

Ruopu Li

Geoinformatics for Food, Energy, and Water (GeoFEW) Lab
School of Earth Systems and Sustainability
Southern Illinois University - Carbondale
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EDUCATION

- 2007–2012** **Ph.D.** in Natural Resource Sciences, University of Nebraska-Lincoln, Lincoln, NE
- 2004–2007** **M.E.** in Environmental Science, Tianjin University, Tianjin, China
- 2000–2004** **B.S.** in Environmental Science, Nankai University, Tianjin, China

ACADEMIC POSITIONS

- Jul 2025–Present** *Professor and Graduate Program Director, Geography and Environmental Resources Program, School of Earth Systems and Sustainability, Southern Illinois University, Carbondale, IL*
- Jul 2025–Present** *Faculty Fellow, Office of the Vice Chancellor for Research, Southern Illinois University, Carbondale, IL*
- Jul 2020–Jun 2025** *Associate Professor and Graduate Program Director, Geography and Environmental Resources Program, School of Earth Systems and Sustainability, Southern Illinois University, Carbondale, IL*
- Sept 2023–Aug 2024** *Visiting Scholar, Economic Research Service (ERS), U.S. Department of Agriculture, Washington D.C.*
- Aug 2023–Present** *Affiliated faculty, Geography and Geoinformation Science, George Mason University, Fairfax, VA*
- Aug 2015–Jun 2020** *Assistant Professor, Department of Geography and Environmental Resources, Southern Illinois University, Carbondale, IL*
- Jun 2012–present** *Adjunct Faculty, School of Natural Resources, University of Nebraska-Lincoln (UNL), Lincoln, NE*
- Feb 2012–Aug 2015** *Integrated Water Management Specialist/Analyst, Nebraska Department of Natural Resources, Lincoln, NE*

- May 2011–Dec 2011** *Graduate Research Assistant*, National Drought Mitigation Center, UNL, Lincoln, NE
- Jan–May 2011** *Graduate Teaching Assistant*, University of Nebraska-Lincoln, Lincoln, NE
- Aug 2007–Dec 2010** *Graduate Research Assistant*, University of Nebraska-Lincoln, Lincoln, NE

RESEARCH INTERESTS

- Artificial Intelligence** Geospatial Artificial Intelligence, Physics-Informed Neural Networks (PINN), Large Language Models (LLMs), AI Education
- Environmental Systems** Water resource planning & management, Socio-environmental systems, Water-Energy-Food Nexus, Smart & Connected Rural Communities
- Technologies** Groundwater modeling (MODFLOW), Surface water modeling (SWAT, VIC), Geospatial analysis, remote sensing, multispectral UAV

PUBLICATIONS (+ student advisee, * corresponding author)

Book

1. Li, R. and A. Monti (Eds.). 2018. Land Allocation for Biomass Crops: Challenges and Opportunities with Changing Land Use, *Springer*. ISBN: 978-3-319-74535-0.

Book Chapter and Other Products

1. Tarique, S.T., R. Li. Bridging the smart divide for rural America: Visions from Southern Illinois (white paper). Southern Illinois University. DOI: 10.5281/zenodo.17683245. <https://works.hcommons.org/records/g933r-9b712>.
2. Crowe, J., R. Li. 2021. Achieving Energy Justice: When Historic Environmental Contamination Intertwines with Renewable Energy Development. Toxic News. Accessed online at <https://toxicnews.org/2021/04/30/achieving-energy-justice-when-historic-environmental-contamination-intertwines-with-renewable-energy-development/>
3. Li, R., K. Chen, D. Wu⁺. 2021. Challenges and Opportunities to Cope with Smart Divide in Rural America. In *Smart Spaces and Places* (L. Bian, ed), Routledge, ISBN: 978-0-367-70354-7
4. Li, R. 2016. Assessing Groundwater Pollution Risks in Response to Climate Change and Variability. Chapter 2, pp. 31-50. In *Emerging Issues in Groundwater Resources* (A. Fares, ed.), *Springer*. ISBN: 978-3-319-32006-9.
5. Li, R., K. Holtsclaw⁺, M. Brown⁺, B. Polk⁺. 2017. Shawnee National Forest Equestrian and Hiking Trail Map (West Side). Published by *the Friends of Shawnee National Forest* (1,000 copies).

Referred Articles (including conference proceedings)

1. Edidem, M.⁺, R. Li^{*}, D. Wu⁺, B. Rekabdar, G. Wang. 2025. GeoAI-based Drainage Crossing Detection for Elevation-derived Hydrographic Mapping. *Environmental Modelling and Software*. 186, 106338.
2. Edidem, M.⁺, B. Xu⁺, R. Li^{*}, D. Wu⁺, B. Rekabdar, G. Wang. 2025. Deep learning classification of drainage crossings based on high-resolution DEM-derived geomorphological information. *Frontiers in Artificial Intelligence*. 8:1561281. <https://doi.org/10.3389/frai.2025.1561281>.
3. Wang, Y. ⁺, R. Li^{*}, J. Bond, F. Ahmad, J. Schoof. 2025. A Novel Spectral Vegetation Index for Improved Detection of Soybean Cyst Nematode (SCN) Infestation Using Hyperspectral Data. *Crops*. 5, 58.
4. Chen, S., G. Wang, X. Xu, Z. Ouyang, R. Li, J. Remo, J. Groninger, D. Gibson. 2025. A Mixed Training Sample-Based Spectral Unmixing Analysis for Improving Fractional Abundance Estimation of Detroit Landscape Endmembers Using Landsat Images. *Urban Forestry & Urban Greening*, 107, 128786. <https://doi.org/10.1016/j.ufug.2025.128786>.
5. Lee, C., V. Paramanayakam, A. Karatzas, Y. Jian, M. Fore, H. Liao, F. Yu, R. Li, I. Anagnostopoulos, D. Stamoulis. 2025. Multi-agent geospatial copilots for remote sensing workflows. *Proceeding of IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2025)*, Brisbane, Australia.
6. Khan, N., P.P. Bhowmik, M.S. Sarker, H. Yang, R. Li, J. Liu. Impact of water quality parameters on harmful algal bloom mitigation by lab-synthesized $\gamma\text{Fe}_2\text{O}_3/\text{TiO}_2$ magnetic photocatalysts. *Algal Research*. 86, 103932.
7. Nazeri, A., D.W. Godwin, A.M. Panteleaki, I. Anagnostopoulos, M. Edidem, R. Li, T. Shu. 2024. Exploration of TPU Architectures for the Optimized Transformer in Drainage Crossing Detection. *Proceedings of 2024 IEEE International Conference on Big Data*.
8. Wu, D.⁺, R. Li^{*}, M. Edidem⁺, G. Wang. 2024, Enhancing Hydrologic LiDAR Digital Elevation Models: Bridging Hydrographic Gaps at Fine Scales. *JAWRA Journal of the American Water Resources Association*. 60(6), 1253-1269.
9. Li, H., L. Di, C. Zhang, L. Lin, L. Guo, R. Li, H. Zhao. 2024. In-season Mapping of Sugarcane Planting based on Sentinel-2 Imagery. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*. 18, 1410-1421.
10. Chindia, B.⁺, R. Li^{*}, L.A. Duram, J. Schoof, H. Henson, W. Williams. 2024. Navigating Barriers to Success for Community College Science Students: A Review of Transfer Challenges. *Journal of Higher Education Theory and Practice* 24(10), 149.
11. Nikolic-Khatatbeh, J., J. Crowe, R. Li^{*}. 2024. Navigating Telehealth Challenges: Rural Perspectives on Technology Access and Trust. *Journal of Rural and Community Development*. 19(2), 167–180.

12. Crowe, J., J. Nikolic-Khatatbeh, R. Li*. 2024. The Digital Health Divide: Understanding Telehealth Adoption Across Racial Lines in Rural Illinois. *Social Science & Medicine – Population Health*. 26, 101665.
13. Li, R.* J. Kalinzi, 2024. Preparing for 2024 Total Solar Eclipse: Mining Social Media Data to Understand Spectator Experience. *Findings*, February. <https://doi.org/10.32866/001c.94197>.
14. Chen, X. +, K. Chen, M. Wang, R. Li*, 2023. Roles of Wireless Networks in Bridging the Rural Smart Infrastructural Divide. *Infrastructures*. 8(11), 159.
15. Zhang, Y., D. Pandey, D. Wu⁺, T. Kundu, R. Li, T. Shu. 2023. Accuracy-Constrained Efficiency Optimization and GPU Profiling of CNN Inference for Detecting Drainage Crossing Locations. The *International Conference for High Performance Computing, Networking, Storage, and Analysis (SC23)*; Denver, CO; Pp. 9. doi: 10.1145/3624062.3624260.
16. Li, Y., J. Baik, M.M. Rahman, I. Anagnostopoulos, R. Li, T. Shu. 2023. Pareto Optimization of CNN Models via Hardware-Aware Neural Architecture Search for Drainage Crossing Classification on Resource-Limited Devices. *SC23*; Denver, CO; Pp. 9. doi: 10.1145/3624062.3624258.
17. Jalalipour, S., S. Ayyalasomayjula, H. Damrah, J. Lin, B. Rekabdar, R. Li. 2023. Deep Learning-Based Spatial Detection of Drainage Structures using Advanced Object Detection Methods. In *2023 International Conference on Transdisciplinary AI*; Laguna Hills, CA; p 8.
18. Wu, D. +, R. Li*, C. Talbert, M. Edidem, B. Rekabdar, G. Wang. 2023. Classification of Drainage Crossings on High-resolution Digital Elevation Models: A Deep Learning Approach. *GIScience & Remote Sensing*. 60:1. <https://doi.org/10.1080/15481603.2023.2230706>.
19. Wu, D. +, R. Li*, J. Liu, N. Khan. 2023. Monitoring Algae Blooms in Small Lakes Using Unmanned Aerial Vehicles: A Case Study in Southern Illinois. *Journal of Contemporary Water Research & Education*. 177.
20. Khan, Z., et al. [international collaborators including R. Li]. 2022. Emerging Themes and Future Directions of Multi-Sector Nexus Research and Implementation. *Frontiers in Environmental Science*. 10. <https://doi.org/10.3389/fenvs.2022.918085>
21. Li, R.*, M.M. Rahaman⁺, L. Zhao, Z. Tang. 2021. Assessing Social Media Communication of Local Governments in Fast-growing U.S. Cities. *The Professional Geographer*. 73(4), 702-712.
22. Bhadra, S. +, R. Li*, D. Wu, G. Wang, B. Rekabdar. 2021. Assessing the Roles of Anthropogenic Drainage Structures on Hydrologic Connectivity Using High-resolution Digital Elevation Models. *Transactions in GIS*. 25(5), 2596-2611.
23. Talafha, S, D. Wu⁺, B. Rekabdar, R. Li, G. Wang. 2021. Classification and Feature Extraction for Hydraulic Structures Data Using Advanced CNN Architectures. In *2021 Third International Conference on Transdisciplinary AI*, 137–146. Laguna Hills, CA, USA: IEEE <https://ieeexplore.ieee.org/document/9565622/>.

24. Madany, P., C. Xia, L. Bhattacharjee, N. Khan, R. Li, J. Liu. 2021. Antibacterial activity of $\gamma\text{Fe}_2\text{O}_3/\text{TiO}_2$ nanoparticles on toxic cyanobacteria from a lake in Southern Illinois. *Water Environment Research*. <https://doi.org/10.1002/wer.1640>.
25. Li, R.*, K. Chen, D. Wu⁺. 2020. Challenges and Opportunities to Cope with Smart Divide in Rural America. *Annals of the American Association of Geographers* 110(2), 559-570.
26. Crowe, J., R. Li*. 2020. Is the Just Transition Socially Accepted? Energy History, Place, and Support for Coal and Solar in Illinois, Texas, and Vermont. *Energy Research & Social Science* 59, 101309.
27. Alam, S., M. Gebremichael, R. Li, J. Dozier, D. Lettenmaier. 2020. Can Managed Aquifer Recharge Mitigate the Groundwater Overdraft in California's Central Valley? *Water Resources Research* 56(8), e2020WR027244.
28. Li, R.*, D. Crowe, D. Leifer⁺, L. Zou, J. Schoof. 2019. Beyond Big Data: Social Media Challenges and Opportunities for Understanding Social Perception of Energy. *Energy Research & Social Science* 56, 101217.
29. Alam, S. ⁺, M. Gebremichael, R. Li, J. Dozier, D. Lettenmaier. 2019, Climate Change Impacts on Future Groundwater Storage in Central Valley, California. *Climatic Change* 157 (3-4), 387-406.
30. Alam, S. ⁺, M. Gebremichael, R. Li*. 2019. Remote Sensing-Based Assessment of the Crop, Energy and Water Nexus in the Central Valley, California. *Remote Sensing* 11(14), 1701
31. Wu, D. ⁺, R. Li*, F. Zhang, J. Liu. 2019. A Review on Drones-based Harmful Algae Blooms Monitoring. *Environmental Monitoring and Assessment* 191:211. <https://doi.org/10.1007/s10661-019-7365-8>.
32. Wang, Q., H. Sun, R. Li, G. Wang. 2019. A Stochastic Geostatistical Algorithm for Image Classification: Feature-Space Indicator Simulation. *ISPRS Journal of Photogrammetry and Remote Sensing* 152, 145–165.
33. Yan, X. W. Dong, R. Li, L. Cui, G. Zhu. 2019. Assessment and Validation of Confined Aquifer Vulnerability based on VEBHAT Method: A Case Study in Heilongjiang Province of Northeastern China. *Hydrogeology Journal* 27(7), 2551–2561.
34. Yu, H., R. Li, G. Wang, Q Wang. 2019. Current Development of Landscape Geochemistry with Support of Geospatial Technologies: A Review. *Critical Reviews in Environmental Science and Technology* 49(9): 745-790.
35. Rahaman, M.M., B. Thakur, A. Kalra, R. Li, P. Maheshwari. 2019. Estimating High-Resolution Groundwater Storage from GRACE: A Random Forest Approach. *Environments* 6 (6), 63.
36. Yu, H., X. Liu, B. Kong, R. Li, G. Wang. 2019. Landscape Ecology Development Supported by Geospatial Technologies: A Review. *Ecological Informatics* 51, 185–192.
37. Zhang, Z., H. Hu, D. Yin, S. Kashem, R. Li, H. Cai, D. Perkins, S. Wang. 2019. A CyberGIS-enabled Multi-Criteria Spatial Decision Support System: A Case Study on Flood Emergency Management. *International Journal of Digital Earth* 12(11): 1364-1381.

38. Li, R., G. Ou, M. Pun, L. Larson. 2018. Evaluation of Groundwater Resources in Response to Agricultural Management Scenarios in the Central Valley, California. *Journal of Water Resources Planning and Management* 144(12), [https://doi.org/10.1061/\(ASCE\)WR.1943-5452.0001014](https://doi.org/10.1061/(ASCE)WR.1943-5452.0001014).
39. Li, R.* J. Chen⁺. 2018. Planning the Next-Generation Biofuel Crops Based on Soil-Water Constraints. *Biomass and Bioenergy* 115, 19–26.
40. Rijal, S., G. Wang, P.B. Woodford, H.R. Howard, J.M.S. Hutchinson, S. Hutchinson, J. Schoof, T. Oyana, R. Li, L.O. Park. 2018. Detection of Gullies in Fort Riley Military Installation Using LiDAR Derived High Resolution DEM. *Journal of Terramechanics* 77, 15–22.
41. Li, R.* and K. Holtsclaw⁺. 2017. Geocoding Locations of Historic Reclamation Research Sites Using Google Earth. *Journal of the American Society of Mining and Reclamation* 6(2), 84–92.
42. Xiang, J.⁺, R. Li*, G. Wang, Q. Wang, G. Qie, L. Xu, M. Zhang, and M. Tang. 2017. Modeling Urban PM_{2.5} Concentration by Combining Regression Modeling and Spectral Unmixing Analysis in a Region of Eastern China. *Water, Air, & Soil Pollution* 228, 250.
43. Wang, T., T.E. Franz, R. Li, J. You, M. Shulski, C. Ray. 2017. Analysis of Effects of Climate and Soil on Regional Soil Moisture Spatial Variability Using EOFs in a Semiarid Region. *Water Resources Research* 53 (4), 4022–4035.
44. Pun, M. D. Mutiibwa, R. Li. 2017. Land Use Classification: A Surface Energy Balance and Vegetation Index Application to Map and Monitor Irrigated Lands. *Remote Sensing* 9(12), 1256.
45. Kang, J., L. Zhao, R. Li, H. Mo, and Y. Li. 2017. Groundwater Vulnerability Assessment based on Modified DRASTIC Model: A Case Study in Changli County, China. *GeoCarto International* 32(7), 749–758.
46. Wang, T., Q. Liu, T.E. Franz, R. Li, T. Lang and C.A. Fiebrich, 2017. Spatial Patterns of Soil Moisture from Two Regional Monitoring Networks in the United States. *Journal of Hydrology* 552, 578–585.
47. Rijal, S., G. Wang, P. Woodford, H. Howard, J. Schoof, T. Oyana, L. Park, R. Li. 2017. Comparison of Military and Non-military Land Condition Using an Image Derived Soil Erosion Cover Factor. *Journal of Soil and Water Conservation* 72(5), 425–437.
48. Li, R.*, M. Pun, J. Bradley, G. Ou, J. Schneider, B. Flyr, and S. Chinta. 2016. Evaluating Hydrologically Connected Surface Water and Groundwater Using a Groundwater Model. *JAWRA Journal of the American Water Resources Association* 52(3), 799–805.
49. Ou, G., R. Li*, M. Pun, C. Osborn, J. Bradley, J. Schneider, and X. Chen. 2016. A MODFLOW Package to Linearize Stream Depletion Analysis. *Journal of Hydrology* 532, 9–15.
50. Li, R.*, M. Pun, and D. Mutiibwa. 2016. Classification of Irrigated and Non-Irrigated Cropland Using Object-based Image Analysis: A Case Study in South-Central Nebraska. *Proceeding of 2016 Fifth International Conference on Agro-Geoinformatics* doi: 10.1109/Agro-Geoinformatics.2016.7577619.

51. Tang, Z., Y. Li, Y. Gu, W. Jiang, Y. Xue, T. LaGrange, A. Bishop, J. Drahota, R. Li. 2016. Assessing Nebraska Playa Wetland Inundation Status during 1985-2015 Using the Landsat Data and Google Earth Engine. *Environmental Monitoring and Assessment* 188, 654.
52. Li, R.*, J. Merchant and X. Chen. 2014. A Geospatial Approach for Assessing Groundwater Vulnerability to Nitrate Contamination in Agricultural Settings. *Water, Air, & Soil Pollution* 225(12), 2214.
53. Miller, A. + and R. Li*. 2014. A Geospatial Approach for Prioritizing Wind Farm Development in Northeast Nebraska, USA. *ISPRS International Journal of Geo-Information* 3(3), 968–979.
54. Tang, Z., R. Li, X. Li, W. Jiang, and A. Hirsh. 2014. Capturing LiDAR-Derived Hydrologic Spatial Parameters to Evaluate Playa Wetlands. *JAWRA Journal of the American Water Resources Association* 50 (1): 234–245.
55. Feng, S., Q. Hu, W. Huang, C. Ho, R. Li, and Z. Tang. 2014. Projected Climate Regimes Shift under Future Global Warming from Multi-model, Multi-scenarios CMIP5 simulations. *Global and Planetary Change* 112, 41–52.
56. Li, R., Z. Tang and X. Li. 2013. Drainage Structure Dataset and its Effects on LiDAR-derived Surface Flow Modeling. *ISPRS International Journal of Geo-Information* 2(4), 1136-1152.
57. Li, R., N. di Virgilio, Q. Guan, S Feng, and G.M. Richter, 2013. Reviewing Models of Land Availability and Dynamics for Biofuel Crops in the United States and European Union. *Biofuels, Bioproducts and Biorefining* 7(6), 666–684.
58. Li, R.* and J. Merchant. 2013. Modeling Vulnerability of Groundwater to Pollution under Future Scenarios of Climate Change and Biofuels-related Land Use Change: A Case Study in North Dakota, USA. *Science of the Total Environment* 447, 32–45.
59. Li, R., Q. Guan, and J. Merchant. 2012. A Geospatial Modeling Framework for Assessing Biofuels-related Land-use and Land-cover Change. *Agriculture, Ecosystems & Environment* 161, 17–26.
60. Tang, Z., X. Li, N. Zhao, R. Li, and E. F. Harvey. 2012. Developing a Restorable Wetland Index for Rainwater Basin Wetlands in South-Central Nebraska: A Multi-criteria Spatial Analysis. *Wetlands* 32(5), 975–984.
61. Li, R., S. Liu, Q. Guan, and Y. Peng. 2011. Post-disaster Assessment of Northeastern Coastal Region for the 2011 Sendai Earthquake and Tsunami. *Proceeding of 2011 International Symposium on Water Resource and Environmental Protection (ISWREP)* vol.3, pp.2429–2432.
62. Tang, Z., S.D. Brody, R. Li, C. Quinn, and N. Zhao, 2011, Examining Locally-Driven Climate Change Policy Efforts In Three Pacific States, *Ocean & Coastal Management* 54: 415–426.
63. Li, R., L. Zhao, H. Tonya, and Z. Tang. 2010. Monitoring Watershed Drought Conditions through the Landsat Imagery Interpretation. *Disaster Advances* 3(4): 40–46.
64. Ojekunle, O. Z., L. Zhao, R. Li, X. Tan, W. Lv, and H. Bangura, 2009. Ameliorating Water Crises through Sustainable Wastewater Reuse in Hengshui, China, *Journal of American Water Works Association* 10 (101): 71–81.

65. Li, R., L. Zhao, X. Tan, W. Lv, and O.Z. Ojekunle, 2007. Sustainable Wastewater Reuse to Face Water Crisis — A Case Study in Taocheng District of Hengshui, China. *Proceedings of the World Environmental and Water Resources Congress 2007*, pp. 1–10.

RESEARCH GRANTS (received ~ \$4 million)

Grants Received or Completed

1. **PI**, \$174,768, Making Stressed Rural Communities' Climate-change Resilient with Locally Relevant Action-ready Information. 1/2025 – 4/2028. *NASA* (a subaward from George Mason University).
2. **PI**, \$300,000, EAGER: CHIRRP: Responding to Groundwater Depletion and Building Resilience by Examining Emerging Social-Environmental-Technical Structures. 09/2024 – 08/2026. Co-PI: C. Quinn, K. Akamani, S. Hu. *National Science Foundation* (CHIRRP program).
3. **PI**, \$15,000, Enhancing Field-scale Drainage Mapping through Geospatial Artificial Intelligence. 09/2024 – 08/2025. *Illinois Water Resources Center*.
4. **Senior Person**, \$48,000, Empowering Education in Civil Engineering: Fostering Equity, Sustainability, and Growth. 09/2024 – 08/2025, PI: J. Liu. *Illinois Board of Higher Education*.
5. **PI**, \$15,000, Assessing the Vulnerability of Public Water Systems to Droughts with an Integrated Remote Sensing and Social Sensing Approach. 09/2023 – 08/2024, *Illinois Water Resources Center*.
6. **PI**, \$40,000, Using Drone-based Multispectral Imaging to Examine Spatiotemporal Patterns of Soybean Nematode Cyst. 8/2023-8/2025, Co-PIs: J. Bond, A. Fakhoury. *Illinois Soybean Center*.
7. **PI**, \$1,333,329, Converging Earth Science and Sustainability Education and Experience to Prepare Next-Generation Geoscientists. 01/2023 - 12/2027, Co-PIs: H. Henson, L. Duram, J. Schoof, W. Williams. *National Science Foundation* (S-STEM program).
8. **PI**, \$63,783, Collaborative Research: CyberTraining: Pilot: Research Workforce Development for Deep Learning Systems in Advanced GPU Cyberinfrastructure. 12/2022 -11/2025, *National Science Foundation* (CyberTraining program, a subaward from the University of North Texas).
9. **Co-PI**, \$100,000, HAB Early Mitigation by Magnetic Photocatalysts (Stage II). 03/01/2023 - 02/28/2025, PI: J. Liu, *U.S. Environmental Protection Agency*.
10. **PI**, \$278,812, EAGER: SAI: Understanding and Bridging the Smart Technology Infrastructure Divide in Rural America. 09/01/2021 - 8/31/2025, Co-PI: J. Crowe, K. Chen, *National Science Foundation* (SAI program).
11. **PI**, \$5,000. Preparing for 2024 Total Solar Eclipse: A Social Sensing Approach for Understanding Human Mobility in Southern Illinois, 02/01/2021 - 01/31/2021, *SIU Foundation Board Research Award*.

12. **Co-PI**, \$24,991, HAB Early Mitigation by Magnetic Photocatalysts (Stage I). 12/01/2020-11/30/2021, PI: J. Liu, *U.S. Environmental Protection Agency*.
13. **Co-PI**, \$209,015, Using Multispectral Platforms to Manage Soybean Cyst Nematode. 09/01/2020-8/31/2023, PI: J. Bond, awarded by *Illinois Soybean Association*.
14. **PI**, \$170,718, Enhancing High-resolution Terrain Data Model for Improving the Delineation of Multi-scale Hydrological Connectivity. 06/01/2020-11/30/2024, Co-PI: B. Rekabdar, G. Wang, *National Science Foundation* (HEGS program).
15. **PI**, \$145,900, Characterization of Groundwater Recharge Dynamics in the Unsaturated Zone Using Hydrologic Models in the Central Platte River Basin. 06/01/2018-08/31/2020, Co-PI: G. Ou, *Central Platte Natural Resources District*.
16. **PI**, \$40,527, Social Media Footprints of Public Perception on Energy Issues and Their Policy Implications, 07/01/2017-06/30/2018, Co-PI: Justin Schoof, An Energy Boost Seed Grant, *SIU Advanced Coal and Energy Research Center*.
17. **PI**, \$3,700, Developing a Digital Trail Map for Public Access in Southern Illinois, 04/28/2017-04/22/2018, *SIU Green Fund*.
18. **PI**, \$68,871, Developing IT Applications to Assist in Communicating Hydrogeologic Information for Public Engagement, 05/01/2016-06/30/2018, *Nebraska Department of Natural Resources*.
19. **PI**, \$2,569, Designing a Trail Map of the West Side of the Shawnee National Forest, 11/01/2016-05/30/2017, *Friends of the Shawnee National Forest*.
20. **PI**, \$9,856, Geocoding Locations of Historic Reclamation Research Sites using Google Earth, 02/22/2016-02/28/2018, *American Society of Mining Reclamation*.
21. **PI**, \$25,000, Evaluation of Water Resources in Response to Management Scenarios in the Central Valley, California, 05/01/2015-07/31/2015, *Natural Resources Defense Council*.
22. **Co-PI**, \$153,606, Develop a Climate-Wetland Vulnerability Assessment Model to Evaluate Playa Wetland Response to Climate Variability, 01/01/2015-12/31/2016, PI: Z. Tang, *U.S. Environmental Protection Agency*.

Student Research Training Grants (Advising PI)

1. \$14,820. A Socio-hydrological Framework for Assessing Groundwater Sustainability in an Irrigated Agricultural Landscape, 09/01/2021-12/31/2023, Student PI: A. Naliaka. awarded by the *North Central Region Sustainable Agriculture Research and Education (NCR-SARE) Program*.
2. \$3,200, Undergraduate Research-Enriched Academic Challenge (REACH) award, 08/2021-04/2022. Student Recipient: C. Talbert, awarded by Office of the Vice Chancellor for Research, SIU.
3. \$3,450, Undergraduate REACH award, 08/2019-04/2020. Student Recipient: P. Luis, awarded by Office of the Vice Chancellor for Research, SIU.

4. \$9,982, Characterization of Harmful Algal Blooms Using Small Unmanned Aircraft Systems and Watershed Analysis in Southern Illinois, 03/01/2018-08/28/2019, Student PI: D. Wu, awarded by *Illinois Water Resources Center*.

TEACHING EXPERIENCE (at the SIUC and UNL)

Spring/Fall, 2015-2025	<i>Instructor</i> , GEOG 401/502 Geographic Information Systems, SIUC
Fall, 2015-2020, Spring 2023, 2026	<i>Instructor</i> , GEOG 420/520 Advanced GIS Studies, SIUC
Spring, 2016-2022	<i>Instructor</i> , GEOG 417/517 GIS Programming (Python), SIUC
Spring, 2016-2020	<i>Instructor</i> , GEOG 501 Geography & Env Research Seminar, SIUC
Spring, 2013-2015	<i>Instructor</i> , GEOG 422/822 Advanced Techniques in GIS, UNL
Fall, 2014-2015	<i>Instructor</i> , GEOG 996 Non-thesis Research, UNL
Fall, 2013-2014	<i>Instructor</i> , GEOG 412/812 Introduction to GIS, UNL
Spring, 2011	<i>Teaching Assistant</i> , NRES 312 Geospatial Info. Systems, UNL

HONORS AND AWARDS

2025	<i>Faculty Fellow</i> for the Office of Vice Chancellor for Research, SIUC
2025	<i>Travel Award</i> for the RISING S-STEM Research Hub workshop at Mississippi State University
2024	<i>Travel Award</i> for the 2024 S-STEM Scholars & PI Meeting in Chicago, IL
2023	<i>Travel Award</i> for the for the National Digital Twin Workshop, Arizona State University.
2021	<i>Water Resources Research 2020 Editor's Choice Award</i> for a collaborative paper: Can Managed Aquifer Recharge Mitigate the Groundwater Overdraft in California's Central Valley?
2019	<i>Travel Award</i> for CUAHSI Conference on Hydroinformatics
2019-now	<i>Fellow</i> , Illinois Water Resources Center
2019	<i>Travel Award</i> for National Water Center Summer Institute
2017	<i>Visiting Fellow</i> for UCGIS CyberGIS Summer School
2015-2017	<i>SIU Faculty Startup Award</i> (\$20,800)

2010-2011	<i>Preparing Future Faculty Fellow</i> , University of Nebraska-Lincoln
2010	<i>Travel Award</i> (\$500), AAG Spatial Analysis and Modeling Specialty Group
2009	<i>Larrick and Whitmore Travel Award</i> (\$500), University of Nebraska-Lincoln
2007-2010	<i>Othmer Fellowship</i> (\$7,500/year), University of Nebraska-Lincoln
2007-2010	<i>School of Natural Resources Scholarship</i> (\$18,000/year), University of Nebraska-Lincoln

CONFERENCE PRESENTATIONS

1. Li, R. 2025. Empowering Community Members with Next-Generation Participatory Water Planning: A Digital Twin Perspective. AAG Annual Meeting. Mar 24-28, 2025, Detroit, MI.
2. Edidem, M., R. Li, G. Wang. 2025. Towards a Comprehensive Culvert Detection and Classification Dataset for Enhanced Infrastructure Monitoring. AAG Annual Meeting. Mar 24-28, 2025, Detroit, MI.
3. Li, R. 2024. Leveraging Large Language Models for Participatory Water Resources Planning: A Vision for Opportunities. AGU Fall Meeting 2024.
4. Li, R. 2024. Spatial Detection of Stream-Road Crossing Locations with Geospatial Artificial Intelligence. 2024 AWRA/UCOWR/NIWR Joint Water Resources Conference, Sept 30-Oct 2, 2024, St Louis, MO.
5. Edidem, M. R. Li, D. Wu, G. Wang. Geospatial AI Solutions for Locating Drainage Barriers in Elevation-derived Hydrographic Mapping. AAG Annual Meeting. Apr 16-20, 2024, Honolulu, HI.
6. Li, R., J. Crowe, J. Nikolic-Khatatbeh. The Digital Health Divide: Understanding Telehealth Adoption from the Lens of Geography and Race. AAG Annual Meeting. Apr 16-20, 2024, Honolulu, HI.
7. Li, R., D. Wu, J. Liu. 2023. Monitoring Harmful Algae Blooms in Small Lakes Using Drones: A Case Study in Southern Illinois. 2023 UCOWR/NIWR Annual Water Resources Conference. June 13-15, 2023, Fort Collins, CO.
8. Li, R., J. Crowe, J. Nikolic, A. Cusumano. 2023. Beyond Digital Divide: Characterization of Rural Smart Divide with Qualitative and Quantitative Perspectives. AAG Annual Meeting. Mar 23-27, 2023, Denver, CO.
9. Li, R., D. Wu, S. Bhadra, B. Rekadbar, G. Wang, 2022. Evaluating LiDAR-based Elevation-derived Hydrography in Low-lying Agricultural Landscapes. AGU Fall Meeting 2022.
10. Naliaka, A., R. Li, 2022. What Factors Drive Public Attitudes towards Energy Transition? A Case Study in Illinois, Texas, and Vermont. AGU Fall Meeting 2022.
11. Li, R. and J. Kalinzi. 2022. Preparing for the 2024 Total Solar Eclipse in Southern Illinois: A Social Sensing Approach. AAG West Lake Division Meeting, Oct 21-22, 2022, Edwardsville, IL.

12. Crowe, J. R. Li, J. Nikolic, A. Cusumano. 2022. Overcoming the Smart Divide in Rural America by Enhancing Information Communication Technology and Social Infrastructure. Rural Sociology Society Annual Meeting, Aug 4-7, 2022, Westminster, CO.
13. Li, R., J. Crowe, K. Chen. 2022. Understanding the Smart Technology Infrastructural Divide: A Case Study in Rural Illinois. AAG Annual Meeting, Feb 25-Mar 1, 2022, Virtual.
14. Wu, D., R. Li, B. Rekabdar, G. Wang. 2022. GeoAI-based identification of hydraulic structures for improving DEM-based hydrologic delineation, AAG Annual Meeting, Feb 25-Mar 1, 2022, Virtual.
15. Kalinzi, J., X. Liu, R. Li, J. Bond, A. Fakhoury. 2022. Using Multispectral Drone Imaging to Monitor Soybean Cyst Nematode. AAG Annual Meeting, Feb 25-Mar 1, 2022, Virtual.
16. Naliaka, A., R. Li, G. Ou, J. Schoof. 2021. Evaluation of Agricultural Water Footprints under the Scenarios of Climate Change and Conservation Practices: A Case Study in Central Nebraska. AGU Fall Meeting 2021.
17. Li, R., Y. Hu, G. Ou, C. Quinn. 2021. Groundwater Sustainability in Irrigation Landscapes: An Interdisciplinary Socio-Ecological System Research Agenda. UCOWR/NIWR Annual Water Resources Conference, Jun 8-9, 2021, Virtual.
18. Li, R., K. Chen. 2021. Smart Rural Development: Challenges and Opportunities to Cope with Smart Divide in Rural America. AAG Annual Meeting, April 7-11, 2021, Virtual.
19. Li, R., D. Wu, S. Bhadra, B Rekabdar, G. Wang, 2020. Enhancing Drainage Delineation Using High-resolution Terrain Data Model and Geospatial Artificial Intelligence. AGU Fall Meeting 2020.
20. Li, R., W. Xiong, 2019. Development of IT Animations for Engaging Citizens with Hydrogeology Knowledge. 2019 CUAHSI Conference on Hydroinformatics, July 29-31, 2019. Provo, UT.
21. Li, R., M.M. Rahaman. 2019. Assessing Social Media Communications of Local Governments in Top Fast-growing U.S. Cities. AAG Annual Meeting, April 3-7, 2019, Washington D.C.
22. Li, R., D. Wu, J. Liu. 2019. Drone-based Water Quality Monitoring for Harmful Algae Blooms: A Review. 34th Annual ILMA-Lakes Conference, Mar 14-16, 2019. Crystal Lake, IL.
23. Alam, S., M. Gebremichael, R. Li, D.P. Lettenmaier, J. Dozier. 2018. Potential Impact of Climate Change on Groundwater storage in Central Valley, California. AGU Fall Meeting, Dec 10-14, 2018, Washington D.C.
24. Leifer, D. and R. Li. 2018. WebGIS Application for Visualizing Historical Reclamation Research Sites Using a Modified QGIS2Web Framework. 2018 American Society of Mining & Reclamation Conference, June 4-7, 2018, St. Louis, MO.
25. Li, R.. 2018. Understanding of Public Perception on Energy Issues Using Twitter Data Mining. AAG Annual Meeting, April 10-14, 2018, New Orleans, LA.
26. Li, R. and W. Xiong. 2017. Development of Computer Animation to Communicate Hydrogeologic Information for Public Engagement. 2017 AAG West Lake Meeting, Oct 26-28, 2017, West Plain, MO.

27. Li, R. 2017. Geocoding Locations of Historic Reclamation Research Sites using Google Earth. 2017 American Society of Mining & Reclamation Joint Conference, April 10-12, 2017, Morgantown, WV.
28. Huang, T. and R. Li. 2017. Ecological Wisdom in Marginal Agriculture Design. The Tonji-XAUAT Forum on Ecological Wisdom Inspired Urban and Rural Ecological Practice, July 6-9, 2017. Xi'an, China.
29. Li, R. and T. Huang. 2017. Enhancing the Resilience of Marginal Agricultural System: A Food-Energy-Environment Nexus Perspective. Association of American Geographers (AAG) Annual Meeting, April 5-9, 2017, Boston, MA.
30. Li, R., M. Pun, D. Mutiibwa, 2016. Classification of Irrigated and Non-Irrigated Cropland Using Object-based Image Analysis: A Case Study in South-Central Nebraska. 5th International Conference on Agro-Geoinformatics, July 18-20, 2016, Tianjin, China.
31. Li, R., M. Pun, L. Larson. 2016. Groundwater Sustainability in Response to Agricultural Management Scenarios in the Central Valley, California, AAG Annual Meeting, March 29 - April 2, 2016, San Francisco, CA.
32. Li, R., M. Pun, D. Mutiibwa, 2015. Classification of Irrigated and Non-Irrigated Land Using Remote Sensing Techniques: A Case Study in Nebraska. National Ground Water Association (NGWA) Conference on the Upper Great Plains, Sept 22-23, 2015, Cheyenne, WY.
33. Mutiibwa, D., M Pun, R. Li. 2015. Land Use Classification: A Surface Energy Balance and Vegetation Index Application to Map Irrigation in Nebraska. International Workshop on Evapotranspiration Mapping for Water Security, Sept 15-17, Washington D.C.
34. Li, R., J. Chen, Z. Tang. 2015. Planning the Next-Generation Biofuel Crops in the U.S. Corn Belt: A Land Suitability Analysis, AAG Annual Meeting, April 20-25, 2015, Chicago, IL.
35. Chen, J., R. Li. 2015. The Urban Growth and Land-use Change Simulation in Lincoln, Nebraska, AAG Annual Meeting, April 20-25, 2015, Chicago, IL.
36. Li, R., B. Flyr, M. Pun, J. Bradley, J. Schneider, J. Winter. 2014. Application of a Groundwater Modeling Tool for Managing Hydrologically Connected Area in State of Nebraska, US, American Geophysical Union (AGU) Fall Meeting, Dec 14-18. San Francisco, CA.
37. Li, R., M. Mosier, M. Pun, J. Wietjes, B. Flyr, S. Chinta, 2014. Development of a Modeling Tool for Determining Fully Appropriated Areas in Nebraska, 59th Annual Midwest Ground Water Conference, Sept 30-Oct 2, Lawrence, KS.
38. Smith, K, M. Svoboda, H Reges, D. Gutzmer, Q. Guan, C. Paulsen, R. Li, et al. 2014. The Drought Impact Reporter as a Framework for Citizen Science, American Meteorological Society 94th Annual Meeting, Feb 3. Atlanta, GA.
39. Li, R., Z. Tang, and X. Li, 2013. Drainage Structure Dataset and its Effects on Surface Flow Modeling with LiDAR. AAG Great Plains/Rocky Mountains Division Meeting. Oct 10-12, Omaha, NE.

40. Li, R., M. Pun, D. Hallum, et al., 2012. Climate Variability and Its Implications to Future Irrigation Requirement in Nebraska. NGWA Conference on Great Plains Aquifers: Beyond the Ogallala, Oct 25-26, Omaha, NE.
41. Li, R., Guan, Q., J. Leng, et al., 2012. Exploring the Relationships between Drought Intensity and Drought Impacts in the United States: A Spatio-temporal Perspective. AAG Annual Meeting, Feb 24-28, New York, NY.
42. Tang, Z., X. Li, N. Zhao, R. Li, 2012, Developing a Restorable Wetland Index for Wetland Program Planning: A Multi-Criteria Spatial Analysis, AAG Annual Meeting, February 24-28, 2012, New York, NY.
43. Guan, Q., R. Li, K. Smith, et al., 2011. A Next-generation Online Mapping Tool for Dynamic Visualization of Drought Impacts in the U.S. AAG Great Plains/Rocky Mountains Division Meeting. Oct 6-8, Denver, CO.
44. Li, R., L. Zhao, and X. Li, 2011. Integrating LiDAR Technology into Agricultural Wetland Conservation: A Case Study in the Upper Sand Creek Watershed. Water for Food 2011 Global Conference, May 1-4, Lincoln, NE.
45. Zhao, L., R. Li, Li, X., Tang, Z., 2011, Building 3-D Wetland-Agricultural Geodatabase in South Central Nebraska, Water for Food Conference, May 1-4, Lincoln, NE.
46. Li, R., J. Merchant, and Q. Guan, 2011. Understanding Groundwater Vulnerability in the Context of Future Climate Change and Biofuels-related Land Use Change. AAG Annual Meeting, April 12-16, Seattle, WA.
47. Tang, Z., X. Li, R. Li, N. Zhao, L. Zhao, 2011. Applying LiDAR Technology in Agricultural Wetland Conservation Planning in South-central Nebraska, Nebraska Planning Conference, Nebraska Planning and Zoning Association, Grand Island, Nebraska.
48. Tang, Z., X. Li, R. Li, N. Zhao, L. Zhao, R. Wilson, E. Harvey, 2011. Develop LiDAR-derived Wetland Maps and Restorable Wetland Index, Rainwater Basin Joint Venture/Playa Lake Joint Venture Research Symposium, Grand Island, Nebraska.
49. Li, R., Q. Guan, and J. W. Merchant, 2010. Modeling Biofuel Cropland Expansion in North Dakota. AAG Annual Meeting, April 14-18, Washington D.C.
50. Li, R., J. W. Merchant, X. Chen, et al., 2009. Reducing Uncertainty in Characterization of the Vadose Zone for Modeling Groundwater Vulnerability, AGU Annual Conference, Dec. 14-18, San Francisco, CA.
51. Li, R., Merchant, J., Sun, T., and Zhao, L. 2009. Standardizing Mapping of Groundwater Vulnerability Factors Using National and State-level Geospatial Databases, American Society for Photogrammetry and Remote Sensing (ASPRS) Upper Midwest Chapter Meeting. Oct. 5-7, USGS EROS Center, Sioux Falls, South Dakota.

TECHNICAL REPORTS (not peer reviewed)

1. Li, R. 2016. Geocoding Locations of Historic Reclamation Research Sites using Google Earth (1988-1997). **American Society of Mining Reclamation.**
2. Pun, M., R. Li, R. Werner, Z. Adane. 2016. Study of Groundwater System Response to Variable Climate and Water Management Alternative Scenarios in the Niobrara River Basin. **Nebraska DNR & U.S. Bureau of Reclamation.**
3. Li, R. 2015. Procedure for Determining Areas Where Surface Water and Groundwater are Hydrologically Connected. **Nebraska DNR.**
4. Li, R. and M. Pun. 2015. Evaluation of Groundwater Resources in Response to Agricultural Irrigation Management Scenarios in the Central Valley, California. **Natural Resources Defense Council.**

ADVISING & STUDENT ACHIEVEMENTS

Ph.D. Advisee (as Chair)

- | | |
|-----------|---|
| 2026-now | Iniobong Benson - Environmental Resources & Policy |
| 2024-now | Pouria Kharazi - Environmental Resources & Policy |
| 2024-now | Michael Edidem - Environmental Resources & Policy <ul style="list-style-type: none">• 2025 SIUC Student Creative Activities and Research Award• 2025 David G. Arey Memorial Award• 2024 NSF Summer School Award (Advanced GPU Cyberinfrastructure) |
| 2018-2025 | Amina B. Naliaka - Environmental Resources & Policy <ul style="list-style-type: none">• Visiting Assistant Professor of Environmental GIS at Dickinson College• 2022 AAG Summer Internship (the sole recipient nationwide)• 2021 The Sustainable Agriculture Research and Education (SARE) grant• 2020-2021 Graduate Teaching Excellence Award• 2019 CUAHSI Summer School Award |
| 2017-2024 | Di Wu - Environmental Resources & Policy <ul style="list-style-type: none">• Postdoc fellow at the University of Colorado at Boulder• 2022 Graduate School Doctoral Fellowship• 2018 CUAHSI Summer School Award• 2018 Illinois Water Resources Center Small Water Grant Award |
| 2018-2024 | Saroj Thapa - Environmental Resources & Policy (Co-chair with D.J. Gibson) <ul style="list-style-type: none">• Assistant Professor at Northeastern State University |

M.S. Advisees (as Chair)

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|----------|---------------------------|
| 2025-now | Shabik Zaheer - Geography |
|----------|---------------------------|

2024-now	Joshua Ruiz – Geography
2023-2025	Sabah Tarique – Geography (pursuing Ph.D. at U of Illinois - Chicago)
2023-2025	Fisayo Akinde – Geography (pursuing Ph.D. at SIU)
2023-2025	Yuhua Wang – Geography (pursuing Ph.D. at UC Santa Cruz)
2022-2024	Michael Edidem – Geography <ul style="list-style-type: none"> • 2025-2026 Outstanding Thesis Award by the Graduate School • 2024 Travel Award for AAG Geospatial Cyberinfrastructure Workshop • 2023 NSF I-GUIDE Summer School Award
2021-2023	Ryan Lefavre – Geography <ul style="list-style-type: none"> • 2022 Ben Dziegielewski Award
2021-2023	Joseph Kalinzi - Geography
2019-2021	Supria Sarkar - Geography
2018-2020	Jie Shi Liew - Geography <ul style="list-style-type: none"> • 2019 GPSC Research Award • 2019 Graduate Presentation Award
2017-2019	Astha Bista - Geography <ul style="list-style-type: none"> • 2018 Graduate Teaching Excellence Award
2017-2019	Sourav Bhadra - Geography <ul style="list-style-type: none"> • 2018 Ben Dziegielewski Award
2017-2019	David Leifer - Geography <ul style="list-style-type: none"> • 2018 ASMR Conference Travel Award
2015-2017	Kristyn Stauber – Geography <ul style="list-style-type: none"> • FY16 U.S. Forest Service Volunteer and Service Award

Ph.D./M.S. Advisees (as Committee Members)

2025-now	Kehinde Ojeniyi– Forestry, M.S.
2020-2025	Bryan Foster – Plant Biology, Ph.D.
2021-2023	Nick Keller – Geography, M.S.
2019-2022	Rukayya Ibrahim – Mathematics, Ph.D.
2018-2021	Lindsey McKinzie – Agricultural Science, M.S.
2016-2021	Sarfaraz Alam – Environmental Engineering, Ph.D. co-advise at UCLA
2016-2025	Yao Xue, Shu Chen, Xiaoyu Xu – Environmental Resources & Policy, Ph.D.
2016-now	John O’Connell – Zoology, Ph.D.

2019-2021 Connie Kaniewski, Bibek Ban – Geography, M.S.
2018-2020 Nimisha Karki, Noah Scalero – Geography, M.S.
2017-2019 Cataria Davis – Public Health, Ph.D.
2017-2019 Shishir Manandhar, and Chi Fai Wong – Geography, M.S.
2016-2018 Qing Wang, and Guangping Qie – Environmental Resources & Policy, Ph.D.
2018-2019 M.M. Rahaman – Civil Engineering, M.S.
2017-2018 Ali Alruzuq – Geography, M.S.
2016-2017 Santosh Rijal – Environmental Resources & Policy, Ph.D.
2016-2017 Brandon Polk – Geography, M.S.
2014-2015 J. Matczyszyn – Plant Science, Ph.D. at UNL; A. Heithoff, A. Countryman, and C. Deal – Survey Research and Methodology, M.S. at UNL

Undergraduate Advisees

2021-2022 S. Stahl – Undergraduate student worker
2022-2023 K. Kopkowski – Undergraduate student worker
2020-now C. Talbert – Undergraduate student worker (SIU REACH award recipient)
2019-2020 L. Prado – Undergraduate student worker (SIU REACH award recipient)
2014-2015 E. Jarrett, and M. O’Nele – Natural Resources Science, B.S., at UNL
2013-2014 A. Miller – Geography, B.A., Graduated with Highest Distinction at UNL

PROFESSIONAL MEMBERSHIPS/CERTIFICATE

Since 2009 Association of American Geographers (AAG)
Since 2009 American Geophysical Union (AGU)
Since 2012 Engineer in Training (EIT), registered in Michigan in 2011
Since 2016 The Universities Council on Water Resources (UCOWR)
Since 2016 FAA Unmanned Aircraft System (UAS) Remote Pilot Certificate

PROFESSIONAL SERVICE

Editorships & Editorial Boards

- **Associate Editor**, *Frontiers in Artificial Intelligence* (AI in Food, Agriculture and Water section) (Sept 2022–Present)

- **Guest Co-Editor**, *The Professional Geographer* (Special section on "Fresh Voices in Water Resources Geography") (Mar 2024–Present)
- **Guest Co-Editor**, *Remote Sensing* (Special issue on "Value and Potential of Remote Sensing Data for Food, Energy, and Water Nexus") (2018–2020)
- **Board Director**, Water Resources Specialty Group, American Association of Geographers (AAG) (Apr 2021–Apr 2025)
- **University Delegate**, Universities Council on Water Resources (UCOWR) (2016–Present)

Grant Review (Federal Agencies)

- **Panelist, National Science Foundation (NSF):**
 - *Infrastructure Systems and People (ISP)* (FY26)
 - *Office of Integrative Activities: Convergence Research* (FY25)
 - *STEM Scholarship Program* (FY25)
 - *Human Networks and Data Science (HNDS)* (FY21, FY22, FY23)
 - *Smart & Connected Communities (S&CC)* (FY20)
 - *Civic Innovation Challenge (CIVIC)* (FY20)
 - *Graduate Research Fellowships Program (GRFP)* (FY19, FY21, FY23, FY24)
- **Panelist, U.S. Geological Survey (USGS):** Water Resources Research National Competitive Grants Program (FY20).
- **Ad-hoc Grant Reviewer:** NSF Human-Environment & Geographical Science (FY26); NSF Mid-scale Research Infrastructure-1 (FY26); NSF Geoinformatics (FY23); NSF Hydrologic Sciences (FY20); NSF Human-Environment and Geographical Sciences (FY20); USGS Water Resources Research National Competitive Grants (FY19); Nebraska Water Center grant program (FY18), State of Wisconsin Groundwater grant program (FY17)

Conference Organization & Session Chairing

- **Session Chair**, "Remote Sensing of Water Resources", 2024 AWRA/UCOWR/NIWR Joint Water Resources Conference (St. Louis, MO).
- **Session Chair**, "Untapped: Fresh Voices in Water Resources Geography" (8 sessions total), AAG Annual Meetings (2022, 2023, 2024).
- **Session Chair**, "Using Coupled Human-Hydrologic Approaches to Advance Water Management", AAG Annual Meeting (2019).
- **Session Chair**, "Emerging Geospatial Techniques to Advance the Understanding of Water Resources", AAG Annual Meeting (2019).
- **Session Chair**, "Water Resources Sustainability in California I and II", AAG Annual Meeting (2016).

Journal Referee Service

- **Ad-hoc Reviewer for 50+ International Journals**, including *Environmental Science & Technology*, *Global Environmental Change*, *Journal of Hydrology*, *Journal of Environmental Quality*, *Environmental Pollution*, *Journal of Cleaner Production*, *Energy Research & Social Science*, *Environmental Modelling & Software*, and *Science of the Total Environment*.

Selected University Service

- **Chair**, Research Computing Workgroup, Technology Advisory Committee, Office of Information Technology
- **Member**, Staff Search Committee for the Office of Vice Chancellor for Research (2025-2026)
- **Member**, University-Level Scholar Excellence Award Committee (2020-2022, 2024-2025)
- **Member**, Outstanding Thesis & Dissertation Award Committee, SIUC Graduate School (2024-Present)
- **Elected Member**, Graduate Council, Southern Illinois University (2018–2022).
- **Member**, Faculty Search Committee for Geography and Environmental Resources (2019-2020)
- **Faculty Advisor**, SIUC GIS Club, a registered student organization (2016-present)

INVITED TALKS

2024	“Advancing Elevation-derived Hydrography Mapping with Geospatial Artificial Intelligence”. University of Delaware, Newark, DE, Apr 5, 2024.
2023	“Social-technical Digital Twins for Rural Smart Development” for the National Digital Twin Workshop, Arizona State University, AZ. Feb 27-28, 2023
2022	“Advancing Water Science and Management with Environmental Models and Emerging Technologies”, Seminar at Texas State University, San Marcos, TX. Nov 9, 2022.
2021	“Bridging the Smart Divide in Rural America: An Outlook of ICTs and Social Infrastructures”, Invited Talk by Northern Illinois University, DeKalb, IL. Sept 24, 2021
2020	“Improving Hydrologic Drainage Delineation Using LiDAR-derived DEMs and Artificial Intelligence”, Invited Talk by Illinois DOT. Dec 2, 2020.
2019	“Drone-based Water Quality Monitoring for Harmful Algal Blooms”, Invited Talk by Southern Illinois Volunteer Lake Monitoring Program. Marion, IL. Apr 19, 2019.

- 2018 “Social Media Footprints of Public Perception on Energy Issues”, Research Seminar, Environmental Resources & Policy Program, Southern Illinois University, Carbondale, IL. Mar 28, 2018.
- 2017 “Geospatial Perspectives for Land and Water Research”, Electronic Visualization Lab (EVL), University of Illinois-Chicago, Chicago, IL. Jun 7, 2017.
- 2016 GIS and Its Applications, Panel Discussion Seminar for the GIS Day, Southern Illinois University, Carbondale, IL. Nov 16, 2016.
- 2016 “The Outlook for Groundwater Sustainability under Management Scenarios in the Central Valley, California”, Research Seminar, Environmental Resources & Policy Program, Southern Illinois University, Carbondale, IL. Mar 9, 2016.
- 2016 “Modeling for Land and Water Management in Intensive Agricultural Areas”, Research Seminar, Illinois State Water Survey (ISWS), University of Illinois-Urbana Champaign, Champaign, IL. Jan. 6, 2016.
- 2015 “Modeling Practices for Water Resource Management in Agricultural Landscape: From Nebraska to California”, Research Seminar, Center for Spatial Information Science and Systems (CSISS), George Mason University, Fairfax, VA. Sept 18, 2015.
- 2015 “Geospatial Modeling for Characterizing Agricultural Landscapes: From Farmlands to Wetlands”, Research Seminar, Department of Geography and Environmental Resources, Southern Illinois University, Carbondale, IL. Jan 16, 2015.
- 2014 “Modeling for Integrating Land and Water Management in Agricultural Landscapes”, Research Seminar, Department of Geography, Oklahoma State University, Stillwater, OK. Dec 4, 2014.
- 2014 “Exploring Land Availability for Bioenergy Crops and its Related Modeling Practices”, Geography Seminar Series, Geography & GIScience Program, University of Nebraska-Lincoln, Lincoln, NE. Oct 10, 2014.