

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
Doctor of Philosophy Civil Engineering	Expected May 2026
Master of Science Environmental and Water Resources Engineering	May 2022
Columbia University	New York, NY
Bachelor of Science Civil Engineering Water Resources	May 2016
Franklin & Marshall College	Lancaster, PA
Bachelor of Arts Cognitive Science Music	May 2016

RESEARCH EXPERIENCE

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

PROFESSIONAL EXPERIENCE

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

PUBLICATIONS

Under review and in preparation

4. **Wang, M.**, Passalacqua, P., Moftakhari, H., & Hardage, B. (in preparation). Rating Surfaces for Quantifying Compound Flooding at Points of Interest. *Journal of Hydrology*.
3. **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*.
2. Brellsford, C., Coon, E., **Wang, M.**, Rosenheim, N., Brake, N., Haselbach, L., & Passalacqua, P. (in revision). Multi-Objective Urban Observational Strategies: A risk-based framework for expanding flood sensor networks. *Water Resources Research*.

1. Michalek, A. T., Villarini, G., Done, J. M., **Wang, M.**, & Passalacqua, P. (in revision). Quantification of the Impact of Uncertainties in Flood Risk Projections Across the Delaware River Basin. *Earth's Future*.

Peer-reviewed

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 [Publisher: Multidisciplinary Digital Publishing Institute]. *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, 944–958. <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. Brelsford, 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., & Moftakhar, 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., Moftakhar, 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

- 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)