. **Pennington, D.**, Vincent, S., Gosselin, D., and Thompson, K. (2021). Learning across Disciplines in Socio-Environmental Problem Solving. Socio-Environmental Systems Modelling, 3, 17894. https://doi.org/10.18174/sesmo.2021a17895
5. Gosselin, D., Thompson, K., **Pennington, D**., and Vincent, S., (2020). Learning to be an interdisciplinary researcher: Incorporating training about dispositional and epistemological differences into graduate student environmental science teams. *Journal of Environmental Studies and Sciences* 10, 310-326. [My contribution: Design of the workshop in which this was embedded, assisted in data analysis, and edited the article.]
6. **Pennington, D**., Freed, Natalie, *Martin, Jo, Pierce, Suzanne, Ebert-Uphoff, Imme (2020). Bridging sustainability science, earth science, and data science through interdisciplinary education. *Sustainability Science, 15(2): 647-661.* http://link.springer.com/article/10.1007/s11625-019-00735-3. DOI: 10.1007/s11625-019-00735-3.
7. ψ Villanueva-Rosales, N., Garnica-Chavira, L., Mayer, A., Ward, F., Gutzler, D., **Pennington, D**., (2018). Towards SWIM narratives for sustainable water management. *2nd International SEMSCI 2018: Enabling Open Semantic Science Workshop*. Co-located with the International Semantic Web Conference 2018, October 2108, Monterey, California, USA. [My contribution: Design of the SWIM interface, design of narratives, and edited the article.]
8. ψ **Pennington, Deana D.**, *Bondank, E., Clifton, J., *Killion, A., *Salas, K., *Shew, A., *Sterle, K., and *Wilson, B. (2018). EMBeRS: A framework for igniting participatory learning, synthesis and convergence. Proceedings of the 9th International Congress on Environmental Modelling and Software, June 24-28, 2018, Fort Collins, Colorado, USA. Available at URL: https://scholarsarchive.byu.edu/iemssconference/2018/Stream-C/68/.
9. ψ Garnica Chavira, L., *Caballero, J., Villanueva Rosales, N., and **Pennington, D.** (2018). Semi-structured knowledge models and web service driven integration for online execution, visualization, and sharing of environmental models. Proceedings of the 9th International Congress on Environmental Modelling and Software, June 24-28, 2018, Fort Collins, Colorado, USA. Available at URL: https://scholarsarchive.byu.edu/iemssconference/2018/Stream-A/43/ [My contribution: Interface design, model testing, usability testing, and edited the article.]
10. ψ Villanueva-Rosales, N., Chavira, L.G., *Tamrakar, S.R., **Pennington**, D., *Vargas-Acosta, R. A., Ward, F., and Mayer, A.S. (2017). Capturing scientific knowledge for water resources sustainability in the Rio Grande area. Proceedings of the Second International Workshop on Capturing Scientific Knowledge, D. Garijo and M. de Vos, Editors, December 4, 2017, Austin, Texas. [My contribution: Interface design, usability testing, and edited the article.]
11. ψVillanueva-Rosales, N., Garnica Chavira, L., *Tamrakar, S., Pennington, D., *Vargas-Acosta, R.A., Ward, F., and Mayer, A. (2017). Capturing scientific knowledge for water resources sustainability in the Rio Grande area. Proceedings, Knowledge Capture Conference (K-CAP2017). December 4-6, 2017. Austin, TX.
12. Fair, Jeanne, Stokes, M., **Pennington**, D., Mendelson, I., Simpson, G. (2017). Scientific collaboration – How do we measure the return on relationships? pp. 193-199 In: Fair, J. M., Carter, H. H., Wolfe, N., eds. (2017). Biological Engagement Programs: Reducing Threats and Strengthening Global Health Security Through Scientific Collaboration. Lausanne: Frontiers Media. doi: 10.3389/978-2-88945-273-6. [My contribution: Assisted in data analysis, and edited the article.]

13. ψ Thompson, K., Gosselin, D., Knight, S., *Martinez-Maldonado, R., **Pennington, D.**, Parnell, R., Svoboda-Gouvea, J., Vincent, S., *Wheeler, P. (2017). Identifying interdisciplinarity using multimodal data for learning. In: Chen, W. et al. (Eds.). Proceedings of the 25th International Conference on Computers in Education. New Zealand: Asia-Pacific Society for Computers in Education. [My contribution: Research design, assisted in data collection, and edited the article.]
14. **Pennington** (2016). A conceptual model for knowledge integration in interdisciplinary teams: Orchestrating individual learning and group processes. *Journal of Environmental Studies and Sciences*, *Special Issue on Leadership in Interdisciplinary Education* 6(2):300-312, DOI 10.1007/s13412-015-0354-5.
15. **Pennington**, D., Bammer, G., Danielson, A., Gosselin, D., Gouvea, J., Habron, G., Hawthorne, D., Parnell, R., Thompson, K., Vincent, S., and Wei, C. (2016). The EMBeRS project: Employing model-based reasoning in socio-environmental synthesis. *Journal of Environmental Studies and Sciences, Special Issue on Leadership in Interdisciplinary Education*, 6(2):278-286, DOI 10.1007/s13412-015-0335-8.
16. Gosselin, D., Vincent, S., Parnell, R., **Pennington**, D., & Danielson, A. (2016). Negotiating boundaries: Effective leadership of interdisciplinary environmental and sustainability programs. *Journal of Environmental Studies and Sciences, Special Issue on Leadership in Interdisciplinary Education* 6(2):268-274. [My contribution: Conceptual design, and edited the article.]
17. Fair, Jeanne, Stokes, M., **Pennington**, D., Mendelson, I., Simpson, G. (2016). Scientific collaboration – How do we measure the return on relationships? *Frontiers in Public Health*, *4*. http://doi.org/10.3389/fpubh.2016.00009. [My contribution: Data analysis and edited the article.]
18. ψ Villanueva-Rosales, N., *Del Rio, N., **Pennington**, D. and *Garnica Chavira, L. (2015), Semantic Bridges for Biodiversity Science. *International Semantic Web Conference 2015, Workshop on Datasets & Ontologies*, Bethlehem, Pennsylvania, October 11-15, 2015. [My contribution: Workflow design, software design, and edited the article.]
19. ψ *Garnica, L., *Rivera, N., *Zapata, C., *Richart, K., Villanueva-Rosales, N., and **Pennington**, D. (2015). Towards a semantic based integration of water models. CAHSI Summit 2015, San Juan, Puerto Rico, September 10-12, 2015. [My contribution: Workflow design, software design, and edited the article.]
20. ψ *Reyna, J., Villanueva-Rosales, N., and **Pennington**, D. (2015). A semantically-enabled trust model for collaborative environments. CAHSI Summit 2015, San Juan, Puerto Rico, September 10-12, 2015. [My contribution: Workflow design, interface design, and edited the article.]
21. ψ *Rivera, N., Villanueva-Rosales, N., and **Pennington**, D. (2015). Towards an ontology development methodology for interdisciplinary research group collaborations. CAHSI Summit 2015, San Juan, Puerto Rico, September 10-12, 2015. [My contribution: Research design, assisted with data analysis, and edited the article.]
22. ψ *Royo-Leon, M., *Houser, P.I., *Munoz, R., *Estrada, E., Villanueva-Rosales, N., and **Pennington**, D. (2015). Towards semantically integrating data to enhance a field trip experience. CAHSI Summit 2015, San Juan, Puerto Rico, September 10-12, 2015. [My contribution: Workflow design, ontology design, and edited the article.]
23. ψ Villanueva-Rosales, N., *Garnica Chavira, L., and **Pennington**, D. (2015). E-Science through the Integration of Data and Models: A Biodiversity Scenario. *IEEE International*

Conference on eScience, Aug 31-Sept 4, 2015, Munich, Germany. [My contribution: Workflow design and edited the article.]

24. *Laney, C., **Pennington**, D., and Tweedie, C. (2015). Filling the gaps: Sensor network use and data sharing practices in ecological research. *Frontiers in Ecology and the Environment* 13:363-368. [My contribution: Research design, assisted with data analysis, and edited the article.]
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51. ψ Zhang, J. Altintas, I., Tao, J., Liu, X., **Pennington**, D.D., and Michener, W.K. (2006). Integrating data grid and web services for E-Science applications: A case study of exploring species distributions. Proceedings of the 2nd IEEE International Conference on e-Science and Grid Computing (e-Science 2006). December 4-6, 2006, Amsterdam, Netherlands. [My contribution: Research design and edited the article.]
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53. ψ Zhang, J., **Pennington**, D., Michener, W.K. (2006), Automatic Transformation from Geospatial Conceptual Workflow to Executable Workflow Using GRASS GIS Command Line Modules in Kepler, International Conference on Computational Science (ICCS 2006), May 28-31, 2006, University of Reading, UK, *Lecture Notes in Computer Science* 3993, 912-919. [My contribution: Research design and edited the article.]
54. **Pennington**, D. and Michener, W.K. (2005), The EcoGrid and the Kepler Workflow System: a new platform for conducting ecological analyses. *ESA Bulletin* 86(3):169-176.
55. ψ Romanello, S.; Beach, J; Bowers, S; Jones, M; Ludaescher, B; Michener, W.; **Pennington**, D; Rajasekar, A; & Schildhauer, M. (2005), Creating and providing data management services for the biological and ecological sciences: Science Environment for Ecological Knowledge. In: *Proceedings of the 17th International Conference on Scientific and Statistical Database Management* (SSDBM'05), 21-23 June 2004, Santa Barbara, CA. [My contribution: Research design and edited the article.]

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58. ψ Michener, W., Beach, J., Bowers, S., Downey, L., Jones, M., Ludaescher, B., **Pennington,** D., Rajasekar, A., Romanello, S., Schildhauer, M., Vieglais, D., and Zhang, J., (2005), Data integration and workflow solutions for ecology. Proceedings of Data Integration in the Life Sciences, Second International Workshop, DILS 2005, San Diego, CA, July 20-22, 2005. *Lecture Notes in Computer Science* 3615:321-324. [My contribution: Research design, interface design, and edited the article.]
59. ψ Frank, E., Altintas, I., Zhang, J., Ludaescher, B., **Pennington**, D., and Michener, W., (2005), A scientific workflow approach to distributed geospatial data processing using web services. Proceedings of the 17th International Scientific and Statistical Database Management Conference (SSDBM 2005), June 27-29, 2005, University of California, Santa Barbara, pp. 87-90. [My contribution: Research design, workflow design and edited the article.]
60. ψ *Jasso, H., *Shin, P., Fountain, T., and **Pennington**, D., (2004), Using wavelets for the classification of hyperspectral images. Fourth European Conference on Ecological Modelling and Fourth International Workshop on Environmental Applications of Machine Learning, ECEM/EAML 2004, September 27 – October 1, 2004, Bled, Slovenia. [My contribution: Research design, assisted with data analysis, and edited the article.]
61. ψ **Pennington**, D., *H. Jasso, *P. Shin, and T. Fountain, (2004), The effect of landscape heterogeneity on classification accuracy: a comparison of classifier prediction in sub-optimal sampling conditions. *Seventh Workshop on Mining Scientific and Engineering Datasets, 2004 SIAM International Conference on Data Mining (SDM 2004)*, April 24, 2004, Lake Buena Vista, Florida, pp. 11-20.
62. ψ Vande Castle, J., **Pennington**, D., Fountain, T. and Pancake, C., (2002), A spatial data workbench for data mining, analyses, and synthesis. LTER Information Managers Workshop, The Ecoinformatics Challenge: Meeting Ecological Information Needs for the Site, Network, and Community, July 14-18, 2002, Orlando, Florida, vol. 7: 420-424. [My contribution: Research design, performed data analysis, and edited the article.]
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64. Collinson, J.W., ***Pennington**, D.C. and N.R. Kemp, (1986), Stratigraphy and petrology of Permian and Triassic fluvial deposits in northern Victoria Land, Antarctica. In: *Geological*

Investigations in Northern Victoria Land, Antarctic Research Series 46, p 211-242. [My contribution: Data analysis and edited the article.]

65. Collinson, J.W., ***Pennington**, D.C. and N.R. Kemp, (1983), Sedimentary petrology of Permian-Triassic fluvial rocks in Allan Hills, central Victoria Land. *Antarctic Journal of the United States Review* 18(5):20-22. [My contribution: Data analysis and edited the article.]
66. Zawiskie, J., ***Chapman**, D. and R. Alley, (1982), Depositional History of the Paleocene-Eocene Colton Formation, North-Central Utah. *Utah Geol. Assoc. Pub*. 10, p. 273-284. [My contribution: Research design, data collection and analysis, and edited the article.]

Edited Book Chapters

Gosselin, D. (in press 2023). A Practical Guide for Developing Inter- and Transdisciplinary Collaborative Teams: A Question-Based Approach. American Association for Environmental Studies and Sciences Book Series. Springer. Three invited chapters:

- **Pennington, D**., Thompson, K., Vincent, S., and Gosselin, D. (accepted 2022). EMBeRS Model for Facilitating Cross-Disciplinary Learning and Systems Thinking
- **Pennington, D.** (in revision 2022). Implementing EMBeRS in Graduate Courses
- Vincent, S., Thompson, K., and **Pennington, D.** (accepted 2022). Evidence-based strategies for improving project outcomes.

1. *Krause, C. and **Pennington**, D. (2012), Strategic Decisions in Conservation: Using Species Distribution Modeling to Match Ecological Requirements to Available Habitat. In: Plant Reintroduction in a Changing Climate: Promises and Perils, Joyce Maschinski and Kristin E. Haskins, Eds. Washington DC:Island Press, 432 pp., ISBN 1597268305. [My contribution: Research design, assisted with data analysis, and edited the article.]
2. **Pennington**, D., Higgins, D., Peterson, A.T., Jones, M.B., Ludaescher, B., and Bowers, S., (2007), Ecological Niche Modeling Using the Kepler Workflow System. In: *Workflows for e-Science* (I. Taylor, D. Gannon, E. Deelman, and M. Shields, eds.), Springer-Verlag.
3. Garnica Chavira, L., Villanueva-Rosales, N., **Pennington, D. D**., and Heyman, J. (2022). Una Plataforma Bilingüe Basada en Web para el Modelado y la Visualización de Datos para la Sustentabilidad de Recursos hídricos (A Bilingual Web-based Platform for Modeling an Data Visualization for the Sustainability of Water Resources). Chapter IV.2, pp. 188-201 in: Granados Olivas, A. et al. (eds.). *Hydrological Resources in Transboundary Basins between Mexico and the United States: El Paso del Norte and the Binational Water Governance*, Section IV Digital Media and Web Maps. Universidad Autónoma de Ciudad Juárez and Autonomous University of Chihuahua.
4. Mayer, A., Hargrove, W., Heyman, J., Granados Olivas, A., **Pennington, D**., et al. (2022). Transboundary Scientific Collaboration in Water Security Research: A Case Study on the U.S.-Mexico Border in the Paso del Norte Region. Chapter II.1, pp. 73-83 in: Granados Olivas, A. et al. (eds.). *Hydrological Resources in Transboundary Basins between Mexico and the United States: El Paso del Norte and the Binational Water Governance*, Universidad Autónoma de Ciudad Juárez and Autonomous University of Chihuahua.

Book Reviews

Pennington, D. (2012), Working toward an integrative understanding of work in living systems. *BioScience* 62(5): 518-519.

Dissertations and Theses

Ph.D. dissertation: Comparison of Structure and Function of Human-Impacted and Natural Forest Landscapes in the Western Cascades of Oregon, Oregon State University.

M.S. thesis: Sedimentary petrology of the Colton Formation (Upper Paleocene-Eocene), central Utah, Ohio State University.

B.S. thesis: Clay minerals of the Jurassic Arapien, Twist Gulch and Morrison Formations of central Utah, Ohio State University.

Non-Peer Reviewed Publications

1. Kastens, K., Dere, A., **Pennington, D.,** and Riccheza, V. (2018). Research on the Cognitive Domain in Geoscience Learning: Quantitative Reasoning, Problem Solving, and Use of Models. In: St. John, K. (Ed.). A Community Framework for Geoscience Education Research. National Association of Geoscience Teachers.
2. **Pennington**, D. (2017). Sustainable Infrastructure through Collaboration. Blog (invited) for the National Council for Science and the Environment 2018 National Conference and Global Forum on Science, Policy, and the Environment.
3. **Pennington**, D. (2016). Knowledge Synthesis and External Representations. Blog (invited) for Integration and Implementation Insights.
4. Baker, K.S., Karasti, H., Vanderbilt, K., and **Pennington**, D. (2011), LTER Information Management and Collaborative Learning Environments: Final Report for the NSF International LTER Supplement 2009. Scripps Institution of Oceanography Technical Report, july 2011. Online at URL: http://escholarship.org/uc/item/9k2879fp#page-2.
5. **Pennington**, D. and Gates, A.Q., (2010), The CyberShARE approach to engaging collaborative research teams in computational and data intensive science and engineering. White Paper for the NSF Workshop on Cyberinfrastructure Community Development, Arlington, VA, September 22, 2010.
6. Baker, K., **Pennington**, D., and Porter, J., (2006), Multiple approaches to semantic issues: vocabularies, dictionaries and ontologies. *Databits,* a publication of the Long Term Ecological Research (LTER) Network, Spring 2006.
7. **Pennington**, D., (2006), Navigating semantic approaches: from keywords to ontologies. *Databits,* a publication of the Long Term Ecological Research (LTER) Network, Spring 2006.
8. **Pennington**, D., (2005), Cyberinfrastructure for grassland biodiversity studies. *The Network News*, a publication of the Long Term Ecological Research (LTER) Network, Spring 2005.

Invited Speaker

1. "Data and Model-Based Reasoning across Disciplines." Intelligent Systems & Geoscience (IS-GEO) and iHARP Workshop on Model-Based Reasoning. https://is-geo.github.io/ISGEO-22/. August 15-19, 2022. Virtual.
2. "Knowledge Integration across Disciplines." Postdoctoral Immersion Workshop, National Center for Socio-Environmental Synthesis, Annapolis, MD, October 12, 2020.
3. "Engaging in Transdisciplinary Research." Annual Meeting of the Urban Water Innovation Network. Colorado State University, Fort Collins, CO. July 29, 2019.

4. “Challenges of Convergence.” UTEP IDR Symposium eLightning Session, November 5-6, 2018.
5. “Water Sustainability in the El Paso Region.” miniCAST. October 19, 2018.
6. “Team Science.” Postdoctoral Immersion Workshop, National Center for Socio-Environmental Synthesis, Annapolis, MD, October 2, 2018.
7. “Learning and Convergence across Disciplines.” EarthCube 2018 All Hands Meeting, June 6-8, 2018, Alexandria, VA.
8. “Co-design in Transdisciplinary Research.” Texas Water Research Network, University of Texas at Austin, January 11-12, 2018.
9. “Climate Change and Regional Sustainability.” Sierra Club. November 28, 2017.
10. “Co-creating Shared Vision in Interdisciplinary Research Teams.” National Center for Socio-Environmental Synthesis Postdoctoral Immersion Workshop. November 6-8, 2017.
11. “Integrating Knowledge across Disciplines.” Intelligent Systems and Geological Science Research Coordination Network working meeting, University of Texas at Austin, January 19, 2017.
12. “Team science: Challenges and Barriers.” Collaborative Team Science & Leadership Professional Development Training Workshop, Virginia Institute of Marine Science, College of William and Mary, December 14, 2016.
13. “Co-creating shared vision with external representations.” (Keynote). Science of Team Science (SciTS) 2016, May 16, 2016. Phoenix AZ.
14. “GIS Research and its Multiple Applications.” University of Texas at El Paso, Intelligence and National Security Studies Graduate Seminar, May 1, 2015.
15. “Effective Team Science to Address Environmental Health Disparities.” University of Texas at El Paso, Environmental Health Disparities on the Border Conference, May 20-21, 2014.
16. “Disorient Yourself Through Crossing Disciplines: Generating Transformative Research Ideas.” Louisiana State University, Office of Research and Economic Development. November 13, 2013.
17. “Semantic Heterogeneity: Enabling Earth Science in the Data Deluge.” USGS Earth Resources Observation and Science (EROS) Center, March 19, 2013.
18. “Semantic Heterogeneity: Surviving the Earth Science Data Deluge.” SDSU Spring Seminar in Geosciences, March 18, 2013.
19. “The human side of cyberinfrastructure: Enabling research teams and science networks.” KU/OSU EPSCOR project final symposium. September 6, 2012.
20. “A model for knowledge synthesis across disciplines.” 3rd Annual Conference for the Science of Team Science, Northwestern University, Chicago, IL, April 16-19, 2012.
21. “Enabling Interdisciplinary Teams.” Texas Tech University Interdisciplinary Academy, February 3, 2012.
22. “Science and Technology Research Teams and the Fuzzy Front End of Innovation.” Department of Computer Science at University of Texas at El Paso Fall Seminar Series, October 7, 2011.
23. “Synergy and Co-Emergent Innovation in Interdisciplinary Research.” Department of Biology at Texas Tech University Fall Seminar Series, September 28, 2011, Lubbock, Texas.
24. “Synergy and Co-Emergent Innovation in Interdisciplinary Research.” School of the Coast and Environment at Louisiana State University Fall Seminar Series, September 16, 2011, Baton Rouge, Louisiana.

25. "Participatory Design of Human-Centered Cyberinfrastructure." American Geophysical Union Annual Fall Meeting, Session: "*Advances in Cyberinfrastructure for the Earth and Environmental Sciences*", December 13-17, 2010, San Francisco, CA.
26. "Participatory Design of Research Collaboratories." New Mexico Cyberinfrastructure Day, April 22, 2010, Albuquerque, New Mexico.
27. "The Science of Collaboration." Center for Disease Control, Atlanta, GA, January 13, 2010.
28. "Opportunities and Challenges of Collaboration." 17th General Assembly of the Ibero-American Science and Technology Education Consortium (ISTEC), October 27, 2009, University of New Mexico.
29. "Structure and Function of Cross-Disciplinary Collaboration and the Flow of Information." University of Wisconsin Seminar on Information Management in Ecology, April 2, 2008.
30. New Mexico Cyberinfrastructure Day, March 10-11, 2008, Las Vegas, New Mexico. "If You Build It, Will They Come and How Will They Get There?"
31. 3rd International Workshop on ILTER Ecological Information Management in the East Asia-Pacific Region, October 16-21, 2007, Seoul Korea. "Structure and Function of Cross-Disciplinary Collaborations and the Flow of Information" and "Advances in Technology-Enabled Science: An Overview."
32. East Asian Pacific ILTER Workshop, July 10, 2007, Taiwan. "Scientific Workflows" and "Introduction to Kepler Workflow System."
33. Workshop Panel: Terra Cognita 2006 – Directions to the Geospatial Semantic Web, 5th International Semantic Web Conference (ISWC'06), November 6, 2006, Athens, Georgia.
34. Ocean Informatics Exchange, Scripps Institution of Oceanography, University of California at San Diego, March 16, 2005, "Knowledge representation in scientific informatics."
35. Oregon State University IGERT in Ecosystem Informatics Colloquia, December 3, 2004, "Ecoinformatics and the Research Cycle".
36. National Science Foundation Division of Environmental Biology Distinguished Lecturer, January 26, 2004, "Vision for the 21st Century Information Environment in Ecology."
37. Long Term Ecological Research All-Scientists Meeting, September 19, 2003, "Artificial Intelligence Applications in Remote Sensing."
38. Long Term Ecological Research All-Scientists Meeting, September 21, 2003, "The Spatial Data Workbench."

Conference Presentations (* indicates student)

1. Salas, K.* and Pennington, D. (2022). Participatory Modeling (PM): Addressing Water Issues in the Middle Rio Grande and the Effect of PM on Social Learning. Annual Meeting of the American Geophysical Union. December 12-16, 2022.
2. Olgin, J.* and Pennington, D. (2022). Improving Data Quality through the GLOBE Observer Clooud Protocol Using Model Based Reasoning Techniques. Annual Meeting of the American Geophysical Union. December 12-16, 2022.
3. Pennington, D. (2021) Water resource issues in the Middle Rio Grande. Orientation to the Environmental Science Hydrology concentration. May 19, 2022, UTEP.
4. Garnica, L., Heyman, J., Villanueva-Rosales, N., and Pennington, D. (2022). Fostering the use of scientific water models from different stakeholder perspectives through the Sustainable Water Through Integrated Modeling (SWIM) Platform. Frontiers in Hydrology Meeting.

5. Villanueva-Rosales, N., Pennington, D. D., Heyman, J., Garnica Chavira, L. (2022). CSSI Elements: Data: HDR: SWIM to a Sustainable Water Future (poster). NSF CSSI PI meeting, July 25-26, 2022, Alexandrea, VA.
6. Garnica Chavira, L., Heyman, J., Villanueva-Rosales, N., and Pennington D. (2022). Fostering the Use of Scientific Water Models from Different Stakeholder Perspectives through the Sustainable Water Through Integrated Modeling (SWIM) Platform. Joint AGU Chapman/CUAHSI Conference. Puerto Rico.
7. Pennington, D. (2021) Water resource issues in the Middle Rio Grande. Orientation to the Environmental Science Hydrology concentration. May 17, 2021, UTEP.
8. Salas, K.* and **Pennington, D.** (2020). Approaching Uncertain Water Futures in the Middle Rio Grande through the Integration of Data and Model-Based Reasoning. Annual Meeting of the American Geophysical Union. December 1-17. Virtual.
9. Olgin, J.* and **Pennington, D.** (2020). Augmenting Underrepresented Student Learning Experiences through Service Learning and NASA's GLOBE Observer Program. Annual Meeting of the American Geophysical Union. December 1-17. Virtual.
10. **Pennington, D.** (2020). Learning to Converge Across Disciplines. Annual Meeting of the American Geophysical Union. December 1-17. Virtual.
11. Heyman, J., Mayer, A., Hargrove, W., Granados, A., **Pennington, D.** (2019). Lifetimes of a Transboundary Aquifer: Drivers of Change and Proposals for Response. American Geophysical Union Conference on Quest for Sustainability of Heavily Stressed Aquifers at Regional to Global Scales. October 21-24, 2019. Valencia, Spain.
12. Walker, W.S., E.G. Archuleta, M.A. Cappelle, W.L. Hargrove, J.M. Heyman, **D.D. Pennington**, I. Santiago, Z. Sheng, and P. Xu (2019). Convergence to One Water": A New Research Approach to Water Security in Dry Climates (poster). Water Security: New Technologies, Strategies, Policies and Institutions, Conference jointly organized by American Water Resources Association (AWRA) and the Chinese Academy of Sciences (CAS). September 16-18, 2019, Beijing, China.
13. *Salas, K. & **Pennington, D.** (2019). Participatory Modelling: An Interdisciplinary Approach to Understand Stakeholder Awareness, Critical Thinking and Collaborative Reasoning about Water Scarcity (poster). Earth Educators Rendevous, July 15-19, 2019. Nashville, TN.
14. Powell, J.; Karpatne, A.; Garijo, D.; *Martin, J.; Hardesty-Lewis, D.; Marchetto, P.; Cleveland, S; Daniels, M.; Athanasiadis, I.; Keys, P.; Demir, I.; Peckham, S.; Hill, M.; Ebert-Uphoff, I.; **Pennington, D.**; Jacobs, G.; Gil, Y.; Pierce, S. (2019). Creating Sustainable Knowledge Centric Communities with Artificial Intelligence Applications to Earth Science Problems" (poster). EarthCube All Hands Meeting. June 12-14, 2019. Denver, Colorado.
15. Mayer, A.S., Gutzler, D., **Pennington, D.**, and Ward, F. (2019). Evaluating Water Scarcity under Climate Change with a Basin Scale Model. Universities Council on Water Resources. June 11-13, 2019, Snowbird, Utah.
16. Vincent, S., **Pennington, D**., Chen, R., Berkowitz, A., and Lochet, A. (2019). Evaluating Transdisciplinary, Sustainability-Focused Higher Education Programs: Using Transdisciplinary Orientation as a Performance Measure in Three NSF-Funded Program Contexts. Science of Team Science (SciTS) 2019. May 20-23, 2019. Lansing, Michigan.
17. **Pennington, D.**, Thompson, K., Vincent, S., and Gosselin, D. (2019). Deep Knowledge Integration across Disciplines: the EMBeRS Method. Science of Team Science Conference. May 20-23, 2019, Lansing Michigan.

18. **Pennington, D.** (2019). Discussion Panelist. Engineers for a Sustainable World 2019 Annual Conference. April 4, 2019. University of Texas at El Paso.
19. **Pennington, D.** (2019). IS-GEO and Convergent Research. Webinar for the Intelligent Systems in the Geosciences Research Coordination Network. April 2, 2019.
20. **Pennington, D.** (2019). Interdisciplinary Teamwork and Socio-Environmental Research. Geology Department seminar. April 1, 2019.
21. Natalia Villanueva-Rosales, *Raul Alejandro Vargas Acosta, Luis Antonio Garnica Chavira and **Deana Pennington** (2019). Fostering Understanding of Water Sustainability Models using Provenance-driven Narratives (poster). U.S. Semantic Technologies Symposium Series, March 11-13, 2019, Duke University, Durham, NC.
22. *Salas, K., and **Pennington, D.** (2019). Participatory Modelling: An Interdisciplinary Approach to Understand Stakeholder Awareness, Critical Thinking and Collaborative Reasoning on Water Scarcity in El Paso (poster). Water Resources Symposium. January 8, 2019. University of Texas at El Paso.
23. *Reyes, Carlos, Mubako, S., *Belhaj, O., **Pennington, D.** (2019). Analyzing the Urbanization Growth and Land Cover Changes in the Middle Rio Grande River Basin (poster). Water Resources Symposium. January 8, 2019. University of Texas at El Paso.
24. **Pennington, D.** (2019). Innovations in Water Research: Convergence to OneWater. January 8, 2019. University of Texas at El Paso.
25. **Pennington, D.** (2018), EMBeRS: A Best Practice for Enabling Interdisciplinary Learning, Synthesis and Convergence, eLightning presenation, Annual Meeting of the American Geophysical Union, December 10-14, 2018, Washington, DC.
26. **Pennington, D.** Ebert-Hoffman, I., Freed, N., Martin, J., and Pierce, S., (2018), Interdisciplinary Earth Data Science Education, Annual Meeting of the American Geophysical Union, December 10-14, 2018, Washington, DC.
27. **Pennington, D.** (2018). Deep Knowledge Integration through Convergence. UTEP Interdisciplinary Research Symposium, eLightning Presentation, November 5, 2018, University of Texas at El Paso, El Paso, TX.
28. **Pennington, D.** Shirley Vincent, Dave Gosselin, Roderic Parnell, and Antje Danielson (2018). EMBeRS: A New Method for Igniting Interdisciplinary Learning, Synthesis, and Convergence. Earth Educators Rendevous, University of Kansas, Lawrence, KS, July 19, 2018
29. **Pennington, D.** (2018). Learning and Convergence across Disciplines. Earth-Cube 2018 All Hands Meeting, June 6-8, 2018, Washington DC.
30. Garijo, D., *Martin, J., Freed, N., Pierce, S. A., Gil, Y., Thompson, D. R., Demir, I., Ebert-Uphoff, I., and **Pennington, D.** (2018). IS-GEO – A Research Coordination Network on Intelligent Systems Research to Support the Geosciences (poster). Earth-Cube 2018 All Hands Meeting, June 6-8, 2018, Washington DC.
31. *Olgin, J., **Pennington, D.,** and Webb, N. (2018). Better Definition of Roughness Elements for Dust Emission Modeling in the Chihuahuan Desert (poster). Geological Science Annual Spring Colloquium, University of Texas at El Paso, March22, 2018.
32. *Houser, P., **Pennington, D.**, and Villanueva, R. (2018). Semantic Data and Visualization Techniques Applied to Geologic Field Mapping (poster). Geological Science Annual Spring Colloquium, University of Texas at El Paso, March22, 2018.
33. **Pennington, D.**, Chavira, L., and Villanueva-Rosales, N. (2017). Middle Rio Grande Water Sustainability in Extreme Drought: Using Provenance to Trace Modeling Scenarios Selected

by Users. Annual Meeting of the American Geophysical Union, December 11-15, 2017, New Orleans, Louisiana.

34. Porter, M., Hill, M., Pierce, S., Gil, Y., and **Pennington D.** (2017). Formulating Qualitative Features using Interactive Visualization for Analysis of Multivariate Spatiotemporal Data. Annual Meeting of the American Geophysical Union, December 11-15, 2017, New Orleans, Louisiana.
35. Garijo, D. Kejriwal, M., Pierce, S., *Houser, P., Peckham, S., Stanko, Z., Lewis, D., Gil, Y., **Pennington, D.,** and Knoblock, C. (2017). Semi-automatic Data Integrating using Karma. Annual Meeting of the American Geophysical Union, December 11-15, 2017, New Orleans, Louisiana.
36. *Olgin, J., **Pennington, D.,** and Webb., N. (2017). Dust Emission Modeling Incorporating Land Cover Parameterizations in the Chihuahuan Desert and Dissemination of Data Suites (poster). Annual Meeting of the American Geophysical Union, December 11-15, 2017, New Orleans, Louisiana.
37. *Guereque, M., **Pennington, D.,** and Pierce, S. (2017). Integrating Intelligent Systems Domain Knowledge into the Earth Science Curricula (poster). Annual Meeting of the American Geophysical Union, December 11-15, 2017, New Orleans, Louisiana.
38. *Guereque, M., **Pennington, D.,** *Olgin, J., Ricketts, J., and *Salas, K. (2017). Designing Summer Outreach Programs as an Engagement Tool to Connect Underserved and Underrepresented HS Students with Climate Science Topics (poster). Annual Meeting of the American Geophysical Union, December 11-15, 2017, New Orleans, Louisiana.
39. **Pennington, D.** and Vincent, S. (2017). Employing Model-Based Reasoning in Interdisciplinary Research Teams: Evidence-Based Practices for Integrating Knowledge Across Systems. Annual Meeting of the American Geophysical Union, December 11-15, 2017, New Orleans, Louisiana.
40. *Guereque, M., and **Pennington, D.** (2017). Addressing student readiness for data-intensive science – takeaways from other disciplines' efforts and prospects for the earth sciences (poster). Earth Educators Rendevous, July 17-21, 2014, Albuquerque, New Mexico.
41. *Guereque, M., **Pennington, D.,** and Pierce, S. (2017). Data competency skills in the Earth Sciences, and lessons from other disciplines (poster). EarthCube Annual All Hands Meeting, June 7-9, 2017, Seattle, Washington.
42. *Trevizo, I. G., and **Pennington, D.** (2017). Active learning effect on the public's perception of anthropogenic global climate change (poster). Annual Meeting of the Geological Society of America (GSA 2017), October 22-25, 2017, Seattle, Washington.
43. *Olgin, J., **Pennington, D. D.,** and Webb, N. (2017). Dust emission modeling incorporating land cover change parameterizations in the Chihuahuan Desert (poster). Geological Science Annual Spring Colloquium, University of Texas at El Paso, March 3, 2017.
44. *Houser, P. and **Pennington, D.** (2017). Data integration in field geology using ontologies. Geological Science Annual Spring Colloquium, University of Texas at El Paso, March 3, 2017.
45. *Robinson, S., **Pennington, D.,** and Gardea-Torresdey, J. (2017). ASARCO demolition fallout, A post study on Pb (lead) soil concentrations and environmental agents of redistribution in El Paso, Texas. Geological Science Annual Spring Colloquium, University of Texas at El Paso, March 3, 2017.
46. *Treviso, I. and **Pennington, D.** (2017). Anthropogenic climate change a topic of debate? Active learning effect on the public's perception of anthropogenic global climate change.

Geological Science Annual Spring Colloquium, University of Texas at El Paso, March 3, 2017.

47. Garnica-Chavira, L., *Caballero, J., Villanueva-Rosales, N., and **Pennington, D.** (2017). Leveraging self-contained Web Services for specification, execution and storage of user-defined scenarios of scientific models. Poster presentation. Annual Meeting of the USDA Middle Rio Grande Water Sustainability project, January 4, 2017.
48. Garnica-Chavira, L., **Pennington, D.,** and Villanueva-Rosales, N. (2017). Towards an integrated water modeling user interface for stakeholders. Poster presentation. Annual Meeting of the USDA Middle Rio Grande Water Sustainability project, January 4, 2017.
49. *Guereque, M., J. *Olgin, and **D. Pennington** (2016) Engaging underserved and underrepresented students in the earth sciences through a summer outreach program. Annual Meeting of the American Geophysical Union (AGU 2016), December 12-16, 2016, San Francisco, CA.
50. *Houser, P., **D. Pennington**, and N. Villanueva-Rosales (2016) Semantic And Visualization Methods Applied To Geologic Field Mapping. ESRI User's Conference, June 27-July 1, 2016, San Diego, CA.
51. *Everett, A., **D. Pennington**, and T. Gill (2016) Impacts of Natural and Anthropogenic Environmental Changes to the Middle Rio Grande Riparian Landscape On Ysleta del Sur Pueblo's Ability To Sustain Cultural Identity and Indigenous Way of Life. Poster presentation. American Association of Environmental Studies and Sciences Annual Meeting, June 8-11, 2016, Washington DC.
52. *Robinson, S., **D. Pennington**, J. Gardea-Torresday (2016) ASARCO Demolition Fallout, A Post Study on Pb (Lead) Soil Concentrations and Environmental Agents of Redistribution in El Paso, Texas. Poster presentation. American Association of Environmental Studies and Sciences Annual Meeting, June 8-11, 2016, Washington DC.
53. Pennington, D. (2016) Knowledge Negotiation across Disciplines with Model Based Reasoning. Science of Team Science (SciTS) 2016, May 15-19, 2016. Phoenix AZ.
54. Gosselin, D., **D. Pennington**, and S. Vincent (2016) Negotiating boundaries: Effective leadership of interdisciplinary environmental and sustainability programs. Poster presentation. Science of Team Science (SciTS) 2016, May 15-19, 2016. Phoenix AZ.
55. **Pennington, D.** (2016). Sustainability Education at the Food-Energy-Water Nexus: Ongoing Research. Panel. Annual Meeting of the National Council on Science and the Environment. January 19-21, 2016, Washington DC.
56. *Olgin, J., *Guereque, M., **Pennington, D.,** *Everett, A., *Dixon, J., *Reyes, A., *Robinson, S., *Houser, P., *Baker, J., Stocks, E. and Kathy E. (2015) EarthTec, Dig-Texas and Upward Bound: Outreach to At-Risk Students with Interdisciplinary STEM Activities. Annual Meeting of the American Geophysical Union (AGU 2015), December 14-18, 2015, San Francisco, CA.
57. *Everett, A., D. **Pennington**, and T. Gill (2015) Impacts of Natural and Anthropogenic Environmental Changes to the Middle Rio Grande Riparian Landscape on Ysleta del Sur Pueblo's Ability to Sustain Cultural Identity and Indigenous Way of Life. Annual Meeting of the Society for Advancing Chicanos/Hispanics & Native Americans in Science. October 29-31, 2015, Washington DC.
58. **Pennington, D.** (2015) Integrating knowledge in interdisciplinary environmental and sustainability teams. American Association of Environmental Studies and Sciences Annual Meeting, June 24-27, 2015, San Diego, CA.

59. **Pennington, D.,** N. Aditomo, G. Bammer, A. Danielson, D. Gosselin, G. Habron, D. Hawthorne, C. Meissner, R. Parnell, K. Thompson, S. Vincent, and C. Wei, (2015), Conceptualizing complex land change systems using model-based reasoning. Annual Meeting of the American Association of Geographers (AAG), April 21-25, 2015, Chicago, IL, USA.
60. McConnell, M.S., Pennington, D.S. 2014. 'Trypanosoma cruzi infection in New Mexico: Wildlife Disease, Interdisciplinary Approaches, & One HEALTH (poster).' Wildlife Disease Association. Albuquerque, NM. July 27-Aug 1, 2014.
61. Pennington, D., *Gándara, A., *Del Rio, N., *Ochoa, O. (2014), *The Virtual Learning Commons (VLC): Enabling sharing and innovation for flexible, responsive solutions*, 7th International Congress on Environmental Modelling and Software (iEMSs), June 15-19, 2014, San Diego, CA, USA.
62. Ellins, Katherine, Elaine Bohls-Graham, Eric. M. Riggs, Laura Serpa, Belinda Jacobs, Sean Fox, Molly Kent, E. Stocks, Deana Pennington, Diversity and Innovation for Geoscience (DIG) Texas Earth and Space Science Instructional Blueprints, Abstract ED51C-3448, presented at 2014 Fall Meeting, AGU, San Francisco, Calif., 15-19 Dec.
63. Pennington, D., *Del Rio, N., Villanueva Rosales, N. et al. (2014), *Earth, Life, and Semantic Web (ELSEWeb): Provenance in distributed geospatial workflows*. Annual Meeting of the American Association of Geographers (AAG), April 8-12, 2014, Tampa, FL, USA.
64. Pennington, D., *Del Rio, N., *Fierro, C. *Gándara, A. et al. (2013). *The Virtual Learning Commons: An Emerging Technology for Learning About Emerging Technologies*. American Geophysical Union Annual Fall Meeting, Dec. 9-13, 2013 San Francisco, CA.
65. Pennington, D., Villanueva, N., *Del Rio, N. et al. (2013). *Earth, Life, and Semantic Web (ELSEWeb)*. NASA Biodiversity and Ecosystem Forecasting Workshop, April 22-24, 2013.
66. Wade, D. and Pennington, D. (2013). *The Generative Dance: Knowledge Integration in Interdisciplinary Research and Product Development Teams.* Science of Team Science Conference, June 24-27, 2013, Northwestern University, Evanstone, IL.
67. Ellins, K.K., L. Serpa, D. Pennington, E.M. Riggs, S.P. Fox, K. Larsen, E. Stocks, S. Mosher, K. C. Miller, 2013, DIG Texas Instructional Blueprints, Paper No. 17-11, presented at the 125th Anniversary GSA Annual Meeting, Denver, CO, 27-30 October.
68. Ellins, K.K., L. Serpa, D. Pennington, E.M. Riggs, S.P. Fox, S. Mosher, and K. C. Miller, DIG Texas Instructional Blueprints for Teaching Earth and Space Science, Paper No. 16-5, presented at the South-Central Section - 47th Annual Meeting, GSA, Austin, Texas, 4-5 April.
69. Pennington, D., *Gandara, A., and *Gris, I. (2012) *The Virtual Learning Commons: Supporting the Fuzzy Front End of Scientific Research with Emerging Technologies*. American Geophysical Union Annual Fall Meeting, Dec. 3-7, 2012 San Francisco, CA.
70. Pennington, D., *Gandara, A., and *Gris, I. (2012) *The Virtual Learning Commons: Supporting Science Education with Emerging Technologies*. American Geophysical Union Annual Fall Meeting, Dec. 3-7, 2012 San Francisco, CA.
71. Pennington, D. *New Models of Knowledge Integration Across Disciplines: Collective Learning Processes.* Poster presentation at the Socio-Environmental Synthesis Center (SESYNC) Education Workshop, June 4-5, 2012.
72. Pennington, D. *A Model of Knowledge Synthesis Across Disciplines*. Science of Team Science Conference, Chicago IL, april 18, 2012.

73. Pennington, D. The Virtual Learning Commons. American Association of Geographers Annual Meeting, Special session: *Mapping Cyberspace and Social Networks II*, February 24-27, 2012, New York, NY.
74. Pennington, D., Titcomb, A., and Nation, M. Evaluation as a Methodology for Understanding and Enabling Interdisciplinary Team Science. American Evaluation Association. November 5, 2011.
75. Pennington, D. The CyberShARE Networked Learning Environment. American Association of Geographers Annual Meeting, Special session: *Educating a Workforce Literate in Cyberinfrastructure*, April 12-16, 2011, Seattle, WA.
76. McConnell, M., Fair, J., Rivas, A., and Pennington, D. Bio-Geo-Dynamic Indicators of Disease: A Workshop for Interdisciplinary Collaborations. 1st International One Health Congress, February 14-16, 2011, Melbourne, Australia.
77. Pennington, D. and Gates, A. Participatory Design of Human-Centered Cyberinfrastructure. American Geophysical Union Annual Fall Meeting, Session: "*Advances in Cyberinfrastructure for the Earth and Environmental Sciences*", December 13-17, 2010, San Francisco, CA.
78. Pennington, D. Reasoning about knowledge in cross-disciplinary teams. Annual Meeting American Geophysical Union, December 14-18, 2009. San Franciso, CA.
79. Baker, K. and Pennington, D. Information infrastructure, information environments, and long-term collaboration. Annual Meeting American Geophysical Union, December 14-18, 2009. San Franciso, CA.
80. Pennington, D. Creative collaboration between scientists and technology experts: Integrating conceptual spaces and constructing collaborative places. Annual Meeting American Association of Geographers, March 22-27, 2009, Las Vegas, Nevada.
81. Pennington, D. Enabling Co-Emergent Innovation through Collaboration between Science and Technology Researchers. 83rd annual Multidisciplinary Meeting, AAAS Southwestern and Rocky Mountain Division, April 9-12, 2008, University of New Mexico, Albuquerque, NM.
82. Pennington, D. Supporting large-scale science with workflows. 2nd Workshop on Workflows in Support of Large-Scale Science (WORKS07), High Performance Distributed Computing 2007, June 25, 2007, Monterey Bay California.
83. Pennington, D., Madin, J., Villa, F., and Athanasiadis, I.N. Computer-supported collaborative knowledge modeling in ecology. *Proceedings: Workshop on Social and Collaborative Construction of Structured Knowledge*, 16th International World Wide Web Conference (WWW2007*)*, May 8, 2007, Banff, Canada.
84. Pennington, D. Using exploratory modeling to quantify the range of uncertainty in historical wildfire modeling and implications for current and future biodiversity in the Oregon Cascades. *5th International Conference on Ecological Informatics (ISEI5)*, Dec. 4-7, 2006, Santa Barbara, California.
85. Pennington, D., Michener, W.K., Higgins, D., Peterson, A. Townsend. Ecological niche modeling with the Kepler Workflow System. *5th International Conference on Ecological Informatics (ISEI5)*, Dec. 4-7, 2006, Santa Barbara, California.
86. Pennington, D. Representing the dimensions of an ecological niche. 5th International Semantic Web Conference (ISWC'06) Workshop: Terra Cognita 2006 – Directions to the Geospatial Semantic Web, November 6, 2006, Athens, Georgia

87. Pennington, D., Michener, W.K., Zhang, J., et al. The Science Environment for Ecological Knowledge (SEEK): A distributed environment for ecological modeling and analysis. *AAG 2005*, April 5-9, 2005, Denver, Colorado.
88. Pennington, D., Berkley, C., Bowers, S., Higgins, D., Jones, M.B., Ludaescher, B., Michener, W,.K., Rajasekar, A., and Schildhauer, M. The Science Environment for Ecological Knowledge (SEEK): A Distributed, Ontologically-Driven Environment for Ecological Modeling and Analysis (extended abstract). *Proceedings: GIScience '04*, October 20-23, 2004, University of Maryland.
89. Pennington, D**.**, H. Jasso, P. Shin, and T. Fountain. The effect of landscape heterogeneity on classification accuracy: a comparison of classifier prediction in sub-optimal sampling conditions. *Seventh Workshop on Mining Scientific and Engineering Datasets, 2004 SIAM International Conference on Data Mining (SDM 2004)*, April 24, 2004, Lake Buena Vista, Florida, pp. 11-20.
90. Pennington, D., Michener, B., Beach, J., Jones, M., Judaescher, B., Schildhauer, M. Ecological Niche Modeling with the Science Environment for Ecological Knowledge (SEEK) Infrastructure (Abstract). *USIALE 2004 Conference Proceedings*, March 31 – April 2, 2004, Las Vegas, Nevada.
91. Pennington, D., Vande Castle, J., Fountain, T., and Wang, G. Spatio-temporal data mining of remotely sensed imagery for ecology (Abstract). *GIScience 2002: Second International Conference on Geographic Information Science, Abstracts*, September 25-28, 2002, Boulder, Colorado, p. 138-140.
92. *Pennington, D. Spatiotemporal analysis of landscape structure, function and change in the western Cascades of Oregon (Abstract). *USIALE 2001 Conference Proceedings,* Apr. 25-29, 2001, Tempe, AZ.
93. *Pennington, D. Spatial analysis of landscapes: characterizing structure, function and change with GIS (Abstract). *AAG 2001 Conference Proceedings*, Feb. 27-Mar.3, 2001, New York, New York.

SERVICE

Service to the Department of Geological Sciences

1. 2015-2024 Director GIST Graduate Certificate Program
2. 2019-2024 Geological Sciences Strategy Committee
3. 2019-2021 Geological Sciences SACS GIST program assessment
4. 2019-2020 Chair, Physical Geography Faculty Search Committee
5. 2015-2019 Lead, Geological Science Committee on Teaching Excellence
6. 2015-2019 Assistant Chair, Geological Sciences
7. 2015-2019 Director Geological Sciences SACS certification
8. 2014-2016 Alternate, Faculty Senate, Geological Sciences Representative
9. 2014-2015 Geological Science Committee on Key Research Thrusts

Service to the College of Science

1. 2019-2023, Chair, College of Science Workload Policy Committee
2. 2019-2023 Chair, College Review Committee
3. 2019 Ad hoc proposal review

4. 2018-2019 NSF MRI Proposal review
5. 2018 Technology advisory committee

Service to the University

1. 2017-present Member, UTEP Sustainability Committee
2. 2018 Workshop lead, ORSP Convergence Workshop, MIP Solicitation. November 27, 2018
3. 2015-2019 Lead, UTEP GIST Community of Practice
4. 2015-2018 Member, Committee on Committees
5. 2012-15 UTEP Interdisciplinary Research Symposium planning group
6. 2014-2015 UTEP Expertise Connector IDRE Community Co-Lead
7. 2013, 2014. Volunteer, UTEP Junior/Senior Professional Orientation (JPO) class. Mock interviews with students.
8. 2012-14 NSF I3 project: UTEP Pro-STEM Council for Institutional Integration and Innovation.
9. 2012-2014 UTEP Strategic IT Advisory Committee.
10. 2011-12 Contributed to development of UTEP Interdisciplinary Research Enhancement Program
11. UTEP ORSP Brown Bag Series presentation "Interdisciplinary knowledge creation." June 28, 2012.
12. 2011-2012 Led UTEP reading group on interdisciplinary research collaboration.
13. 2012 Chair Faculty Search Committee for Cyber-ShARE/Computer Science Semantic Web position

Service to the Profession

Organized Meetings, Workshops and Sessions

1. Weseman, J., Pennington, D., Ke, F., and Keller, M. Co-organizers NSF Innovations in Graduate Education PI Meeting, January 30-31, 2020, Washington, D.C.
2. Aydin, Orhun, Pennington, D., Shrestha, S., and Gil, Y., Session: Earth Data Science Education: Training Earth Scientists for interdisciplinary work on new and emerging approaches. eLightning Session. Annual Meeting of the American Geophysical Association, December 9-13, 2019, San Francisco CA.
3. Pennington, D., Ebert-Uphoff, I., Martin, J., Freed, N., Session: Educating the next generation of scientists: Interdisciplinary education bridging geoscience and data science. Annual Meeting of the American Geophysical Association, December 10-14, 2018, Washington, DC.
4. Shew, A., D. Pennington, D. Gosselin, J. Clifton, A. Killion, L. Nalley, P. Owens, K. Sterle & B. Wilson. Workshop: Interdisciplinary Science, Economic Development, and Sustainability in Southern Africa: Navigating complex human-environmental problems in diverse teams and challenging settings. A Participatory Workshop for the *Swaziland Economic Policy Analysis and Research Center*, Mbabane, Swaziland. May 22 – 23rd, 2018.
5. Pennington, D., S. Vincent, D. Gosselin, R. Parnell, and G. Habron. Symposium: Case Studies of Employing Model Based Reasoning to Improve Transdisciplinary Collaboration Competencies. National Council for Science and the Environment, 18th National Conference and Global Forum on Science, Policy and the Environment: The Science, Business, and Education of Sustainable Infrastructure: Building Resilience in a Changing World. January 23 – 24, 2018. Washington, D.C.

6. Pennington, D., S. Vincent, D. Gosselin, R. Parnell, and G. Habron. Workshop: Employing Model Based Reasoning to Improve Collaboration for Building Resilience. National Council for Science and the Environment, 18th National Conference and Global Forum on Science, Policy and the Environment: The Science, Business, and Education of Sustainable Infrastructure: Building Resilience in a Changing World. January 23 – 24, 2018. Washington, D.C.
7. Pennington, D., M. Guereque, A. Karpatne, and S. Ravela (2017). Session: Intelligent Systems and the Geosciences (IS-GEO), Annual Meeting of the American Geophysical Union, December 11-15, 2017, New Orleans, Louisiana.
8. Pennington, D. 2017 Upward Bound summer field camp in Geological Sciences.
9. Pennington, D., Gosselin, D., Thompson, K., Parnell, R., and Danielson, A. (2017). EMBeRS Summer Workshop for PhD students, training on interdisciplinary teamwork, June 8-16, 2017, El Paso, TX.
10. Pennington, D., D. Gosselin, R. Parnell and S. Vincent. Organized symposium and workshop at NCSE 2017, Co-creating interdisciplinary research on environment and health problems. Washington DC, Jan 24-26, 2017.
11. Pennington, D., Guereque, M., and Olgin, J. 2016, Upward Bound summer field camp in Geological Sciences
12. Pennington, D., Gosselin, D., Thompson, K., Parnell, R., and Danielson, A. (2016). EMBeRS Summer Workshop for PhD students, training on interdisciplinary teamwork, July 11-29, 2016, El Paso, TX.
13. Pennington, D., D. Gosselin and S. Vincent. Organized workshop at AESS 2016, Employing Model-Based Reasoning in Socio-Environmental Synthesis: The EMBeRS Model for Integrating Knowledge across Disciplines and Perspectives, Washington DC, June 8-11, 2016.
14. Pennington, D., Organized special session for AESS on Leadership in Interdisciplinary Education, June 2015.
15. Pennington, D., Guereque, M., and Olgin, J., 2015, Upward Bound summer field camp in Geological Sciences
16. Science of Team Science (SciTS) 2014. Conference Planning Committee and Sponsorship Committee
17. Pennington, D., Deborah McGuinness, Christopher (Kit) Macleod, and Hassan Babaie. Session: AGU Annual Meeting, IN51D and IN53D. Semantics and Cyberinfrastructures for Next Generation Science, December 2012, San Francisco.
18. Pennington, D., W. Hargrove, BienESTAR, August, 2011. University of Texas at El Paso.
19. Pennington, D., M. McConnell, and J. Fair, and A. Rivas, Working meeting on ecology of infectious disease (geo-epidemiology group). July 2011, University of New Mexico.
20. Pennington, D., M. McConnell, and J. Fair, GIS and Epidemiology Workshop (geo-epidemiology group). Feb 2011, University of New Mexico.
21. CyberShare and LTER Information Managers, Dec 9, 2010, University of Texas at El Paso.
22. Pennington, D., M. McConnell, J. Fair, and A. Rivas, Designing Informative Indicators Workshop (geo-epidemiology group). Nov 2010, University of New Mexico.
23. Integrated Methods and Tools from Patch Metric Analysis, Species Distribution Modeling, and Macroecology for Complex Landscape and Biotic Change Analysis. Workshop for the US-IALE 2010 Landscape Ecology Symposium, April 5-9, 2010, Athens, GA.
24. Pennington, D., CI-Team All Hands Meeting. Jan 5-7, 2010.

25. Pennington, D., CI-Design Integrated Analysis Working Meeting. November 2-4, 2009.
26. Pennington, D., CI-Design Lifemapper Working Meeting. Sept. 24-25, 2009, University of Kansas.
27. Pennington, D., CI-Design Collaboration Systems Working Meeting. July 26, 2009, Santa Fe Complex, Santa Fe, NM.
28. Pennington, D., CI- Design Collaboration Systems Working Meeting. April 29, 2009, University of New Mexico.
29. Pennington, D., CI-Design Working Meeting (MoVE group). Jan 7-9, 2009, University of New Mexico.
30. Pennington, D., CI-Design Lifemapper Working Meeting. Nov 11-12, 2008, Santa Fe, New Mexico.
31. Pennington, D., CI-Design Working Meeting (R2R group). Oct 15-17, 2008, Northern Arizona University.
32. Pennington, D., CI-Design Working Meeting (R2R group). May 28-30, 2008, University of New Mexico.
33. Pennington, D., CI-Strategy Workshop. Jan 3-4, 2008, University of New Mexico.
34. Pennington, D., CI-Team Design Collaboration Systems Working Meeting. Dec 17-20, 2007, University of New Mexico.
35. Pennington, D., CI-Vision Workshop. May 30-Jun 1, 2007, University of New Mexico.
36. Pennington, D., CI-Team Virtual Seminar on Cyberinfrastructure in Science. Jan-May 2007, University of New Mexico, University of Arizona, New Mexico Tech, and Northern Arizona University.
37. Pennington, D., SEEK Biodiversity modeling and analysis working meeting. March 7-10, 2006, University of New Mexico.
38. Pennington, D., Schildhauer, M., and Bowers, S., SEEK Workshop on formal ontologies in ecology. January 24-27, 2006, San Antonio, Texas.
39. Pennington, D., Schildhauer, M., Ludaescher, and Bowers, S., SEEK Workshop on Cyberinfrastructure for Biodiversity and Productivity Analyses. NCEAS, September 26-30, 2005. Santa Barbara, California.
40. Pennington, D., Jones, J., and Romanello, S., Empowering Ecologists with Informatics Education and Training. ESA evening session, August 7-12, 2005, Montreal, Canada.
41. Pennington, D., Schildhauer, M., Ludaescher, B., Bowers, S., SEEK Workshop on Knowledge Representation and Ontologies for Biodiversity and Productivity Analyses. UC Davis, March 7-10, 2005, Davis, California.
42. Pennington, D., Peterson, A.T., SEEK Workshop on Cyberinfrastructure for Ecological Niche Modeling. December 13-17, 2004, University of New Mexico, Albuquerque, New Mexico.
43. Pennington, D., Schildhauer, M., Ludaescher, and Bowers, S., SEEK Workshop on Cyberinfrastructure for Biodiversity and Productivity Analyses. UC San Diego, September 21-23, 2004. San Diego, California
44. Pennington, D., Michener, W. SEEK meeting on Ecological Niche Modeling. Sevilleta LTER Field Station, February 1-7, 2004, Socorro, New Mexico.
45. Pennington, D., Michener, W., SEEK meeting on Biodiversity and Ecological Analysis and Modeling, University of New Mexico, August 26-28, Albuquerque, NM.
46. Pennington, D., Michener, W., SEEK meeting on Ecological Niche Modeling, August 6-8, 2003, Cozumel, Mexico.

Ad hoc and Panel Proposal Reviewer

1. 2005-present Reviewer, NSF panels – NSF Research Traineeship (NRT), Innovations in Graduate Education, Cyber-Sustainability Science and Engineering (CyberSEES), Cyber-Enabled Data and Informatics (CDI); Advances in Biological Informatics (ABI), Biology Integration Institutes (BII), Cyberinfrastructure Team (CI-Team); Advances in Informal Science Learning (AISL).
2. 2005-present Reviewer, journal articles – BioScience, Futures, Geoscience Education, Ecology and Society, Environmental Modeling and Software, Global Change Biology, Global Environmental Change, Environmental Studies and Science, Science Informatics, Ecological Informatics, Remote Sensing of Environment, Water Resources Management, Translational Behavioral Medicine.
3. 2016 Proposal Reviewer, National Center for Socio-Environmental Synthesis.

National and International Committees

1. 2018-present Member, National Council on Science and the Environment Community of Practice on Sustainability Education Competencies
2. 2016-present Representative, National Council for Science and the Environment
3. 2018-2019 member, International Community of Practice on Participatory Modelling
4. 2016-18 Representative, National Council of Environmental Deans and Directors
5. 2018 National Science Foundation Committee of Visitors, Division of Graduate Education
6. 2017-18 Member, Grand Challenges in Geoscience Education Research: Research on the Cognitive Domain in Geoscience: Quantitative Reasoning, Problem Solving, and Use of Models (Cog B)
7. 2012-2013 NASA Data System Working Groups on Semantic Technologies, Earth Science Collaboratory.
8. 2008-2009 UNM Committee on Research Collaboration
9. 2007-2008 Steering committee, Pan-American Advanced Studies Institute (PASI) on Cyberinfrastructure for International Collaborative Biodiversity and Ecological Informatics.
10. 2006-2009 Oregon State University, External advisory board member for the OSU Ecosystem Informatics Program.
11. 2006 University of New Mexico, Committee for assessment of campus-wide geospatial needs and resources.
12. 2005 University of New Mexico, Search Committee, Geography Lecturer in GIScience.
13. 2005 University Consortium for Geographic Information Science (UCGIS), University of New Mexico alternate delegate.
14. 9/2004-2008 University of New Mexico, GIS Stakeholders Committee.
15. 12/2003 – 1/2004 University of New Mexico, Search Committee, LTER Network Office, Network Information Services Developer.

Community Engagement

1. 2022 SWIM Workshop with Stakeholders. November 2022.
2. 2021 Collaboration with PhD student John Olgin developing service learning activities for community college students using the NASA GLOBE application
3. 2020-21 Three stakeholder engagement workshops on using SWIM to envision alternative water sustainability trajectories in the El Paso region

4. May and Oct 2021 Presentations on regional water security issues for the Osher Lifelong Learning Institute at UTEP.
5. 2019-20 Four stakeholder engagement meetings sharing USDA modeling project outcomes with farmers, water managers, and residents in New Mexico and Texas
6. Apr 2019. Presentation on regional water issues to Brown Middle School.
7. Oct 2018. Presentation on regional water issues to miniCAST.
8. Oct 2017. Presentation on climate change and regional water issues to Sierra Club.
9. Oct 2016. Presentation to Franklin Mountain Coalition.