Ruo-Qian (Roger) **Wang**

RWH 328E, Rutgers University, 500 Bartholomew Road, Piscataway, NJ 08854

+1(848)445-4288 | rq.wang@rutgers.edu | www.whirl-lab.com

Education

Massachusetts Institute of Technology (MIT) — *Cambridge, MA*
PH.D. IN CIVIL AND ENVIRONMENTAL ENGINEERING — *Sep. 2009 - Jun. 2014*
Thesis Committee: Eric Adams (Advisor), Heidi Nepf (Chair), Ole Madsen, Roman Stocker, Adrian Law

Nanyang Technological University / Stanford University — *Singapore / Stanford, CA*
M.S. IN ENVIRONMENTAL ENGINEERING — *Jun. 2007 - Jul. 2008*

Beijing University of Aeronautics and Astronautics — *Beijing, China*
B.S. IN AEROSPACE ENGINEERING — *Sep. 2003 - Jun. 2007*

Experience

Rutgers, The State University of New Jersey — *Piscataway, NJ*
ASSISTANT PROFESSOR — *Jan. 2019 - Present*
DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

University of Dundee — *Dundee, UK*
LECTURER IN ENVIRONMENTAL FLUID MECHANICS — *Aug. 2017 - Dec. 2018*
SCHOOL OF SCIENCE AND ENGINEERING

University of California, Berkeley — *Berkeley, CA*
POSTDOCTORAL SCHOLAR — *Feb. 2016 - Jul. 2017*
DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING
Advisor: Mark Stacey

Massachusetts Institute of Technology (MIT) — *Cambridge, MA*
POSTDOCTORAL ASSOCIATE — *Aug. 2014 - Jan. 2016*
DEPARTMENT OF MECHANICAL ENGINEERING
Advisor: Amos Winter

Singapore-MIT Alliance for Research and Technology Center — *Singapore*
RESEARCH ENGINEER — *Jun. 2008 - Aug. 2009*

Publications

Peer-reviewed: (* Corresponding Author)

Wu, S., & **Wang, R. Q.*** *(2022). Dynamics of real-time forecasting failure and recovery due to data gaps.* ***submitted****, arXiv preprint arXiv:2209.03413.*

Dissanayake, W., Hailstone, R., Bao, M., **Wang, R. Q.***, Yong, X., & Du, K. (2022). The Effects of CdSe/ZnS Quantum Dots on the Photosynthesis Rate of the Chlorella Vulgaris Beads.* ***submitted****, bioRxiv.*

Yang, X., Zeng, X., Gualtieri, C., Cuthbertson, A., **Wang, R. Q.***, & Shao, D.* (2022). Numerical Simulation of Scalar Mixing and Transport through a Fishing Net Panel.* ***Journal of Marine Science and Engineering****, 10(10), 1511.*

ten Pas, C., Du, K., Pan, L., **Wang, R. Q.***, & Xu, S.* (2022). Understanding the Dynamics of Fluid-Structure Interaction with an Air Deflected Microfluidic Chip (ADMC).* ***Scientific Reports****, 12(1), 1-9.*

Wang, R. Q.*, Golparvar, B., & Mark, M. (2022). Using Regularized Least Squares to Relax the Data Requirements of Tidal Harmonics Analysis.* ***submitted****, arXiv:2206.07822.*

Wang, R. Q.* *& Ding, Y. (2022). Semi-supervised Identification and Mapping of Surface Water Extent using Street-level Monitoring Videos.* ***Big Earth Data****, DOI: 10.1080/20964471.2022.2123352.*

Wang, R. Q.* *(2022). A Recommender System-Inspired Cloud Data Filling Scheme for Satellite-based Coastal Observation.* ***International Journal of Applied Earth Observation and Geoinformation****, 109, 102770.*

Chen, X., Zhang, S., Gan, Y., Liu, R., **Wang, R. Q.*** *& Du, K.* (2022). Understanding microbeads stacking in deformable Nano-Sieve for Efficient plasma separation and blood cell retrieval.* ***Journal of Colloid and Interface Science****, 606, 1609-1616*

Bilgen, O.,* **Wang, R. Q.***, Cao, Y., Erol, N., & Shan, X. (2022). A Reconfigurable Ducted Turbine Array Concept for Renewable Flow Energy Harvesting.* ***AIAA SCITECH 2022 Forum****, p. 2222. 2022*

Yuan, Y., Bazzett, D., Padnani, R., & **Wang, R. Q.*** *(2021). Unlocking Data from the Online Footage of the Edenville Dam Breach.* ***Geo-Extreme 2021****, 2021.*

Wang, R. Q.*, (2021). Artificial Intelligence for Flood Observation,* ***In Book: Earth Observation for Flood Applications****, Elsevier, 295-304*

Valero, D., Schalko, I., ... & **Wang, R. Q.** *(2021). Pathways towards democratization of hydro-environment observations and data.* ***IAHR White Paper Series****, 2021.*

Golparvar, B., Papadopoulos, P., Ezzat, A., & **Wang, R. Q.*** *(2021). A Surrogate-model-based Approach for Estimating the First and Second-order Moments of Offshore Wind Power.* ***Applied Energy****, 299, 117286.*

Shao, D., Huang, L., **Wang, R. Q.***, Gualtieri, C., & Cuthbertson, A. J.*, (2021). Turbulence Characteristics and Mass Transport in the Near Wake of Fishing Net Panel,* ***Water****, 13 (3), 294.*

Golparvar, B., & **Wang, R. Q.*** *(2020). AI-supported citizen science to monitor high-tide flooding in Newport Beach, California.* ***In Proceedings of the 3rd ACM SIGSPATIAL International Workshop on Advances in Resilient and Intelligent Cities****, pp. 66-69.*

Yousefvand, M., Wu, C. T. M., **Wang, R. Q.***, Brodie, J., & Mandayam, N.*, (2020). Modeling the Impact of 5G Leakage on Weather Prediction,* ***In the Proceeding of IEEE 5G World Forum (5WFG'20)****, Sep 10-12, 2020, DOI: 10.1109/5GWF49715.2020.9221472.*

Hu, Y., &* **Wang, R. Q.***, (2020). Understanding the removal of precise geotagging in tweets,* ***Nature Human Behaviors****, 7:1-3.*

Wang, R. Q.**, Hu, Y., Zhou, Z., & Yang, K., (2020). Tracking Flooding Phase Transitions and Establishing a Passive Hotline with AI-Enabled Social Media Data,* ***IEEE Access****, 8:103395 - 103404.*

Wang, Y., Kamp, C. J., Wang, Y., Toops, T. J., Su, C.,* **Wang, R. Q.***, Gong, J., & Wong, V., (2020). The Origin, Transport, and Evolution of Ash in Engine Particulate Filters: A Review,* ***Applied Energy****, 263, 114631.*

Chen, X., Miller, A., Cao, S., Gan, Y., Zhang, J., He, Q., **Wang, R. Q.***, Yong, X., Qin, P., Lapizco-Encinas, B. H. & Du, K.*, (2020). Rapid Escherichia coli (E. coli) Trapping and Retrieval from Bodily Fluids via a Three-Dimensional (3D) Beads Stacked Nano-Device.* ***ACS Applied Materials & Interfaces****, doi: 10.1021/acsami.9b1931.*

Li, M., **Wang, R. Q.***, & Jia, G.*, (2020). Efficient dimension reduction and surrogate based sensitivity analysis for expensive models with high-dimensional outputs.* ***Reliability Engineering & System Safety****, 195, 106725.*

Deng, Z., Wang, C., Wang, P., Higuera, P., &* **Wang, R. Q.***, (2019). Hydrodynamic performance of an offshore-stationary OWC device with a horizontal bottom plate: Experimental and numerical study.* ***Energy****, 187, 115941.*

Wang, R. Q.*, (2019), Book Chapter 6: Preprocessing and Chapter 8: Postprocessing in* ***Computational Fluid Dynamics Applications in Water, Wastewater and Stormwater Treatment****, Editors: Liu, X. and Zhang, J., American Society of Civil Engineering (ASCE).*

Chen, X., Falzon, L., Zhang, J., Zhang, X., **Wang, R. Q.***, *& Du, K.*, (2019). Experimental and Theoretical Study on the Microparticle Trapping and Release in a Deformable Nano-Sieve Channel.* ***Nanotechnology****, 31(5), 05LT01.*

Jia, G., **Wang, R. Q.***, *& Stacey, M. T., (2019), Investigation of Impact of Shoreline Alteration on Coastal Hydrodynamics using Dimension Reduced Surrogate based Sensitivity Analysis,* ***Advances in Water Resources****, 126(4), 168-175.*

Wang, R. Q.*, *Mao, H., Wang, Y., Rae, C., & Shaw, W., (2018), Hyper-resolution monitoring of urban flooding with social media and crowd-sourcing data,* ***Computers and Geosciences****, 111(2), 139 - 147.*

Wang, R. Q. *, Stacey, M. T.*, Herdman, L., Hummel, M., Erikson, L., & Barnard, P., (2018), Interdependence of Coastal Protection Infrastructure Projects and the Effects of Sea Level Rise,* ***Earth's Future****, 6, 677-688.*

Ariza, C., Casado, C., **Wang, R. Q.***, Adams, E. E., & Marugán, J.* (2018), Comparative evaluation of OpenFOAM and ANSYS Fluent for the modeling of hydrodynamics and mass transport in tubular and annular reactors.,* ***Chem Eng & Technol****, 41, No. 7, 1473-1483.*

Wang, R. Q. *, Stacey, M. T.*, Herdman, L., Hummel, M., Erikson, L., & Barnard, P. (2017), Interactions of Estuarine Shoreline Infrastructure With Multiscale Sea Level Variability,* ***Journal of Geophysical Research: Oceans****, 122, 9962 - 9979.*

Yin, H. L., Zhao, Z. C., **Wang, R. Q.***, Xu, Z. X.*, & Li, H. Z.(2017), Determination of urban runoff coefficient using time series inverse modeling,* ***Journal of Hydrodynamics, Ser. B****, 29(5), 898-901.*

Shamshery, P.,* **Wang, R. Q.** *, Tran, D. V., & Winter, A. G. (2017), Modeling the future of irrigation: A parametric description of pressure compensating drip irrigation emitter performance,* ***PloS ONE*** *12(4): e0175241.*

Wang, R. Q.* *, Lin, T., Shamshery, P., & Winter, A. G. (2017), Control of Flow Limitation in Flexible Tubes,* ***Journal of Mechanical Design****, 139(1), 013401.*

Lai, A. C., **Wang, R. Q.***, Law, A. W. K., & Adams, E. E.* (2016). Modeling and experiments of polydisperse particle clouds.* ***Environmental Fluid Mechanics****, 16, 875-898.*

Yin, H., Xu, Z.,* **Wang, R. Q.** *, Li, H., & Schwegler, B. R. (2016). Modeling of pollutant removal by powdered activated carbon in a raw water aqueduct.* ***Journal of Hydro-environment Research****, 11, 16-28.*

Wang, R. Q. *, Adams, E. E.*, Law, A. W. K., & Lai, A. C. (2015). Scaling particle cloud dynamics: from lab to field.* ***Journal of Hydraulic Engineering****, 141(7), 06015006.*

Wang, R. Q. *, Law, A. W. K., & Adams, E. E.* (2014). Large-Eddy Simulation (LES) of settling particle cloud dynamics.* ***International Journal of Multiphase Flow****, 67, 65-75.*

Sappok, A., Wang, Y., **Wang, R. Q.** *, Kamp, C. & Wang, V.* (2014). Theoretical and Experimental Analysis of Ash Accumulation and Mobility in Ceramic Exhaust Particulate Filters and Potential for Improved Ash Management.* ***SAE Int. Journal of Fuels and Lubrication****, 7(2), 511-524.*

Wang, R. Q. *, Law, A. W. K., Adams, E. E.*, & Fringer, O. B. (2011). Large-eddy simulation of starting buoyant jets.* ***Environmental Fluid Mechanics****, 11(6), 591-609.*

Wang, R. Q. *, Law, A. W. K., & Adams, E. E.* (2011). Pinch-off and formation number of negatively buoyant jets.* ***Physics of Fluids****, 23(5), 052101.*

Wang, R. Q. *, Law, A. W. K., Adams, E. E.*, & Fringer, O. B. (2009). Buoyant formation number of a starting buoyant jet.* ***Physics of Fluids****, 21(12), 125104.*

Non-peerreviewed:

Wang, R. Q.*, (2018), AI could help us manage natural disasters – but only to an extent,* ***The Conversation****, https://theconversation.com/ai-could-help-us-manage-natural-disasters-but-only-to-an-extent-90777.*

Wang, R. Q.*, Lenhart, J., (2017), How EWRI Urban Water Resources Research Council Renewed the Field.* ***EWRI Currents****, ASCE, Spring, 2017.*

Wang, R. Q.*, (2016), An axisymmetric steady state vortex ring model.* ***arXiv Fluid Dynamics*** *arXiv:1601.06414 .*

Patent

Wang, R. Q.*, Winter, A. G., Joshi, A. B., & Zimoch P. J., (2019), Low-Pressure and Low-Energy Self-Regulating Valve, U.S. Patent No.: 10/254,770, April 9, 2019*

Grants

PI. The Environmental Uncertainty of Offshore Wind Farms in New Jersey, ***New Jersey Wind Institute Fellowship Program****, 07/2022-06/2023, Total: $15k.*

PI. Environmental Co-Design of Offshore Wind Turbines, ***New Jersey Wind Institute Fellowship Program****, 07/2022-06/2023, Total: $15k.*

PI. The Impact of Offshore Wind Farms on Local Physical Oceanography and Summer Flounder Distribution, ***New Jersey Sea Grant Consortium, NOAA****, 03/2022-02/2024, Total: $140k.*

CoPI. RAFT: Reconfigurable Array of High-Efficiency Ducted Turbines for Hydrokinetic Energy Harvesting, ***Department of Energy (DOE)****, 11/2021, Total: $3.9M, Wang's share: $340k.*

CoPI. SWIFT: Enabling Spectrum Coexistence of 5G mmWave and Passive Weather Sensing, ***NSF****, 10/2021-09/2024, Total: $750k, Wang's Share: $300k.*

PI. AI-supported Monitoring and Resiliency Analysis for the Coastal Area of the Luis Muñoz Marín International Airport in Puerto Rico, ***UTC, USDOT****, 08/2021-07/2022, Total: $50k.*

CoPI. Storm Surge Warning System for Hoboken Terminal, ***NJ Transit****, 09/2021-08/2022, Total: $298k, Wang's Share: $100k.*

PI. Pump Locating with Acoustic Data, ***SPQR Consulting****, 06/2022-08/2022, Total: $22k.*

PI. Observing, Modeling, and Mitigating the Impact of 5G mmWave on Weather Prediction, ***School of Engineering, Rutgers****, 12/2020, Total: $60k.*

CoPI. SII Planning: ARIES: Center for Agile, RellablE, Scalable Spectrum, ***NSF****, 7/2020, Total: $300k, Rutgers's share: $50k.*

CoPI. NJDOT Flood Risk Visualization Tool, ***New Jersey Department of Transportation****, 3/2020, Total: $332k, Wang's share: $40k.*

PI. Security and Sensitivity of Hydrological Model Forecasting to the Disruption of Sensor Networks, ***New Jersey Water Resources Research Institute, USGS****, 12/2019, Total: $60k, External: $20k*

PI. Theoretical and numerical study on the biological fluid flow in dentinal tubules, ***Colgate-Palmolive Co.****, 12/2019, $10k.*

CoPI. Computationally Efficient Atmospheric-Data-Driven Control Co-Design Optimization Framework with Mixed-Fidelity Fluid and Structure Analysis, ***DOE ARPA-E Award****, 9/2019, Total: $1.5m, Wang's share: $8k.*

PI. Combining deep learning and SAR to estimate significant wave heights in Delaware Bay, Seed Grant, ***The Rutgers Institute of Earth, Ocean, and Atmospheric Science****, 7/2019, $15k.*

PI. The Role of Tidal Marsh Restoration in the Future of San Francisco Bay, UC Berkeley, Subcontract of ***NSF Natural Capital Project****, 7/2019, $20k.*

Co-PI. Synthesizing bathymetric and topographic data in the Raritan River basin towards development of hydrodynamic model, ***The Rutgers Raritan River Consortium Mini-grant****, 5/2019, Total: $8k.*

PI. Discovering urban floods using crowdsourcing visual data, ***Rutgers Research Council****, 5/2019, $3k.*

*PI. Multi-scale Interaction between Wind Turbines and Coastal Processes: coupling OpenFAST with a regional coupled air-sea modeling system, **Rutgers Energy Institute**, 4/2019, $10k.*

*PI. UK-China International Exchange Research for Numerical Simulation of the Wake of Fish Cages, **The Royal Society / Newton Fund**, 3/2018, £12k.*

*PI. The Scottish Alliance for Geoscience, Environment & Society (SAGES) Small Grants Scheme, **The SAGES Research & Innovation Committee**, 3/2018, £500 ($700).*

*PI. The role of morphological uncertainty in predicting the impact of sea-level rise on tidal energy and coastal flooding, Postgraduate and Early Career Researcher Exchanges, **Scottish Research Partnership in Engineering (SRPe)**, 2/2018, £4.7k ($6.7k).*

*PI. Sensitivity study of the tidal circulation pattern around Orkney Islands - is there a threshold of chaos?, Short Research Visit, **UK Fluids Network**, 2/2018, £1k ($1.4k).*

Honors & Awards

2021	**NSF EarthCube Learning Communities Fellowship**, 2021 NSF.	
2020	**AGU 2020-EarthCube Scholarship**, 2020 AGU Fall meeting with three poster and one e-lighting presentations.	*San Francisco, CA*
2020	**2020 ASCE State of the Art of Civil Engineering Award**, For the co-authored book, Computational Fluid Dynamics: Applications in Water, Wastewater, and Stormwater Treatment, published by EWRI, June 2019.	*Anaheim, CA*
2019	**Travel Grant**, Future Directions for Enabling Coastal Storm Flooding Prediction for High-Resolution Forecasts and Climate Scenarios, Columbia University	*New York, NY*
2018	**Teaching Innovation Award Nomination**, School of Science and Engineering, University of Dundee	*Dundee, Scotland*
2018	**Early Career Researcher Bursary**, EIMR 2018 conference, The MASTS Marine Renewable Energy Forum	*Orkney, Scotland*
2018	**Roland Schlich Early Career Scientist's Travel Award**, European Geosciences Union General Assembly 2018	*Vienna, Austria*
2018	**Travel Award**, Cascading hazards workshop: Developing a coastal megacity catchment observatory, Newton Fund Researcher Links programme, British Geological Survey	*Hanoi, Vietnam*
2016	**Travel Award**, The 69th Annual Meeting of the American Physical Society - Division of Fluid Dynamics	*Portland, OR*
2015	**Third Place**, Postdoc Sharing Their Science (Poster Presentation Competition)	*Cambridge, MA*
2014	**Semi-finalist**, $100K Entrepreneurship Competition	*Cambridge, MA*
2012	**Global Fellow**, MIT-Imperial College Global Fellow Program	*London, UK*
2009	**Schoettler Graduate Fellowship**, Massachusetts Institute of Technology	*Cambridge, MA*

Media Coverage

*"Recommendation algorithms that power Amazon, Netflix can improve satellite imagery, too", **Rutgers Today, Tech Xplore, EurekAlert!**, May 11, 2022.*

*"Researchers create better method to predict offshore wind power", **Rutgers Today, EnergyCentral.com, EurekAlert!**, June 29, 2021.*

*"5G wireless may lead to inaccurate weather forecasts", **Rutgers Today, Phys.org, SciTech Daily**, Sep 24, 2020.*

*"Edenville Dam collapse shown in new 3D video made at Rutgers University", **Rutgers Today, MLive, Newswise**, May 21, 2020.*

*"New device quickly detects harmful bacteria in blood – Tiny device could help professionals diagnose and fight deadly infections", **Rutgers Today, Phys.org, Futurity, Telangana Today, Times of India, Tech Explorist, Science Daily, RIT News** Mar 23, 2020.*

*"Twitter + Citizen Science + AI = improved flood data collection", **The Sunday Times, Wall Street Journal, Phys.org, Times of India, Digital Trends, Yahoo News, Communications of Association for Computing Machinery (ACM), University of Dundee News, TreeHugger, etc.** Dec 20, 2017.*

*"Watering the world: new design cuts costs, energy needs for drip irrigation, bringing the systems within reach for more farmers", **Phys.org, MIT News**. Apr 20, 2017.*

*"Re-engineering the sprinkler", **MIT News, Engineering.com, TechXplore.com, Guokr.com, Sohu.com**. Nov 9, 2016.*

Talks & Conferences

Invited Keynote Speeches:

Wang, R. Q., *Harnessing Data Revolution to Power the Coastal Observation and Modeling, May 14, 2021, **Invited Talk**, SMSP Spring 2021 Lewes-Newark Colloquia Series at University of Delaware, Virtual.*

Wang, R. Q., *Numerical Modeling to Connect Big Data and Decision-making for Coastal Resilience, Nov 14, 2020, **Invited Talk**, Stevens Institute of Technology, Virtual.*

Wang, R. Q., *Numerical Modeling to Connect Big Data and Decision-making for Coastal Resilience, Jul 14, 2020, **Invited Talk**, NOAA, Virtual.*

Wang, R. Q., *New Opportunities and Challenges for Water Research: AI, Social Media, and Flooding, Jul 08, 2020, **Invited Talk**, CAWRA, Virtual.*

Wang, R. Q., *AI-enabled Flood Monitoring and Modeling, Feb 27, 2020, **Invited Talk**, EOHSI, Rutgers University.*

Wang, R. Q., *Numerical modeling to hack the designing problems in the energy-food-water nexus, Nov 12, 2019, **Invited Talk**, University of Vigo, Spain.*

Wang, R. Q., *Numerical Modeling to Connect Big Data and Decision-making in Coastal Engineering, Nov 11, 2019, **Coastal Climate Risk and Resilience program**, Rutgers University, NJ.*

Wang, R. Q., *Tired of sparse environmental data and slow simulations? – Here is a coastal flooding example showing data science can help, Oct 11, 2019, **Invited Talk**, School of Environmental and Biological Sciences, Rutgers University, NJ.*

Wang, R. Q., *Data-driven Innovation in Coastal Engineering, **Invited Talk**, July 24, 2019, Ocean, Climate Change & Sustainability Showcase, Stevens Institute of Technology, NJ.*

Wang, R. Q., *Can a city combat sea level rise alone?,* ***Invited Talk****, June 25, 2019, Sustainable Urban Subsurface Systems Workshop, New York University, NY.*

Wang, R. Q., *Big Data to Detect Urban Flooding,* ***Invited Talk****, May 6, 2019, Building the Future: Smart Cities & New Technological Frontiers, Princeton University, NJ.*

Wang, R. Q., *The Imperative for Multi-Level Cooperation in Adapting to Sea-Level Rise: A case study in San Francisco Bay,* ***Invited Seminar****, Jan 24, 2019, Multi-stakeholder dialogue and capacity-building partnership event, United Nations Headquarters, New York.*

Wang, R. Q., *Optimisation, Sensitivity Analysis and Bio-inspired Design to Hack Energy-food-water Nexus in Developing Countries,* ***Invited Seminar****, Dec 20, 2018, University of Glasgow, Glasgow, UK.*

Wang, R. Q., *Harnessing the data revolution to boost the model-based decision-making in coastal engineering,* ***Invited Seminar****, Nov 15, 2018, Loughborough University, Liverpool, UK.*

Wang, R. Q., *Harnessing the data revolution to boost the model-based decision-making in coastal engineering,* ***Invited Seminar****, Oct 3, 2018, National Oceanography Centre, Liverpool, UK.*

Wang, R. Q., *Big data + Artificial Intelligence + Social Media = Solution to Urban Floods,* ***Invited Seminar****, Aug 11, 2018, China Science and Technology Museum, Beijing, China.*

Wang, R. Q., *Big Data of Urban Flooding: Dance with Social Media, Citizen Science, and Artificial Intelligence,* ***Physical Geography Round Table****, Nov 1, 2017, University of Dundee, Dundee, UK.*

Wang, R. Q., *Re-engineering the Dripper and Sprinkler,* ***Keynote Speech in Singapore International Energy Week****, Oct 27, 2017. Singapore.*

Selected Conference Proceedings:

Golparvar, B., Majumdar, I., Vosoughitabar, S., Brodie, J., Mandayam, N., Wu., C.-T., & **Wang, R. Q.** *(2022). A study on the Impact of Non-Uniform 5G Leakage on the Accuracy of Weather Forecasts,* ***AGU 2022 Fall Meeting****, Dec 12-16, 2022, Chicago, IL.*

Santana, P., Morson, J., Zemeckis, D., & **Wang, R. Q.** *(2022). The Impact of Climate Change and Human Activities on the Spatial Dynamics of Summer Flounder (Paralichthys dentatus) in the Offshore Area of New Jersey,* ***AGU 2022 Fall Meeting****, Dec 12-16, 2022, Chicago, IL.*

Wu, S., & **Wang, R. Q.** *(2022). How Do Data Failures Impact Meteorological and Hydrological Forecasting?* ***AGU 2022 Fall Meeting****, Dec 12-16, 2022, Chicago, IL.*

Golparvar, B., **Wang, R. Q.**, *Brodie, J., Wu, C.-T., Mandayam, N., Vosoughitabar, S. and Majumdar, I. (2022) Spatio-temporal analysis of the impact of 5G mm Wave technology deployment on the weather forecast accuracy,* ***8th International Symposium on Data Assimilation (ISDA)****, Jun 6-10, 2022, Fort Collins, CO.*

Wu, S., & **Wang, R. Q.** *(2022). Impact of observational data gaps on EnKF-based data assimilation,* ***8th International Symposium on Data Assimilation (ISDA)****, Jun 6-10, 2022, Fort Collins, CO.*

Bilgen, O.,* **Wang, R. Q.**, *Cao, Y., Erol, N., & Shan, X. (2022). A Reconfigurable Ducted Turbine Array Concept for Renewable Flow Energy Harvesting.* ***AIAA SCITECH 2022 Forum****, Jan 23-27, 2022, National Harbor, MD*

Bazzett, D., & **Wang, R. Q.***, Creating Fluvial Flood Maps for New Jersey Using the National Water Model (NWM) and Height Above Nearest Drainage (HAND),* ***AGU 2021 Fall Meeting****, Dec 15, 2021, New Orleans, LA.*

Golparvar, B., & **Wang, R. Q.***, Can we break the limitations of Rayleigh criterion and Nyquist-Shannon theorem in Tidal Harmonic Analysis?* ***AGU 2021 Fall Meeting****, Dec 15, 2021, New Orleans, LA.*

Fang, K., & **Wang, R. Q.***, Surveying Water Surface and Wetlands in Delaware Bay Using Cloud-removed LandSat Data ,* ***AGU 2021 Fall Meeting****, Dec 15, 2021, New Orleans, LA.*

Wang, R. Q.*, Golparvar, B. & Yang, K., AI-supported Citizen Science for Coastal Flood Monitoring,* ***AGU 2021 Fall Meeting****, Dec 15, 2021, New Orleans, LA.*

Bazzett, D., & **Wang, R. Q.***, Assessing the Impact of Spatial Variability and Wake Effects on Power Prediction for NJ Offshore Wind Energy Area,* ***2020 EarthCube Annual Meeting****, June 19, 2020, online.*

Chen, X., Zhang, S., Gan, Y., **Wang, R. Q.***, Liu, R., Du, K. (2021). Deformable Microbeads-stacked Nanodevice for Blood Plasma Separation and Blood Cells Retrieval,* ***EIPBN 2021****, June 1-4, 2021, virtual.*

Bazzett, D., & **Wang, R. Q.***, Combining deep learning and SAR to estimate significant wave heights in the New Jersey coastal area,* ***2020 EarthCube Annual Meeting****, June 19, 2020, online.*

Chow, A., & **Wang, R. Q.***, Investigation of coastal hydrodynamic impact along the northern UAE coastline using Dimension Reduced Surrogate based Sensitivity Analysis,* ***3rd Conference of the Arabian Journal of Geosciences****, Nov 2-5, 2020, Sousse, Tunisia.*

Wang, R. Q.*, & Jia, G., How to save 95% of computational load of numerical modeling in examining the coastal protection decision scenarios,* ***Ocean Sciences Meeting****, Feb 16-21, 2020, San Diego, CA.*

Wang, R. Q.*, Miles, T., & Brodie, J., Multi-scale Interaction between Wind Turbines and Coastal Processes: coupling OpenFAST with a regional coupled air-sea modeling system,* ***Ocean Sciences Meeting****, Feb 16-21, 2020, San Diego, CA.*

Wang, R. Q.*, Real-time urban flood detection with TensorFlow,* ***2019 International Research Committee on Disasters Researchers Meeting****, July 17-18, 2019, Broomfield, CO.*

Chen, X., Falzon, L., **Wang, R. Q.***, Zhang, J., Zhang, X., & Du, K., Hydrodynamic Induced Deformation of Micro-Nanofluidic Device for Efficient Microparticle Trapping,* ***Electron, Ion, and Photon Beam Technology and Nanofrabrication (EIPBN)****, May 28-31, 2019, Minneapolis, MN.*

Wang, S., **Wang, R. Q.***, Feel the beat of beach: Data-driven analysis of beach stability using Dynamic Mode Decomposition,* ***World Environmental and Water Resources Congress (EWRI) 2019****, May 19-23, 2019, Pittsburgh, PA.*

Arizaa, C., Casadoa, C., **Wang, R. Q.***, Adams, E. E., Marugána, J., Modeling the mixing characteristics of an annular reactor – a comparison between OpenFOAM® and ANSYS® Fluent,* ***World Environmental and Water Resources Congress (EWRI) 2019****, May 19-23, 2019, Pittsburgh, PA.*

Wang, R. Q., *Social Media Diffusion Pattern Recognition for Flood Hazards using Dimensionality Reduction,* ***American Association of Geography Annual Meeting 2019****, April 3-7, 2019, Washington D.C., US.*

Wang, R. Q., Ciantia, M. O., and Zhang, F., *GPU based CFD-DEM Simulation of Internal Erosion of Soil under Triaxial Stress Conditions,* ***ECCM-ECFD 2018****, June 11-15, 2018, Glasgow, UK.*

Wang, R. Q., *Feel the beat of beach: Data-driven analysis of beach stability using Dynamic Mode Decomposition,* ***the 8th International Symposium on Environmental Hydraulics****, June 4-7, 2018, Notre Dame, IN, USA.*

Wang, R. Q., *Stacey, M. T., and Mitchell, C. P., The impact of sea-level rise and coastal protection construction on the tidal energy of San Francisco Bay,* ***Environmental Interactions of Marine Renewable Energy Technologies (EIMR)****, April 24-27, 2018, Kirkwall, Orkney.*

Wang, R. Q., *Zhao, Z., and Yin, H, Delineation of Urban Subcatchment by Inverse Modeling,* ***World Environmental and Water Resources Congress (EWRI) 2017****, May 21-25, 2017, Sacramento, CA.*

Wang, R. Q., *Shamshery, P, and Winter, A. G., A Novel Bio-Inspired Pressure Compensating Emitter for Low-Cost Drip Irrigation Systems,* ***World Environmental and Water Resources Congress (EWRI) 2016****, pp. 30-36, May 22-26, 2016, West Palm Beach, FL.*

Wang, R. Q., *Shamshery, P., Taylor, K., and Winter, A. G., A Novel Bio-inspired Pressure Compensating Emitter for Low-Cost Drip Irrigation Systems, 26th ICID Euro-Mediterranean Regional Conference and the 66th ICID International Executive Concil, Oct 11-16, 2015, Montpellier, France.*

Wang, R. Q., *Law, A. W. K., and Adams, E. E., A Method to Capture Vortex Rings in Starting Particle-Laden Jets,* ***7th International Symposium on Environmental Hydraulics****, Jan 7-9, 2014, Singapore.*

Wang, R. Q., *Large-Eddy Simulation Study of the Settling Behavior of Sediment Clouds,* ***35th International Assoc. of Hydraulic Eng. & Research (IAHR) Biennial Congress****, Sept 8-13, 2013, Chengdu, China.*

Wang, R. Q., *Law, A. W. K., and Adams, E. E., Large Eddy Simulation of Starting and Developed Particle-Laden Jets,* ***International Conference on Multiphase Flow 2013****, May 26-31, 2013, Jeju, Korea.*

Wang, R. Q., *Law, A. W. K., Adams, E. E., Zhao, B., Huang, Z., Lai, A. C. H., Experimental and numerical Study of Settling Particle Clouds, Dredging 2012, October 22-25, 2012, San Diego, CA.*

Wang, R. Q., *Law, A. W. K., Adams, E. E., and Fringer, O. B., The Determination of Formation Number for Starting Buoyant Jets,* ***AIP Conference Proceedings****, ISCM II & EPMESC XII, Volume 1233, Issue 1, November 29 - December 3, 2009, Hong Kong.*

Wang, R. Q., *Law, A. W. K., Adams, E. E., and Fringer, O. B., Large Eddy Simulation of the Starting Buoyant Jets,* ***33rd International Association of Hydraulic Engineering & Research (IAHR) Biennial Congress****, August 9-14, 2009, Vancouver, Canada.*

Teaching

Fluid Mechanics
Piscataway, NJ

LECTURER — *Fall 2020*

Designed and delivered lectures to **86 undergrad students**.

Environmental Informatics
Piscataway, NJ

INSTRUCTOR — *Fall 2019*

Designed and delivered lectures to **12 undergrad students**.

Environmental Engineering Analysis Tools & Civil and Environmental Data Analysis
Piscataway, NJ

INSTRUCTOR — *Spring 2019, 2020*

Designed and delivered lectures to **12-13 undergrad students**.

MSc Programme of Marine Hydrodynamics and Ocean Engineering
Dundee, UK

MODULE LEADER — *Fall 2018 - Spring 2019*

Co-developed the MSc programme and led the module of Numerical Analysis and CFD.

CE31003 Fluid Mechanics
Dundee, UK

MODULE LEADER — *Falls 2017, 2018*

Designed and delivered lectures on Fluid Mechanics along with Lab sessions to **33 undergrad students**.

A Three-day Short Course for OpenFOAM, Dalian University of Technology
Dalian, China

LECTURER — *Oct. 2014*

Designed and delivered a three-day workshop on OpenFOAM to **30 graduate students**.

OpenFOAM Style - A Three-day Short Course for OpenFOAM
Singapore

LECTURER — *Jan. 2013*

Designed and delivered a three-day workshop on OpenFOAM to **40 graduate students and professionals**. Graded homework, led in-class discussion, and organized class practice.

Mentoring:

Outstanding Student Presentation Award (OSPA)
New Orlean, LA

MENTOR — *2021*

Mentee, Behzad Golparvar, received the Outstanding Student Presentation Award (OSPA) during AGU 2021.

First Place of Jersey Shore Science Fair
Galloway, NJ

MENTOR — *2022*

Mentee, Katherine Fang, obtained the First Place for the Intermediate Environmental Science Category in the Jersey Shore Science Fair.

PhD and Master students, Rutgers University *Piscataway, NJ*

SUPERVISOR *2019-present*

Supervising two postdoctoral researchers, three PhD students, two Master students, and five undergraduate students.

Master and Undergraduate Theses, University of Dundee *Dundee, UK*

SUPERVISOR *2017-present*

Supervised three master students and two undergraduate students for theses.

Research Program at Civil and Environmental Eng., UC Berkeley *Berkeley, CA*

SUPERVISOR *2016-2017*

Supervised two undergraduate and one master students on the project of Chasing Flooding: A Big Data Challenge in Urban Flooding.

Senior Thesis at Mechanical Engineering, MIT *Cambridge, MA*

SUPERVISOR *Spring 2015*

Supervised a senior student in experiments, data analysis, prototype design, and manufacturing. Published a 118-page thesis.

Academic Services

COMMITTEES:

***Committee Member**, Faculty Search Committee, Department of Environmental Sciences, Rutgers University, 2021-2022.*

***Committee Member**, Faculty Search Committee, Department of Civil and Environmental Engineering, Rutgers University, 2021-2022.*

***Competition Judge**, The 2021 New Jersey Junior Science & Humanities Symposium, March 2021.*

***Committee Member**, AGU Canvassing Committee, 2021-2022.*

***Program committee member**, 3rd ACM SIGSPATIAL International Workshop on Advances in Resilient and Intelligent Cities (ARIC 2020), Nov 2020.*

***Ambassador and Panelist**, the Annual 4-H Rutgers STEM Ambassadors program for high-achieving high school students who are underserved and underrepresented in STEM. 60+ youth selected from NJ Urban centers participated, July 2020.*

***Committee Member**, Scientific Advisory Committee to provide scientific advice to the Mauritius National Crisis Committee for the recovery from the Wakashio oil spill disaster, Aug 2020.*

***Committee Member**, President's Task Force on Carbon Neutrality and Climate Resilience, Rutgers University, 2019-2020.*

***Committee Member**, Faculty Search Committee, Rutgers University, 2019-2020.*

***Program Organizer**, GeoAI and Deep Learning Symposium: Geo-Text Data Analytics, AAG Annual Meeting, Washington DC, 2019.*

***Expert and Reviewer**, Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects, United Nations, 2018-present.*

***Program Committee**, The First Workshop on GeoAI: AI and Deep Learning for Geographic Knowledge Discovery, 25th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, 2017.*

***Council Member**, EWRI Urban Water Resources Research Council, 2017-present.*

***Member**, EWRI Computational Fluid Dynamics Task Committee, 2015-present.*

***Secretary and Newsletter Editor**, Chinese American Water Resources Association, 2016-present.*

Session Chairs:

68th Annual Meeting of the APS Division of Fluid Dynamics, Boston, MA, 11/2015.

The 8th International Conference on Multiphase Flow, Jeju, Korea, 05/2013.

Reviewers:

Grant proposal: MASTS Small Grants Travel Scheme, National Science Foundation (NSF), Texas Sea Grant Research Proposal Competition, Delta Science Program (California)

Journal: Water Resources Research, Computers & Geosciences, Journal of Fluid Mechanics, Physics of Fluids, Journal of Hydro-environment Research, Journal of Hydraulic Engineering, Engineering Applications of Computational Fluid Mechanics, Ocean Engineering, International Journal of Disaster Risk Reduction, Geophysical Journal International, Acta Oceanologica Sinica, Powder Technology, Conference on Ocean Offshore & Arctic Engineering

Memberships

American Society of Civil Engineers (ASCE)
American Geophysical Union (AGU)
American Association of Geographers (AAG)
International Association of Hydro-Environmental Engineering and Research (IAHR)

Certificates

2014 **Engineer In Training**, New Hampshire Board of Professional Engineers *New Hampshire*

2014 **Graduation**, MIT Professional Education's short course: Machine Learning for Big Data and Text Processing *Cambridge, MA*