

Mark K. Wang

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Center for Water and the Environment, J.J. Pickle Research Campus, Austin, TX

EDUCATION

The University of Texas at Austin	Austin, TX
<i>Doctor of Philosophy</i> Civil Engineering	<i>Expected May 2026</i>
<i>Master of Science</i> Environmental and Water Resources Engineering	<i>May 2022</i>
Columbia University	New York, NY
<i>Bachelor of Science</i> Civil Engineering Water Resources	<i>May 2016</i>
Franklin & Marshall College	Lancaster, PA
<i>Bachelor of Arts</i> Cognitive Science Music	<i>May 2016</i>

RESEARCH EXPERIENCE

The University of Texas at Austin	Austin, TX
<i>Graduate Research Assistant</i>	<i>Sep 2020 – May 2026</i>
• Advisor: Prof. Paola Passalacqua	
• Funding: NSF GRFP, NOAA AdSci, Planet Texas 2050, DOE SETx-UFL	
NOAA National Weather Service CUAHSI	Tuscaloosa, AL
<i>2023 Summer Institute Course Coordinator</i>	<i>June 2023 – July 2023</i>
• Coordinated activities for 23 fellows, planned program with advisors, compiled report	
<i>2022 Summer Institute Fellow</i>	<i>June 2022 – July 2022</i>
• Developed a terrain-analysis based method for coupling riverine and coastal inundation	
Fulbright Program, U.S. Department of State	Zhuhai & Shenzhen, China
<i>Research Grantee</i>	<i>June 2019 – Feb 2020</i>
• Studied low-impact development and stormwater management in the Pearl River Delta	

PROFESSIONAL EXPERIENCE

Water Utility, City of Austin	Austin, TX
<i>Systems Planning Engineering Intern</i>	<i>Mar 2020 – Sep 2020</i>
• Automated sewer peak-flow analyses, maintained GIS databases for infrastructure planning	
Mease Engineering, P.C.	Quakertown, PA
<i>Civil Engineer</i>	<i>Oct 2017 – June 2019</i>
• Analyzed site hydrology, designed stormwater management systems for water quality	
NYC Department of Environmental Protection	New York, NY
<i>Assistant Civil Engineer</i>	<i>June 2016 – Oct 2017</i>
• Managed green stormwater infrastructure projects, reviewed construction plans and contracts	

PUBLICATIONS

Under review and in preparation

2. **Wang, M.**, Passalacqua, P., Coon, E., Rathore, S. S., & Perez, G. (*in preparation*). Probabilistic Flood Maps from Ensembles of Downscaled Compound Flood Inundation in Southeast Texas. *Water Resources Research*.
1. **Wang, M.**, Passalacqua, P., Moftakhari, H., & Hardage, B. (*submitted*). Rating Surfaces for Quantifying Compound Flooding at Points of Interest. *Hydrology and Earth System Sciences*.

Peer-reviewed

8. Michalek, A. T., Villarini, G., Done, J. M., **Wang, M.**, & Passalacqua, P. (accepted). Quantification of the Impact of Uncertainties in Flood Risk Projections Across the Delaware River Basin. *Earth's Future*.
7. Brelandsford, C., Coon, E. T., **Wang, M.**, Rosenheim, N., Brake, N., Haselbach, L., & Passalacqua, P. (2026). Multi-Objective Urban Observational Strategies: A Risk-Based Framework for Expanding Flood Sensor Networks. *Water Resources Research*, 62(1), e2025WR041135.
<https://doi.org/10.1029/2025WR041135>
6. Shetty, N. H., **Wang, M.**, Elliott, R. M., & Culligan, P. J. (2025). Comparative Performance of Green Roof Systems with Smart Cisterns: Balancing Stormwater Capture and Irrigation Supply. *Water*, 17(20), 2987. <https://doi.org/10.3390/w17202987>
5. Murphy, S., **Wang, M.**, Cheng, C.-S., Passalacqua, P., & Leite, F. (2025). Land-Use Analysis Using Infrastructure Representations and High-Resolution Flood Inundation Mapping Techniques. *International Journal of Disaster Risk Reduction*, 123, 105518.
<https://doi.org/10.1016/j.ijdrr.2025.105518>
4. **Wang, M.**, Passalacqua, P., Cai, S., & Dawson, C. (2024). c-HAND: Near Real-Time Coastal Flood Mapping. *Frontiers in Water*, 6, 1329109. <https://doi.org/10.3389/frwa.2024.1329109>
3. Shetty, N., **Wang, M.**, Elliott, R., & Culligan, P. (2022). Examining How a Smart Rainwater Harvesting System Connected to a Green Roof Can Improve Urban Stormwater Management. *Water*, 14(14). <https://doi.org/10.3390/w14142216>
2. Shetty, N. H., Elliott, R. M., **Wang, M.**, Palmer, M. I., & Culligan, P. J. (2022). Comparing the Hydrological Performance of an Irrigated Native Vegetation Green Roof with a Conventional *Sedum* spp. Green Roof in New York City. *PLOS One*, 17(4), e0266593.
<https://doi.org/10.1371/journal.pone.0266593>
1. Shetty, N. H., Hu, R., Mailloux, B. J., Hsueh, D. Y., McGillis, W. R., **Wang, M.**, Chandran, K., & Culligan, P. J. (2019). Studying the Effect of Bioswales on Nutrient Pollution in Urban Combined Sewer Systems. *Science of the Total Environment*, 665. <https://doi.org/10.1016/j.scitotenv.2019.02.121>

PRESENTATIONS

14. **Wang, M.**, Passalacqua, P., Coon, E., Rathore, S., & Perez, G. (2025). Probabilistic High-Resolution Flood Maps from Ensembles of Downscaled Compound Flood Inundation in Southeast Texas. *AGU Annual Meeting*, Abstract H23R-1469
13. Coon, E., Rathore, S., **Wang, M.**, Lieberknecht, K., Barbosa, S., & Passalacqua, P. (2025). Informing Compound Flood Mitigation Strategies Across Scales: Blurring the Lines Between Hydrologic and Hydraulic Models. *AGU Annual Meeting*, Abstract H13V-1367
12. Brelandsford, C., Coon, E., **Wang, M.**, Rosenheim, N., Brake, N., Haselbach, L., & Passalacqua, P. (2025). Multi-Objective Urban Observational Strategies: A Risk-Based Framework for Expanding Flood Sensor Networks. *AGU Annual Meeting*, Abstract NH43D-0482
11. **Wang, M.** (2025). Downscaling Compound Flood Estimates for Neighborhood-Scale Insights. *MultiSector Dynamics: Urban IFL Discussions on Emerging Approaches and Synergies*
10. **Wang, M.**, Passalacqua, P., Coon, E., Rathore, S., & Perez, G. (2024). Downscaling Modeled Fluvial and Pluvial Flood Inundation to a Lidar Grid: A New Volume Conservative Method. *AGU Annual Meeting*, Abstract H53M-1284

9. **Wang, M.**, Passalacqua, P., & Preisser, M. (2024). A Near Real-Time Compound Flood Inundation Python Package. *AGU Annual Meeting*, Abstract NH41D–2342
8. Passalacqua, P., **Wang, M.**, & Preisser, M. (2024). Acute on Chronic Stressors in Communities: When Flooding Is Not the Only Issue. *AGU Annual Meeting*, Abstract NH23A–2272
7. Michalek, A., Villarini, G., Done, J., **Wang, M.**, & Passalacqua, P. (2024). Quantifying the Uncertainty of Ensemble Members and Downscaling Techniques in Flood Hazards and Their Associated Socioeconomic Impacts Across the Delaware River Basin. *AGU Annual Meeting*, Abstract H53M–1284
6. Coon, E. T., Perez, G., Rathore, S. S., Le, P. V., **Wang, M.**, Nduka, I., Persad, G., Lieberknecht, K., & Passalacqua, P. (2024). Informing Coastal Climate Impact Mitigation: Flood Frequency Analysis Under Changing Climate, Land Use, and Infrastructure. *Conference on Computational Methods in Water Resources (CMWR)*, Session 15B
5. **Wang, M.**, Passalacqua, P., & Moftakhari, H. (2023). Quantifying Compound Flooding in Southeast Texas: A Novel Approach for Assessing Impacts on Communities and Infrastructure. *AGU Annual Meeting*, Abstract NH23D–0744
4. Abdelkader, M., **Wang, M.**, Ghanghas, A., Ferreira, C., & Mandli, K. T. (2022). QuiCFIM, a Quick GIS-Based Combined Flood Inundation Mapping Framework. *AGU Annual Meeting*, Abstract H45I–1481
3. Passalacqua, P., Preisser, M., **Wang, M.**, Bixler, P., Hooks, A., Hofmann, J., Haselbach, L., Moftakhari, H., Evans, H., Thies, C., & Maidment, D. (2022). Preparing for Future Floods: Leveraging Remotely Sensed Data, Modeling, and Social Science Information in a Multilayer Network Approach. *AGU Annual Meeting*, Abstract H46D–01
2. **Wang, M.**, Passalacqua, P., Cai, S., & Dawson, C. (2022). c-HAND: Near Real-Time Coastal Flood Mapping. *AGU Annual Meeting*, Abstract H42C–1262
1. Shetty, N. H., & **Wang, M.** (2018). Performance of a “Next Generation” Green Roof with Irrigation and Smart Detention. *EWRI International Low Impact Development Conference*, Abstract 437268

GRANTS & AWARDS

- Goyette Travel Award 2026
- Trigg and Fannie E. Twichell Centennial Endowed Presidential Scholarship 2025 – 2026
- John E. Kasch Endowed Graduate Fellowship 2020 – 2024
- Dean’s Prestigious Fellowship Supplement 2020 – 2023
- CUAHSI Hydroinformatics Innovation Fellowship 2024
- National Science Foundation Graduate Research Fellowship 2020 – 2023
- Fulbright Study/Research Award 2019 – 2020
- Fulbright Critical Language Enhancement Award 2019
- *Magna cum laude* & Phi Beta Kappa, Franklin & Marshall College 2016
- G. Kenneth Kohlmaier Family Scholarship 2011 – 2014
- C. Richard Plank Scholarship 2011 – 2014

SKILLS & LICENSES

Programming

- Python, MATLAB, Bash, TeX, Julia, Git, NumPy, Matplotlib, Pandas, SciPy, scikit-learn, Slurm (HPC)

GIS & Engineering

- ArcGIS Pro, QGIS, GDAL, GeoPandas, Rasterio, GRASS GIS, AutoCAD, SWMM, HEC-RAS

Natural Languages

- **Native:** English | **Working proficiency:** Mandarin Chinese (spoken and written)

Licenses

- Engineer-in-Training (Pennsylvania License No. ET023499)