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EDUCATION

Ph.D. in Water Resources Engineering & Science, Univ. of Illinois Urbana-Champaign 2022

- *Thesis: Numerical Modeling Study on Meandering and Cutoff Dynamics* [\[link\]](#)
- *Committee: Marcelo H Garcia (chair, advisor, UIUC), Gary Parker (UIUC), Rafael O Tinoco (UIUC), Bruce L Rhoads (UIUC), Eddy J Langendoen (USDA-ARS)*

M.S. in Environmental Engineering, Michigan State University 2014

B.S. in Geology, Nanjing University 2012

PROFESSIONAL EXPERIENCE

University of Connecticut, School of Civil & Environmental Engineering 2025 - Present
Assistant Professor

Pacific Northwest National Laboratory, Earth Systems Science Division 2022 - 2025
Postdoctoral Research Associate

University of Illinois Urbana-Champaign, Ven Te Chow Hydrosystems Laboratory 2016 - 2022
Graduate Research Assistant

RESEARCH INTERESTS

Computational Hydrology & Hydraulics, Watershed Hydrology, Disturbance Hydrology, Solute Transport, Reactive Transport, Environmental Fluid Mechanics, Turbulence in Open-Channel Flows, Sediment Transport, River Dynamics, Fluvial Geomorphology, Computational Fluid Dynamics, High-Performance Computing

PUBLICATIONS

PEER-REVIEWED/REVIEWING JOURNAL ARTICLES (* corresponding author)

13. [WRR] Li, Zhi; Li, Bing; Jiang, Peishi; Hammond, Glenn E; Shuai, Pin; Zahura, Faria T; Coon, Ethan T; Chen, Xingyuan*. "Evaluating the effects of burn severity and precipitation on post-fire watershed responses using distributed hydrologic models." *Water Resources Research*, 2024. (under review) [\[preprint\]](#)
12. [WRR] Li, Zhi*; Langendoen, Eddy J; Garcia, Marcelo H. "Unveiling the Stochasticity of Bank Erosion: A Hybrid Deterministic and Stochastic Modeling Approach." *Water Resources Research*, 2024 (under review) [\[preprint\]](#) .
11. [GRL] Li, Zhi; Huang, Huilin; Xiao, Yi; Li, Bing; Hammond, Glenn E; Conon, Ethan; Chen, Xingyuan*. "Modeling the fates of pyrogenic carbon in the wildfire-impacted Pacific Northwest watersheds." *Environmental Research Letters*, 2025. (under review)
10. [EMS] Li, Zhi*; Huang, Yicheng; Sun, Ning; Duan, Zhuoran; Wigmosta, Mark; Yang, Zhaoqing. "Identifying Hot Spots and Hot Moments in Tire Wear Particle Transport: A Basin-Scale Hydrologic Modeling Approach." *Environmental Modeling & Software*, 2025. (under review)
9. [CAGEO] Luo, Yi; Li, Zhi*; Langendoen, Eddy J; Garcia, Marcelo H. "geeCenterline: A Multi-Spatial-Scale River Centerline Extraction Algorithm Based on Google Earth Engine." *Computers & Geosciences*, 2024. (under review) [\[preprint\]](#)

8. [IJSRC] Sun, Yanjie; Song, Xiaolong*; **Li, Zhi**; Xu, Haijue; Bai, Yuchuan. “Analytical simulation of meander morphology from equilibrium to long-term evolution: Impacts of channel geometry and vegetation-induced coarsening.” *International Journal of Sediment Research*, 2025. doi: [10.1016/j.ijsrc.2025.02.003](https://doi.org/10.1016/j.ijsrc.2025.02.003)
7. [ECOINF] Zahura, Faria T; Bisht, Gautam; **Li, Zhi**; McKnight, Sarah; Chen, Xingyuan*. “Impact of topography and climate on post-fire vegetation recovery across different burn severity and land cover types through random forest.” *Ecological Informatics*, 2024. doi: [10.1016/j.ecoinf.2024.102757](https://doi.org/10.1016/j.ecoinf.2024.102757)
6. [WRR] Li, Bing; **Li, Zhi**; Zheng, Jianqiu; Jiang, Peishi; Holmquist, James; Regier, Peter J; Hammond, Glenn E; Ward, Nicholas D; O’Meara, Theresa A; Pennington, Stephanie C; Megonigal, Patrick; Bailey, Vanessa L; Chen, Xingyuan*; Huang, Wei. “Integrated Effects of Site Hydrology and Vegetation on Exchange Fluxes and Carbon Cycling at the Coastal Terrestrial Aquatic Interface.” *Water Resources Research*, 2023. doi: [10.1029/2023WR035580](https://doi.org/10.1029/2023WR035580)
5. [JHYDROL] Adebayo, Moses; Bailey, Vanessa; Chen, Xingyuan; Hopple, Anya; Jiang, Peishi; Li, Bing; **Li, Zhi**; Martin-Hayden, James M; Megonigal, Patrick J; Regier, Peter J; Rich, Roy; Stegen, James C; Smith, Rick; Ward, Nicholas D; Woodard, Stella C; Doro, Kennedy O*. “A hydrogeophysical framework to assess infiltration during a simulated ecosystem-scale flooding experiment.” *Journal of Hydrology*, 2023. doi: [10.1016/j.jhydrol.2023.130243](https://doi.org/10.1016/j.jhydrol.2023.130243)
4. [FrontEarthSci] **Li, Zhi***; Mendoza, Alejandro; Abad, Jorge D; Endreny, Theodore A; Han, Bangshuai; Carrisoza, Eliseo; Dominguez, Ramon. “High-resolution modeling of meander neck cutoffs: laboratory and field scales.” *Frontiers in Earth Science*, 2023. doi: [10.3389/feart.2023.1208782](https://doi.org/10.3389/feart.2023.1208782)
3. [CAGEO] **Li, Zhi*** and Garcia, Marcelo H. “pyRiverBed: A Python framework to generate synthetic riverbed topography of constant-width meandering rivers.” *Computers & Geosciences*, 2021. doi: [10.1016/j.cageo.2021.104755](https://doi.org/10.1016/j.cageo.2021.104755)
2. [JGLR] Wang, Dongchen; **Li, Zhi***; Rojas-Aguirre, Andres F; and Garcia, Marcelo H. “Impact of Lake Michigan water level rise on complex bidirectional flow in the Chicago Area Water System (CAWS).” *Journal of Great Lakes Research*, 2021. doi: [10.1016/j.jglr.2021.10.008](https://doi.org/10.1016/j.jglr.2021.10.008)
1. [GEOMORPH] Rowley, Taylor*; Konsoer, Kory; Langendoen, Eddy J; **Li, Zhi**; Ursic, Michael; Garcia, Marcelo H. “Relationship of point bar morphology to channel curvature and planform evolution.” *Geomorphology*, 2020. doi: [10.1016/j.geomorph.2020.107541](https://doi.org/10.1016/j.geomorph.2020.107541)

TECHNICAL REPORTS

3. [Vale-UIUC] **Li, Zhi** and Garcia, Marcelo H*. “pyRiverbed analysis of the Paraopeba River, Minas Gerais, Brazil.” *Submitted to Vale–University of Illinois Urbana-Champaign*, 2022.
2. [Vale-UIUC] Wang, Dongchen; **Li, Zhi**; Rojas-Aguirre, Andres F; Garcia, Marcelo H*. “2D Hydrodynamic Model Sedimentation Analysis for Retiro Baixo Reservoir, Minas Gerais, Brazil.” *Submitted to Vale–University of Illinois Urbana-Champaign*, 2022.
1. [MWRDGC] Chen, Chieh-Ying; Fytanidis, Dimitrios K; He, Yifan; **Li, Zhi**; Garcia, Marcelo H*; Luo, Hao; Rojas-Aguirre, Andres F; Santacruz, Santiago; Terrell, Aaron; Wang, Dongchen; Waratuke, Andrew R. “Invasive species mitigation alternatives impacts on the CAWS as it relates to flooding, water quality and navigation.” *Submitted to the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC)*, 2020.

CITABLE DATASETS/SOFTWARE

6. [ESS-DIVE] **Li, Zhi**; Li, Bing; Jiang, Peishi; Hammond, Glenn E; Shuai, Pin; Zahura, Faria T; Coon, Ethan T; Chen, Xingyuan. “Data and scripts associated with the manuscript evaluating the hydrologic responses of the Pacific Northwest watersheds to wildfires.” *River Corridor and Watershed Biogeochemistry SFA, ESS-DIVE repository*, 2023. doi: [10.15485/2006549](https://doi.org/10.15485/2006549)
5. [Zenodo] **Li, Zhi**. “stochasticBankErosionModel (v1.0.0).” *Zenodo*, 2023. doi: [10.5281/zenodo.10215536](https://doi.org/10.5281/zenodo.10215536)
4. [ESS-DIVE] Zahura, Faria T; Bisht, Gautam; **Li, Zhi**; McKnight, Sarah; Chen, Xingyuan. “Data, scripts, and figures associated with a manuscript studying impact of climate and topography on post-fire

vegetation recovery.” *River Corridor and Watershed Biogeochemistry SFA, ESS-DIVE repository*, 2023. doi: [10.15485/2205677](https://doi.org/10.15485/2205677)

3. [ESS-DIVE] Kaufman, Matthew H; Delgado Paredes, Dillman J; Barnes, Morgan E; Boehnke, Brandon T; Chen, Xingyuan; Cornwell, Kali S; Forbes, Brienne K; Fulton, Stephanie G; Garayburu-Caruso, Vanessa A; Goldman, Amy E; Gonzalez, Brianna I; Grieger, Samantha R; Hall, Bob; Hammond, Glenn E; Jiang, Peishi; Laan, Maggi M; Li, Bing; **Li, Zhi**; Lin, Xinming; McKeever, Sophia A; Mudunuru, Maruti K.; Muller, Katherine A; Myers-Pigg, Allison N; Otenburg, Opal C; Pelly, Aaron C; Peta, Kelsey Alexis; Regier, Peter J; Renteria, Lupita; Roebuck, Alan; Scheibe, Timothy D; Son, Kyongho; Torgeson, Joshua M; Stegen, James C. “Spatial Study 2022: Water Column, Sediment, and Total Ecosystem Respiration Rates across the Yakima River Basin, Washington, USA.” *River Corridor and Watershed Biogeochemistry SFA, ESS-DIVE repository*, 2023. doi: [10.15485/1987520](https://doi.org/10.15485/1987520)
2. [ESS-DIVE] Delgado Paredes, Dillman J; Barnes, Morgan E; Boehnke, Brandon T; Chen, Xingyuan; Cornwell, Kali S; Forbes, Brienne K; Fulton, Stephanie G; Garayburu-Caruso, Vanessa A; Goldman, Amy E; Gonzalez, Brianna I; Grieger, Samantha R; Hammond, Glenn E; Jiang, Peishi; Kaufman, Matthew H; Laan, Maggi M; Li, Bing; **Li, Zhi**; Lin, Xinming; McKeever, Sophia A; Mudunuru, Maruti K.; Muller, Katherine A; Myers-Pigg, Allison N; Otenburg, Opal C; Pelly, Aaron C; Peta, Kelsey Alexis; Regier, Peter J; Renteria, Lupita; Roebuck, Alan; Scheibe, Timothy D; Son, Kyongho; Torgeson, Joshua M; Stegen, James C. “Spatial Study 2022: Surface Water Samples, Cotton Strip Degradation, and Hydrologic Sensor Data across the Yakima River Basin, Washington, USA.” *River Corridor and Watershed Biogeochemistry SFA, ESS-DIVE repository*, 2023. doi: [10.15485/1969566](https://doi.org/10.15485/1969566)
1. [ESS-DIVE] Forbes, Brienne K; Barnes, Morgan E; Boehnke, Brandon T; Chen, Xingyuan; Cornwell, Kali S; Delgado Paredes, Dillman J; Fulton, Stephanie G; Garayburu-Caruso, Vanessa A; Gary, Stefan; Goldman, Amy E; Gonzalez, Brianna I; Grieger, Samantha R; Hammond, Glenn E; Jiang, Peishi; Kaufman, Matthew H; Laan, Maggi M; Li, Bing; **Li, Zhi**; McKeever, Sophia A; Mudunuru, Maruti K.; Muller, Katherine A; Myers-Pigg, Allison N; Otenburg, Opal C; Pelly, Aaron C; Peta, Kelsey Alexis; Regier, Peter J; Renteria, Lupita; Roebuck, Alan; Scheibe, Timothy D; Son, Kyongho; Torgeson, Joshua M; Stegen, James C. “WHONDRS River Corridor Dissolved Oxygen, Temperature, Sediment Aerobic Respiration, Grain Size, and Water Chemistry from Machine-Learning-Informed Sites across the Contiguous United States.” *River Corridor and Watershed Biogeochemistry SFA, ESS-DIVE repository*, doi: [10.15485/1923689](https://doi.org/10.15485/1923689).

CONFERENCE PRESENTATIONS

54. [AGU’25] **Li, Zhi**; Huang, Yicheng; Sun, Ning; Yang, Zhaoqing. “Modeling the Fates and Transport of Tire Wear Particle in the Delaware River Basin.” *AGU Fall Meeting*, 2025. [\[link\]](#)
53. [AGU’25] Xiao, Yi; **Li, Zhi**; Huang, Huilin; Niroula, Sundar; Zheng, Jianqiu; Jiang, Peishi; Chen, Xingyuan. “Modeling Carbon Transformation and Transport in 2D Hillslopes: The Integrated Influence of Wildfire and Hydrologic Connectivity.” *AGU Fall Meeting*, 2025. [\[link\]](#)
52. [AGU’25] Niroula, Sundar; Jiang, Peishi; **Li, Zhi**; Chen, Xingyuan. “Emulating Process-Based Models to Identify Multi-Scale Drivers of Stream Intermittency.” *AGU Fall Meeting*, 2025. [\[link\]](#)
51. [AGU’25] Jiang, Peishi; Harman, Ciaran; Niroula, Sundar; **Li, Zhi**; Chen, Xingyuan. “Deciphering Watershed Transport Process: A Differentiable Hybrid SAS Function Approach.” *AGU Fall Meeting*, 2025. [\[link\]](#)
50. [AGU’25] McKnight, Sarah; Jiang, Peishi; **Li, Zhi**; Niroula, Sundar; Chen, Xingyuan. “Reactive transport reveals geochemical barrier along a brine-to-freshwater interface.” *AGU Fall Meeting*, 2025. [\[link\]](#)
49. [ESS-PI’25] Fluet-Chouinard, Etienne; **Li, Zhi**; Niroula, Sundar; Bao, Jie; Garayburu-Caruso, Vanessa A; Jiang, Peishi; Chen, Xingyuan; Abrahamson, Jenna; Stegen, James. “Detecting Channel Inundation in Intermittent Headwater Streams with Commercial Remote Sensing Imagery.” *Environmental System Science (ESS) PI Meeting*, 2025. [\[link\]](#)
48. [ESS-PI’25] Chen, Xingyuan; **Li, Zhi**; Niroula, Sundar; Xiao, Yi; Zahura, Faria Tuz; Jiang, Peishi. “Understanding the Impacts of Fires on Hydrologic Connectivity in the Pacific Northwest Watersheds.” *En-*

- Environmental System Science (ESS) PI Meeting*, 2025. [\[link\]](#)
47. [ESS-PI'25] Jiang, Peishi; Zheng, Jianqiu; Harman, Ciaran; **Li, Zhi**; Niroula, Sundar; Chen, Xingyuan; Stegen, James. "Towards A Transferrable River Corridor Model for Riverine Flow and Carbon Dynamics." *Environmental System Science (ESS) PI Meeting*, 2025. [\[link\]](#)
 46. [ESS-PI'25] Damerow, Joan; O'Ryan, Dylan; Bond-Lamberty, Ben; Burrus, Madison; Cholia, Shreyas; Coon, Ethan; Ely, Kim S; Forbes, Brieanne; Goldman, Amy E; **Li, Zhi**; Pennington, Stephanie C.; Whitenack, Karen; Varadharajan, Charuleka. "ESS-DIVE Partner Projects: Making it Easier to Curate and Use High-Quality ESS Data." *Environmental System Science (ESS) PI Meeting*, 2025. [\[link\]](#)
 45. [ESS-PI'25] Doro, Kennedy O; Ogunsola, Olawale; Megonigal, Patrick; Chen, Xingyuan; Emmanuel, Efemena; Li, Bing; **Li, Zhi**; Reiger, Peter; Rod, Kenton; Ward, Nicholas D; Bailey, Vanessa L. "Geophysics-Informed Simulations of Soil Saturation and Salinity Response to Flooding Across Coastal Interfaces." *Environmental System Science (ESS) PI Meeting*, 2025. [\[link\]](#)
 44. [AGU'24] **Li, Zhi**; Huang, Huilin; Xiao, Yi; Li, Bing; Hammond, Glenn E; Chen, Xingyuan. "Integrating ELM-BGC Carbon Cycling with ATS-PFLOTRAN Hydro-Biogeochemical Modeling in a Wildfire-Impacted Pacific Northwest Watershed." *AGU Fall Meeting*, 2024. [\[link\]](#)
 43. [AGU'24] Chen, Xingyuan; Kumar, Jitendra; **Li, Zhi**; Zahura, Faria Tuz; Niroula, Sundar; Huang, Huilin; Jiang, Peishi; Son, Kyongho; Xiao, Yi; Coon, Ethan; Hoffman, Forrest M; Moulton, David. "Designing Watershed Model Benchmarking and Intercomparison Studies." *AGU Fall Meeting*, 2024. [\[link\]](#)
 42. [AGU'24] Chen, Chieh-Ying; Pratt, Dannielle; **Li, Zhi**; Li, Bing; Chen, Xingyuan; Michael, Holly A; . "Evaluation of coupled models to simulate the effects of marsh on saltwater intrusion under changing groundwater-surface water environments in coastal critical zone." *AGU Fall Meeting*, 2024. [\[link\]](#)
 41. [AGU'24] Garayburu-Caruso, Vanessa A; Bao, Jie; Chen, Yunxiang; Laan, Maggi M; Fluet-Chouinard, Etienne; Regier, Peter J; **Li, Zhi**; Renteria, Lupita; Stegen, James C. "Image Reconstruction of 3D River Topography to Enhance Predictions of Riverbed Sediment Respiration." *AGU Fall Meeting*, 2024. [\[link\]](#)
 40. [AGU'24] Ogunsola, Olawale ; Megonigal, Patrick ; Bailey, Vanessa L ; Chen, Xingyuan ; Emmanuel, Efemena Destiny ; Li, Bing ; **Li, Zhi** ; Martin-Hayden, James Mark ; Regier, Peter ; Rod, Kenton ; Ward, Nicholas D ; Doro, Kennedy O. "Assessing Changes in Soil Saturation and Salinity along Coastal Interfaces Using Hydrological Observations and Advanced Terrestrial Simulator Model." *AGU Fall Meeting*, 2024. [\[link\]](#)
 39. [AGU'24] Niroula, Sundar; Chen, Xingyuan; **Li, Zhi**; Fluet-Chouinard, Etienne. "Quantifying Surface and Subsurface Contributions to Streamflow and Inundation Dynamics using Numerical Tracers." *AGU Fall Meeting*, 2024. [\[link\]](#)
 38. [CMWR'24] **Li, Zhi**; Huang, Huilin; Xiao, Yi; Li, Bing; Hammond, Glenn E; Chen, Xingyuan. "Integrating ELM-BGC Carbon Cycling with ATS-PFLOTRAN Hydro-Biogeochemical Modeling in a Wildfire-Impacted Pacific Northwest Watershed." *The 25th Conference on Computational Methods in Water Resources*, 2024. [\[link\]](#)
 37. [CMWR'24] Chen, Xingyuan; Zahura, Faria Tuz; Bisht, Gautam; **Li, Zhi**; McDowell, Nate G; Jiang, Peishi; Zhang, Qianyu; Liu, Heping. "Understanding and Representing Watershed Ecohydrological Responses to Wildfires under Changing Climate." *The 25th Conference on Computational Methods in Water Resources*, 2024. [\[link\]](#)
 36. [MODFLOW'24] Chen, Xingyuan; **Li, Zhi**; Ahmadullah, Tasneem; Jiang, Peishi; Muller, Katherine A; Hammond, Glenn E; Li, Bing; Niroula, Sundar; Song, Hyun-Seob; . "Beyond the flows: modeling carbon cycling from batch to watershed scales." *The 12th MODFLOW-and-More Conference*, 2024. [\[link\]](#)
 35. [ESS-PI'24] Jiang, Peishi; **Li, Zhi**; Muller, Katherine A; Zheng, Jianqiu; Hammond, Glenn E; Ahmadullah, Tasneem; Song, Hyun-Seob; Garayburu-Caruso, Vanessa A; Kaufman, Matthew Henry; Roebuck, Alan; Fulton, Stephanie G; Stegen, James C; Chen, Xingyuan; Scheibe, Timothy D. "Integrating Organic Matter Measurements into Watershed Hydro-Biogeochemical Models." *Environmental System Science (ESS) PI Meeting*, 2024. [\[link\]](#)

34. [ESS-PI'24] Chen, Xingyuan; Li, Bing; **Li, Zhi**; Niroula, Sundar; Ahmadullah, Tasneem; Jiang, Peishi; Muller, Katherine A; Hammond, Glenn E; Zheng, Jianqiu; Song, Hyun-Seob. "Developing Integrated Hydrobiogeochemical Modeling from Batch to Watershed Scales." *Environmental System Science (ESS) PI Meeting*, 2024. [\[link\]](#)
33. [ESS-PI'24] Chen, Xingyuan; Zahura, Faria Tuz; Bisht, Gautam; **Li, Zhi**; McDowell, Nate G; Jiang, Peishi; Zhang, Qianyu; Liu, Heping. "Watershed Ecohydrological Responses to Disturbances under Changing Climate." *Environmental System Science (ESS) PI Meeting*, 2024. [\[link\]](#)
32. [AGU'23] **Li, Zhi**; Li, Bing; Jiang, Peishi; Hammond, Glenn E; Barnes, Morgan; Myers-Pigg, Allison N; Chen, Xingyuan. "Modeling the fates of pyrogenic carbon in the wildfire-impacted Pacific Northwest watersheds." *AGU Fall Meeting*, 2023. [\[link\]](#)
31. [AGU'23] Chen, Xingyuan; **Li, Zhi**; Jiang, Peishi; Muller, Katherine A; Hammond, Glenn E; Song, Hyun-Seob. "Linking Organic Carbon Chemistry with Watershed Carbon Cycling." *AGU Fall Meeting*, 2023. [\[link\]](#)
30. [AGU'23] Li, Bing; **Li, Zhi**; Zheng, Jianqiu; Regier, Peter J; Ding, Jun Yan; O'Meara, Teri; Pennington, Stephanie C; Ward, Nicholas D; Chen, Xingyuan. "Unraveling Coastal Biogeochemistry: Understanding the Impact of Saltwater Inundation through Integrated Modeling Approaches." *AGU Fall Meeting*, 2023. [\[link\]](#)
29. [AGU'23] Stegen, James C; Datry, Thibault; Busch, Michelle H; Fisher, Joshua B; Zheng, Jianqiu; HERNON, Elizabeth M; Bam, Edward K; Painter, Scott L; Roche, Kevin Robert; Seybold, Erin; Sweetman, Jon; Kinsman-Costello, Lauren; Abrahamson, Jenna; Guimond, Julia; Regier, Peter J; Ladau, Joshua; Boye, Kristin E; Forbrich, Inke; Vander Vorste, Ross; Middleton, Beth; Burgin, Amy; Song, Hyun-Seob; Chen, Xingyuan; Fluett-Chouinard, Etienne; Bao, Jie; **Li, Zhi**; Deines, Jillian M; Li, Li; Rod, Kenton A; Scheibe, Timothy D; Wohl, Ellen. "Variable Inundation Across Earth's Terrestrial Ecosystems." *AGU Fall Meeting*, 2023. [\[link\]](#)
28. [AGU'23] Kaufman, Matthew; Delgado, Dilman; Barnes, Morgan; Boehnke, Brandon; Chen, Xingyuan; Cornwell, Kali; Forbes, Brianne; Fulton, Stephanie; Garayburu-Caruso, Vanessa; Goldman, Amy; Gonzalez, Brianna; Grieger, Samantha; Hammond, Glenn; Jiang, Peishi; Laan, Maggi; Li, Bing; **Li, Zhi**; McKeever, Sophia; Mudunuru, Maruti; Muller, Katherine; Myers-Pigg, Allison N; Otenburg, Opal; Pelly, Aaron; Peta, Kelsey; Regier, Peter; Renteria, Lupita; Roebuck, Alan; Scheibe, Timothy; Son, Kyongho; Torgeson, Joshua; Hall, Robert; Zheng, Jianqiu; Stegen, James. "Respiration partitioning in the Yakima River Basin." *AGU Fall Meeting*, 2023. [\[link\]](#)
27. [AGU'23] Coon, Ethan; Painter, Scott L; Moulton, John D; Bhanja, Soumendra N; Chen, Xingyuan; Gao, Bo; Jiang, Peishi; Li, Bing; **Li, Zhi**; Lipnikov, Konstantin; Molins, Sergi; Perez, Gabriel; Rathore, Saubhagya S; Shuai, Pin; Svyatskiy, Daniil; Xu, Zexuan. "How large-domain datasets have fundamentally altered the scale and complexity of spatially explicit hydrologic modeling." *AGU Fall Meeting*, 2023. [\[link\]](#)
26. [IMAGE'23] Doro, Kennedy O; Adebayo, Moses B; Bailey, Vanessa L; Chen, Xingyuan; Hopple, Anya M; Jiang, Peishi; Li, Bing; **Li, Zhi**; Megonigal, Patrick; Ward, Nicholas D. "A hydrogeophysical imaging and modeling approach for predicting soil water saturation during a simulated coastal flooding experiment." *The International Meeting for Applied Geoscience & Energy*, 2023. [\[link\]](#)
25. [RCEM'23] Luo, Yi; **Li, Zhi**; Langendoen, Eddy J; Garcia, Marcelo H. "Applications of geeCenterline, A New River Planform and Migration Detection Algorithm Based on Google Earth Engine." *IAHR 13th River, Coastal And Estuarine Morphodynamics Symposium*, 2023. [\[link\]](#)
24. [RCEM'23] Abad, Jorge D; Marin-Diaz, Jesus; Rojas-Carbajal, Tania; **Li, Zhi**; Mendoza, Alejandro; Dominguez-Ruben, Lucas Gerardo. "Characterizing meandering and anabranching rivers in the Amazon basin." *IAHR 13th River, Coastal And Estuarine Morphodynamics Symposium*, 2023. [\[link\]](#)
23. [Goldschmidt'23] Chen, Xingyuan; Li, Bing; **Li, Zhi**; Jiang, Peishi; Muller, Katherine A; Hammond, Glenn E; Zheng, Jianqiu; Song, Hyun-Seob. "Reactive Transport Modeling for Watershed Carbon and Nitrogen Cycling." *Goldschmidt*, 2023. [\[link\]](#)
22. [Goldschmidt'23] Kaufman, Matthew; Delgado, Dilman; Barnes, Morgan; Boehnke, Brandon; Chen,

- Xingyuan; Cornwell, Kali; Forbes, Brianne; Fulton, Stephanie; Garayburu-Caruso, Vanessa; Goldman, Amy; Gonzalez, Brianna; Grieger, Samantha; Hammond, Glenn; Jiang, Peishi; Laan, Maggi; Li, Bing; **Li, Zhi**; McKever, Sophia; Mudunuru, Maruti; Muller, Katherine; Myers-Pigg, Allison N; Otenburg, Opal; Pelly, Aaron; Peta, Kelsey; Regier, Peter; Renteria, Lupita; Roebuck, Alan; Scheibe, Timothy; Son, Kyongho; Torgeson, Joshua; Hall, Robert; Zheng, Jianqiu; Stegen, James. "Respiration partitioning across the Yakima River Basin." *Goldschmidt*, 2023. [\[link\]](#)
21. [SWS'23] Li, Bing; **Li, Zhi**; Jiang, Peishi; Zheng, Jianqiu; Regier, Peter J; Hammond, Glenn E; Ward, Nicholas D; Pennington, Stephanie C; Chen, Xingyuan. "Investigating the Integrated Effects of Hydrology and Vegetation on Carbon Cycling at the Coastal Terrestrial-Aquatic Interface." *Society of Wetland Scientists Annual Meeting*, 2023. [\[link\]](#)
 20. [ICRW'23] **Li, Zhi**; Li, Bing; Jiang, Peishi; Hammond, Glenn E; Shuai, Pin; Chen, Xingyuan. "Evaluating watershed hydrologic responses to wildfires in the Pacific Northwest using high-resolution numerical models." *8th Interagency Conference on Research in the Watersheds*, 2023. [\[link\]](#)
 19. [ESS-PI'23] **Li, Zhi**; Li, Bing; Jiang, Peishi; Hammond, Glenn E; Shuai, Pin; Coon, Ethan; Muller, Katherine A; Myers-Pigg, Allison N; Barnes, Morgan E; Song, Hyun-Seob; Chen, Xingyuan; Moulton, David. "Watershed hydrologic and biogeochemical responses to wildfires in the Pacific Northwest." *Environmental System Science (ESS) PI Meeting*, 2023. [\[link\]](#)
 18. [ESS-PI'23] Chen, Xingyuan; Myers-Pigg, Allison N; Barnes, Morgan E; Bladon, Kevin; Hammond, Glenn E; Jiang, Peishi; Kang, Hyunwoo; **Li, Zhi**; Scheibe, Timothy D; Wampler, Katie. "The Influence of Wildfires on Hydrobiogeochemical Processes: A MODEX Perspective." *Environmental System Science (ESS) PI Meeting*, 2023. [\[link\]](#)
 17. [ESS-PI'23] Jiang, Peishi; **Li, Zhi**; Hammond, Glenn E; Muller, Katherine A; Song, Hyun-Seob; Garayburu-Caruso, Vanessa A; Kaufman, Matthew H; Fulton, Stephanie G; Stegen, James C; Chen, Xingyuan. "Integrated Modeling of Carbon and Nitrogen Cycling at the Yakima River Basin." *Environmental System Science (ESS) PI Meeting*, 2023. [\[link\]](#)
 16. [AGU'22] **Li, Zhi**; Shuai, Pin; Chen, Xingyuan. "Evaluating the transport of wildfire-induced pyrogenic nutrients in a grassland-shrub dominant watershed using a high-res numerical model." *AGU Fall Meeting*, 2022. [\[link\]](#)
 15. [AGU'22] Luo, Yi; **Li, Zhi**; Langendoen, Eddy J; Garcia, Marcelo H. "Obtaining synthetic riverbed topography of meandering rivers from satellite imagery: a case study of the Tallahatchie River, Mississippi." *AGU Fall Meeting*, 2022. [\[link\]](#)
 14. [AGU'21] Luo, Yi; **Li, Zhi**; Langendoen, Eddy J; Garcia, Marcelo H. "An integrated river platform and sandbar detection tool based on Google Earth Engine and its application in the Yazoo-Mississippi Delta with high-resolution satellite images." *AGU Fall Meeting*, 2021. [\[link\]](#)
 13. [AGU'20] **Li, Zhi**; Wang, Dongchen; Garcia, Marcelo H. "Modeling the hydrodynamics of Chicago Area Waterway System (CAWS) and nearshore areas in Lake Michigan: Investigation of different flow behaviors under low and high Lake Michigan level conditions." *AGU Fall Meeting*, 2020. [\[link\]](#)
 12. [AGU'20] Guo, Xingyan; Xu, Mengzhen; Wang, Ruiyu; **Li, Zhi**; Chen, Dong; Garcia, Marcelo H; Best, Jim; Parker, Gary. "Triangle Shaped Bends Associated with Peat in the Zoige Basin, Northeast Qinghai-Tibet Plateau, China." *AGU Fall Meeting*, 2020. [\[link\]](#)
 11. [LargeRivers'20] **Li, Zhi** and Garcia, Marcelo H. "Human impact on long-term meandering river migration." *IAHR International Conference on the Status and Future of the World's Large Rivers*, 2020 (postponed to 2021).
 10. [RiverFlow'20] **Li, Zhi** and Garcia, Marcelo H. "2D numerical modeling on meander chute cut-offs." *IAHR River Flow Conference*, 2020. doi: [10.1201/b22619-74](#)
 9. [RiverFlow'20] Guo, Xingyan; Parker, Gary; **Li, Zhi**; Garcia, Marcelo H; Chen, Dong; Tanaka, Gaku. "Sinuous rivers in peat." *IAHR River Flow Conference*, 2020. doi: [10.1201/b22619-219](#)
 8. [RCM'19] **Li, Zhi** and Garcia, Marcelo H. "Numerical modeling on meander chute cutoffs using

hybrid deterministic-stochastic method.” *IAHR 11th River, Coastal And Estuarine Morphodynamics Symposium*, 2019. [\[link\]](#)

7. [AGU’18] **Li, Zhi** and Garcia, Marcelo H. “An Improved Analytical Method to Generate Synthetic Bed Topography of Single-thread Constant-width Meandering Rivers.” *AGU Fall Meeting*, 2018. [\[link\]](#)
6. [ISEH’18] **Li, Zhi** and Garcia, Marcelo H. “Two-dimensional and three-dimensional hydrodynamic modeling of the Calumet River System and Indiana Harbor and Ship Canal.” *IAHR 8th International Symposium on Environmental Hydraulics*, 2018.
5. [AGU’17] **Li, Zhi** and Garcia, Marcelo H. “Morphodynamic Responses of a River Floodplain System to a Chute Cutoff: Numerical Experiments to Investigate the Role of Multiple Active Factors.” *AGU Fall Meeting*, 2017. [\[link\]](#)
4. [RCM’17] Mendoza, Alejandro; Abad, Jorge D; **Li, Zhi**; Arroyo, Maricela. “Migration of meandering rivers junction modeled numerically.” *IAHR 10th River, Coastal And Estuarine Morphodynamics Symposium*, 2017. [\[link\]](#)
3. [IllinoisWater’16] **Li, Zhi** and Garcia, Marcelo H. “Numerical investigation of pre-cutoff hydrodynamics.” *Illinois Water Conference*, 2016.
2. [AGU’16] Mendoza, Alejandro; Abad, Jorge D; **Li, Zhi**; Arroyo, Maricela. “Planform evolution modeling of confluences in meandering rivers.” *AGU Fall Meeting*, 2016. [\[link\]](#)
1. [RiverFlow’16] **Li, Zhi**; Mendoza, Alejandro; Abad, Jorge D; Endreny, Theodore A; Smallidge, Colin D; and Han, Bangshuai. “Cutoff processes and their importance for bed and planform morphodynamic adaptation.” *IAHR River Flow Conference*, 2016. doi: [10.1201/9781315644479](https://doi.org/10.1201/9781315644479)

CORE TOOLS & SKILLS

- **Surface water, groundwater, sediment transport, reactive transport models:** TELEMAC, Delft3D, HEC-RAS, PFLOTRAN, Advanced Terrestrial Simulator (ATS), ParFlow, MODFLOW
- **CFD models:** OpenFOAM, Nek5000, FLOW-3D, Ansys Fluent, STAR-CCM+, COMSOL
- **GIS & CAD:** ArcGIS, QGIS, AutoCAD, Civil 3D
- **HPC:** Rich experience in deploying & managing HPC projects on the world’s largest supercomputers and AWS EC2
- **Cloud:** AWS Certified Cloud Practitioner
- **Scientific visualization:** ParaView, Tecplot, VisIt, EnSight, Python-Matplotlib, R
- **Scientific computing languages:** C++, Fortran, Python, JAVA, R

GRANTS, SCHOLARSHIPS, AWARDS, HONORS

- [DOE] PI of Department of Energy (DOE) Environmental System Science (ESS) Program ESS-DIVE Partner Project (\$100K).
- [PNNL] Outstanding performance (top 10%) postdoctoral research associate (2022, 2023).
- [TACC] Fellowship of the Texas Advanced Computing Center (TACC) 2020 Summer Institute on Computational Research Techniques - Scientific Visualization.
- [CSDMS] Travel fund scholarship of the 2020 CSDMS Annual Meeting.
- [NSF] Assisted PI in writing the allocation proposal requesting supercomputing resources on the NSF-supported XSEDE platform (Grant Number TG-CTS190067).

SERVICE

- Reviewer of scholarly journals:
 - **[Hydrology/Hydraulics]** Advances in Water Resources | Journal of Hydrology | Water Resources Research | Environmental Fluid Mechanics | Journal of Hydrologic Engineering | Journal of Hydraulic Engineering
 - **[Earth Surface]** Earth Surface Processes and Landforms | Geomorphology
 - **[Model/Software]** Journal of Open Source Software | Computers and Geosciences | Environmental Modelling and Software
 - **[More]** Journal of Marine Science and Engineering | Geology | Stochastic Environmental Research and Risk Assessment | Scientific Reports
- Conference sessions organized:
 - AGU Annual Meeting 2025, session H004 – Advancements in Physics-based, Integrated Hydrologic Modeling to Support Water Resources Management
 - AGU Fall Meeting 2024, sessions [H41A](#), [H42A](#), [H43A](#), and [H51K](#) – Advancements in Process-Based Hydrologic Modeling to Support Water Resources Management
 - AGU Fall Meeting 2023, sessions [GC43C](#) and [GC51R](#) – World on Fire: Understanding Fire Impacts on Energy, Water, and Carbon Cycles and Ramifications to Climate, Soil, and Ecosystem Structure and Functioning
- AGU Earth and Planetary Surface Processes (EPSP) Section student committee member (2021-2022), duties include hosting AGU EPSP Early Career Spotlight
- Student volunteer of AGU Fall Meeting 2020, duties include monitoring virtual meeting attendance and facilitating online discussions
- Treasurer of IWRA student chapter at the University of Illinois (2019-2020), duties include managing IWRA activity funds, fundraising, and communication
- Exhibitor of UIUC Engineering Open House (2017-2020), duties include developing hydrology and hydraulics-related exhibitions for K-12 students

PROFESSIONAL AFFILIATIONS

- Member, American Geophysical Union (AGU) and Gilbert Geomorphology Club
- Member, International Water Resources Association (IWRA)
- Member, International Association for Hydro-Environment Engineering and Research (IAHR)
- Member, American Society of Civil Engineers (ASCE)
- Member, The United States Research Software Engineer Association (US-RSE)