

Qina Yan

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EDUCATION

Ph.D.	Civil Engineering, University of Illinois at Urbana-Champaign	2019
M.S.	Civil Engineering, University of Illinois at Urbana-Champaign	2013
B.S.	Hydraulic Engineering, Dalian University of Technology	2012

RESEARCH EXPERIENCE

Postdoctoral Research Fellow, Lawrence Berkeley National Laboratory 2019-current
Scientific Function Area-East River Project

- Study the soil and organic matter development and erosion under disturbance events using high performance computing

Graduate Research Assistant, University of Illinois at Urbana-Champaign 2014-2019

Intensively Management Landscapes Critical Zone Observatory (IML-CZO) project
National Center for Supercomputing Applications (NCSA) Brown Dog project

- Identify the existence of universality in river valleys' hydro-geomorphologic characteristics and examine the departures due to human modifications.
- Develop a 3-D model framework to simulate the co-evolution of landscape and soil organic carbon to understand the natural and anthropogenic impacts on organic carbon profiles and stocks across a watershed in both the U.S. Midwest and China Loess Plateau

Dissertation: Anthropogenic Impact on River Valley Characteristic and the Co-evolution of Landscape and Soil Organic Carbon Dynamics in Intensively Managed Landscapes
Advisor: Praveen Kumar

Graduate Hourly Assistant, Illinois State Geological Survey 2012-2014
Geologic Carbon (CO₂) Sequestration project

- Analyzed grain properties of core samples collected from Mt. Simon Sandston (~7,000 ft below-ground) and Eau Clair Sandston (~5,000 ft below-ground)

TEACHING AND MENTORING EXPERIENCE

Graduate Teaching Assistant Fall 2016, 2017
CEE 450: Surface Hydrology

- Led the ArcGIS training in a computer lab as part of the regular class
- Graded exams and homework, and provided office hours

Undergraduate Student Mentoring 2018
Research Experience for Undergraduates (REU) program
Zhuolian Zhang (Civil and Environmental Engineering)

- Collected meteorology data and used the multilayer canopy-root (MLCan) model to simulate the water and energy cycle between above-ground and below-ground

Undergraduate Research Apprenticeship Program (URAP) 2016-2017

Emilio Cabrera (Statistics)

- Analyzed soil field sampling data in the IML-CZO and used Multiple Linear Regression analysis to sort out the relationship between organic matters in soils and soil properties

Undergraduate Internship 2016

Angela Magnuson (Civil and Environmental Engineering)

- Developed an algorithm to study the universal relationships of river valleys' geometries across the U.S. Critical Zone Observatory sites using lidar data, ArcGIS, and MATLAB

PUBLICATIONS

Yan, Q., Le, P. V. V., Woo, D. K., Hou, T., Filley, T., Kumar, P. (2018), Three-Dimensional Modeling of the Coevolution of Landscape and Soil Organic Carbon, *Water Resources Research*, doi: 10.1029/2018WR023634

Wilson, C.G., Abban, B., Keefer, L. L., Wacha, K., Dermisis, D., Giannopoulos, C., Zhou, S., Goodwell, A.E., Woo., D. K., **Yan., Q.**, Ghadiri, M., Stumpf, A., Pitcel, M., Lin, Y., Marini, L., Storsved, B., Goff, K., Vogelgsang, J., Dere, A., Schilling, K.E., Muste, M., Blair, N.E., Rhoads, B., Bettis, A., Pai, H., Kratt, C., Sladek, C., Wing, M., Selker, J., Tyler, S., Lin, H., Kumar, P., Papanicolaou, A.N.T. (2018), The Intensively Managed Landscape Critical Zone Observatory: A Scientific Testbed for Understanding Critical Zone Processes in Agroecosystems, *Vadose Zone J.*, doi:10.2136/vzj2018.04.0088

Yan, Q., Iwasaki, T., Stumpf, A., Belmont, P., Parker, G., and Kumar, P. (2017), Hydrogeomorphological Differentiation between Floodplains and Terraces, *Earth Surface Processes and Landforms*, doi:10.1002/esp.4234

Yan, Q., Kumar, P., Wang, Y., Lin, H., Ran, Q. (2019), Assessing the sustainability of gully land consolidation with regards to the soil organic carbon dynamics in the China Loess Plateau, under review in *Scientific Reports*

Li, M., Foster, E. J., Le, P. V. V., **Yan, Q.**, Wang, J., Kumar, P., Filley, T. (2019), A new dynamic wetness index (DWI) predicts soil moisture persistence and correlates with key indicators in surface soil geochemistry, under review in *Geoderma*.

Manuscripts in Progress

Yan, Q., Kumar, P. (2019), How Does Evolution of Soil Organic Carbon Profiles Impact CO₂ Production? expected submission Nov. 2019

Yan, Q., Wainwright, H, Dfflon, B., Uhlemann, S., Wielandt, S., Steefel, C. (2020), Impact of topography, weathering, vegetation, and slope aspect on the spatial heterogeneity of soil thickness development, expected submission Jan. 2020

PRESENTATIONS

Yan, Q., Kumar, P. (2019), Coevolution of Soil Organic Carbon and Landscapes in Intensively Engineered Landscapes. Poster presentation at *AGU Fall Meeting*, Session EP33C-2353 San Francisco, CA., Dec. 2019

Yan, Q., Kumar, P. (2018), 3-D Modeling of the Coevolution of Landscape and Soil Organic Carbon. eLightning presentation at *AGU Fall Meeting*, Session EP51B-11 Washington, D.C., Dec. 2018

- Yan, Q.**, Le, V. V. P., Woo., D, Hou, T., Filley, T., Kumar, P. (2018), 3-D Modeling of the Coevolution of Landscape & Soil Organic Carbon. Poster presentation at *CUAHSI 2018 Biennial Colloquium*, Shepherdstown, WV, Jul. 2018
- Yan, Q.**, Kumar, P. (2018), Modeling of the Coevolution of Landscape & Soil Organic Carbon in the Intensively Managed Landscapes. Invited talk at *Ven Te Chou Hydrosystems Seminar Series*, University of Illinois at Urbana-Champaign, Feb. 09, 2018
- Yan, Q.**, Le, V. V. P., Woo., D, Filley, T., Kumar, P. (2017), Modeling the Coevolution of Landscape & Soil Organic Carbon Dynamics in the Intensively Managed Landscapes. Oral presentation at *AGU Fall Meeting*, Session B33G-04 New Orleans, LA, Dec. 2017
- Yan, Q.**, Kumar, P. (2017), Soil Organic Carbon Dynamics in Intensively Managed Landscapes. Oral presentation at *Critical Zone Science meeting*, Arlington, VA., Jun. 2017
- Cabrera, E., **Yan, Q.**, Zhu, R. (2017), The Analysis of Soil Organic Matters in Intensively Managed Landscapes. Poster presentation at the *symposium of Undergraduate Research Apprenticeship Program (URAP)*, Champaign, IL, Apr. 2017
- Yan, Q.**, Kumar, P. (2016), Effects of landscape evolution on soil organic carbon dynamics in intensively managed agricultural landscapes. Poster presentation at *AGU Fall Meeting*, Session B21I-0539, San Francisco, CA., Dec. 2016
- Magnuson, A., **Yan, Q.**, Kumar, P. (2016), *Hydrogeomorphological characterization of river valleys: A cross-CZO analysis*. Poster presentation at *AGU Fall Meeting*, Session EP53C-0953, San Francisco, CA., Dec. 2016
- Kumar, P., **Yan, Q.**, Woo, D., Le, P.V.V. (2016), Evaluating the impact of landscape evolution on soil carbon and nutrient dynamics: A coupled modeling approach. Oral presentation at the *XXII International Computational Methods in Water Resources, CMWR 2016 meeting*, Toronto, Canada, Jun. 2016
- Yan, Q.**, Kumar, P., Anders, A. (2015), Low-relief landscape modeling with human activities. Poster presentation at *AGU Fall Meeting*, Session EP31B-1014, San Francisco, CA, Dec 2015.
- Yan, Q.**, Toshiki, I., Kumar, P., Parker, G. (2015), Understanding the Characteristics of River Valley Topography with Extreme Flooding Events. Oral presentation at *GSA North-Central 49th Annual meeting*, Madison, WI., May 2015
- Yan, Q.**, Kwang, J., Anders, A., Kumar, P. (2015), Landscape Evolution Interrupted by Human Activities. Oral presentation at *GSA North-Central 49th Annual Meeting*, Madison, WI., May 2015
- Yan, Q.**, Kumar, P. (2014), Human Impact Intertwined with Glacial Legacy: Hydro-Geomorphologic Exploration Using LiDAR Data. Poster presentation at *AGU Fall Meeting*, Session H43D-0984 San Francisco, CA., Dec. 2014
- Yan, Q.**, Keefer, L., Wilson, C., G., Bettis, E., A., Papanicolaou, T., Kumar, P. (2014), Introduction to Intensively Managed Landscapes Critical Zone Observatory. Poster presentation at *CZO all-hands meeting*, Yosemite, CA., Sep. 2014
- Yan, Q.**, Kumar, P. (2014), Human Impact Intertwined with Glacial Legacy: Hydro-Geomorphologic Exploration Using LiDAR Data. Poster presentation at *CZO all-hands meeting*, Yosemite, CA., Sep. 2014
- Yan, Q.**, Kumar, P. (2014), Understanding Glacial Legacy and Human Impact on Low-Relief Landscapes using Lidar Data. Oral presentation at *LiDAR workshop*, Boulder, University of Colorado, May 2014

WORKSHOP & OUTREACH PARTICIPATION

*Contributed to organization

Zhejiang-UIUC Joint Workshop, Haining, China	Jun. 4-5, 2018
China Loess Plateau Gully Land Consolidation Project, Yan'an, China	Oct. 1-8, 2017
IML-CZO modeling summer institute program workshop	Aug. 16-19, 2016
Mathematical Modeling of Earth's Dynamic Systems, Penn State	Jul. 31-Aug 5, 2016
CyberGIS Center series workshop, University of Illinois at Urbana-Champaign	Jul. 15-Aug14, 2015
Annual Illinois Water Day*, University of Illinois at Urbana-Champaign	Apr. 10, 2015
Engineering Open House*, University of Illinois at Urbana-Champaign	Mar. 13-14, 2015
NSF Workshop on LiDAR Data Processing, University of Colorado, Boulder	May 12-14, 2014

SERVICE EXPERIENCE

<i>American Geophysical Union (AGU) Hydrology Section Student Subcommittee (H3S)</i> Committee Member	2018-2020
<ul style="list-style-type: none"> • Help to organize service opportunities, pop-sessions, workshops, and student conference 	
<i>UIUC International Water Resources Association (IWRA)</i> Chair Member	2015-2016
<ul style="list-style-type: none"> • Organized events including Halloween pumping carving, hydro t-shirt designs etc. 	

PROFESSIONAL MEMBERSHIPS

American Geophysical Union (AGU)
Geological Society of America (GSA)
UIUC International Water Resources Association (IWAR)
Society of Women Engineers (SWE)
American Society of Civil Engineers (ASCE)