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ZHI LI

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RESEARCH INTERESTS

Environmental Fluid Mechanics, Sediment Transport, Fluvial Morphodynamics, Computational Fluid Dynamics

EDUCATION

University of Illinois at Urbana-Champaign, Dept. of Civil and Environ. Engr. 2016 - 2021 (expected)
Ph.D. in Water Resources Engineering and Science *Advisor: Prof. Marcelo H. García*

Thesis: Numerical Modeling Study on Meandering and Cutoff Dynamics

Committee: Prof. Marcelo H. García (Chair, UIUC), Prof. Gary Parker (UIUC), Prof. Bruce L. Rhoads (UIUC), Asst. Prof. Rafael O. Tinoco (UIUC), Dr. Eddy J. Langendoen (National Sedimentation Laboratory, USDA-ARS)

Michigan State University, Dept. of Civil and Environmental Engineering 2012 - 2014
M.S. in Environmental Engineering

Nanjing University, School of Earth Sciences and Engineering 2008 - 2012
B.S. in Earth Sciences with Geology specialization

RESEARCH EXPERIENCES

Ven Te Chow Hydrosystems Laboratory, University of Illinois at Urbana-Champaign 2016 - Present
Graduate Research Assistant *Supervisor: Prof. Marcelo H. García*

Environmental Fluid Mechanics Laboratory, University of Pittsburgh 2014 - 2016
Graduate Research & Teaching Assistant *Supervisor: Asst. Prof. Jorge D. Abad*

Groundwater Modeling Laboratory, Michigan State University 2012 - 2014
Graduate Research Assistant *Supervisor: Prof. Shu-Guang Li*

MOE Key Laboratory of Surficial Geochemistry, Nanjing University 2010 - 2012
Undergraduate Research Assistant *Supervisors: Assoc. Prof. Lianwen Liu & Assoc. Prof. Liang Zhao*

TEACHING AND MENTORING EXPERIENCES

Undergraduate Student Research Mentor, University of Illinois 2020 - 2021
- Supervised by the Promoting Undergraduate Research in Engineering (PURE) program of College of Engineering

Undergraduate Student Research Mentor, University of Illinois 2020 - 2021
- Supervised by the Undergraduate Research Apprenticeship Program (URAP) of Office of Undergraduate Research

Teaching Assistant, University of Pittsburgh 2015 - 2016
- CEE 2416 Sediment Transport (graduate level)

PUBLICATIONS

PEER-REVIEWED JOURNAL ARTICLES (* indicates corresponding author)

15. [**CAGEO**] **Zhi Li*** and Marcelo H. García. "pyRiverBed: A Python framework to generate synthetic riverbed topography of constant-width meandering rivers." *Computers & Geosciences*, 2020. (in revision)
14. [**GEOMOR**] Taylor Rowley*, Kory Konsoer, Eddy J. Langendoen, **Zhi Li**, Michael Ursic and Marcelo H. García. "Relationship of point bar morphology to channel curvature and planform evolution." *Geomorphology*, 2020. (accepted)

CONFERENCE PRESENTATIONS

13. [**AGU'20**] **Zhi Li**, Dongchen Wang and Marcelo H. García. "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." *American Geophysical Union Fall Meeting*, 2020.
12. [**AGU'20**] Xingyan Guo, Mengzhen Xu, Ruiyu Wang, **Zhi Li**, Dong Chen, Marcelo H. García, Jim Best and Gary Parker. "Triangle Shaped Bends Associated with Peat in the Zoige Basin, Northeast Qinghai-Tibet Plateau, China." *American Geophysical Union Fall Meeting*, 2020.
11. [**LargeRivers'20**] **Zhi Li** and Marcelo H. García. "Human impact on long-term meandering river migration." *IAHR International Conference on the Status and Future of the World's Large Rivers*, 2020.
10. [**RiverFlow'20**] **Zhi Li** and Marcelo H. García. "2D numerical modeling on meander chute cutoffs." *IAHR River Flow Conference*, 2020.
9. [**RiverFlow'20**] Xingyan Guo, Gary Parker, **Zhi Li**, Marcelo H. García, Dong Chen and G. Tanaka. "Sinuous rivers in peat." *IAHR River Flow Conference*, 2020.
8. [**RCEM'19**] **Zhi Li** and Marcelo H. García. "Numerical modeling on meander chute cutoffs using hybrid deterministic-stochastic method." *IAHR 11th River, Coastal And Estuarine Morphodynamics Symposium*, 2019.
7. [**AGU'18**] **Zhi Li** and Marcelo H. García. "An Improved Analytical Method to Generate Synthetic Bed Topography of Single-thread Constant-width Meandering Rivers." *American Geophysical Union Fall Meeting*, 2018.
6. [**ISEH'18**] **Zhi Li** and Marcelo H. García. "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**] **Zhi Li** and Marcelo H. García. "Morphodynamic Responses of a River Floodplain System to a Chute Cutoff: Numerical Experiments to Investigate the Role of Multiple Active Factors." *American Geophysical Union Fall Meeting*, 2017.
4. [**RCEM'17**] Mendoza Alejandro, Jorge D. Abad, **Zhi Li** and M. Arroyo. "Migration of meandering rivers junction modeled numerically." *IAHR 10th River, Coastal And Estuarine Morphodynamics Symposium*, 2017.
3. [**IllinoisWater'16**] **Zhi Li** and Marcelo H. García. "Numerical investigation of pre-cutoff hydrodynamics." *Illinois Water Conference*, 2016.
2. [**AGU'16**] Mendoza Alejandro, Jorge D. Abad, **Zhi Li** and M. Arroyo. "Planform evolution modeling of confluences in meandering rivers." *American Geophysical Union Fall Meeting*, 2016.
1. [**RiverFlow'16**] **Zhi Li**, Mendoza Alejandro, Jorge D. Abad, Theodore A. Endreny, Colin D. Smallidge and Bangshuai Han. "Cutoff processes and their importance for bed and planform morphodynamic adaptation." *IAHR River Flow Conference*, 2016.

TALKS

4. "pyRiverBed: A Python framework to generate synthetic riverbed topography of constant-width meandering rivers", *CSDMS Summer Science Series*, Boulder, Colorado, USA (event moved online), 2020. [website]
3. "Two-dimensional and three-dimensional hydrodynamic modeling of the Calumet River System and Indiana Harbor and Ship Canal", *8th International Symposium on Environmental Hydraulics*, South Bend, Indiana, USA, 2018.
2. "A numerical model for river meanders: Open-Telemac (Part II)", *UIUC Geo-Hydro Discussion Group*, Urbana, Illinois, USA, 2018.
1. "Cutoff processes and their importance for bed and planform morphodynamic adaptation", *River Flow conference*, St. Louis, Missouri, USA, 2016.

SKILLS

- **Geophysical flow and sediment transport modeling:** Proficient in TELEMAC, Delft3D, HEC-RAS
- **CFD & meshing:** Proficient in FLOW-3D, OpenFOAM, Fluent, ANSYS Meshing, Gmsh, BlueKenue
- **Programming languages (scientific computing oriented):** Proficient in Python, Matlab, C, Fortran
- **Scientific visualization:** Proficient in Tecplot, ParaView, VisIt, EnSight, Python-Matplotlib, R
- **GIS & CAD:** Proficient in ArcGIS, AutoCAD, Civil 3D
- **HPC:** Rich experience in deploying HPC projects on AWS EC2, campus clusters and supercomputers
- **Cloud computing:** AWS Certified Cloud Practitioner (Validation Number DS3KMN71NBF41S34)

GRANTS AND SCHOLARSHIPS

- **(2020, Agency: TACC)** Fellowship of the Texas Advanced Computing Center (TACC) 2020 Summer Institute on Computational Research Techniques - Scientific Visualization.
- **(2020, Agency: CSDMS)** Travel fund scholarship of the CSDMS Annual Meeting.
- **(2019, Agency: NSF)** Assisted advisor on writing the allocation proposal requesting supercomputing resources on the NSF-supported XSEDE platform (Grant Number TG-CTS190067).

OTHER SERVICES

- Reviewer of scholarly journals: Journal of Hydrologic Engineering, Journal of Hydraulic Engineering, Geology
- Volunteer of AGU Fall Meeting
- Treasurer of IWRA student chapter at the University of Illinois.

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)