624 W 207th St Apt 41
New York, NY 10034
+1 (607) 351 9339
djf2137@columbia.edu

David J. Farnham

Education

Present **Ph.D.**, *Columbia University*, New York, NY
Earth and Environmental Engineering Department

Adviser Upmanu Lall, Columbia Water Center

Thesis (in progress) *Identifying and modeling spatio-temporal structures in high dimensional climate and weather datasets with applications to water and energy resource management*

2015 **M.S., Earth Resources Engineering**, *Columbia University*, New York, NY

Concentration Water Resources and Climate Risks

Thesis *Predictive Statistical Models Linking Antecedent Meteorological Conditions and Waterway Bacterial Contamination in Urban Waterways*

2012 **B.S., Civil Engineering**, *SUNY-Buffalo*, Buffalo, NY
Summa Cum Laude, Honors College member

2012 **B.A., Mathematics**, *SUNY-Buffalo*, Buffalo, NY
Summa Cum Laude, Honors College member

Experience

Research Experience

2012–Present **Graduate Student Researcher**, *Columbia Water Center & Department of Earth and Environmental Engineering*, Columbia University, New York, NY

2012 **Student Researcher**, *Department of Civil and Environmental Engineering*, SUNY-Buffalo, Buffalo, NY

2012 **Student Researcher**, *Ecosystem Restoration through Interdisciplinary Exchange, NSF IGERT REU*, SUNY-Buffalo, Buffalo, NY

Teaching Experience

2015 **Teaching Assistant/Guest Lecturer: Environmental Data Analysis (Graduate level)**, *Department of Earth and Environmental Engineering*, Columbia University, New York, NY

2015 **Teaching Assistant: Better Planet By Design (Undergraduate level)**, *Department of Earth and Environmental Engineering*, Columbia University, New York, NY

2014–2016 **Lead Module Developer: HydroViz Web Modules: Teleconnections Module)**, *www.hydroviz.org*

Journal Reviewer

2017 **International Journal of Geographical Information Science**

2017 **Water Research**

2017 **Water Resources Research**

Total Articles reviewed: 5

Publications and Presentations

Journal Articles

[1] **Farnham, D. J.**, Steinschneider, S., Lall, U., "Zonal wind indices to reconstruct CONUS winter precipitation (accepted)". In: *Geophysical Reasearch Letters* (2017).

[2] **Farnham, D. J.**, Gibson, R. A., Hsueh, D. Y., McGillis, W. R., Culligan, P. J., Zain, N., Buchanan, R., "Citizen science-based water quality monitoring: Constructing a large database to characterize the impacts of combined sewer overflow in New York City". In: *Science of The Total Environment* (Dec. 2016). DOI: 10.1016/j.scitotenv.2016.11.116.

[3] **Farnham, D. J.**, Lall, U., "Predictive statistical models linking antecedent meteorological conditions and waterway bacterial contamination in urban waterways". In: *Water Research* 76 (June 2015), pp. 143–159. DOI: 10.1016/j.watres.2015.02.040.

Articles In Press, Review or Preparation

[1] **Farnham, D. J.**, Doss-Gollin, J., Lall, U., "Regional intense precipitation events: robust inference from credibly simulated GCM state variables (in revision in Water Resources Research)".

[2] **Farnham, D. J.**, Lall, U., Kwon, H.-H., "Long-term Trends, Decadal Variability, and Teleconnections associated with Sub-weekly Precipitation Extremes from a Multicentury Record (in prep)".

[3] Hamidi, A., **Farnham, D. J.**, Khanbilvardi, R., "Uncertainty Analysis of Urban Sewer System using Spatial Simulation of Radar Rainfall Fields: New York City Case Study (in revision in Stochastic Environmental Research and Risk Assessment)".

[4] Kim, J.-Y., So, B.-j., Kwon, H.-H., **Farnham, D. J.**, Lall, U., "Estimation of Return Period and Its Uncertainty for the 2013-2015 drought in the Han River watershed in South Korea (under review)".

[5] Yuan, S., **Farnham, D. J.**, Lall, U., Modi, V., "Simultaneous increasing electricity demand for heating and reliance on wind energy: Demand side management using heat pumps during extreme cold events (in prep)".

[6] Cao, J., **Farnham, D. J.**, Lall, U., "Spatial-temporal wind field prediction by Artificial Neural Networks (in prep for Applied Energy)". 2017.

Conference Presentations, Posters, and Papers

[1] **Farnham, D. J.**, Doss-Gollin, J., Lall, U., "Regional Intense Precipitation Events: Inferences from GCM Atmospheric Circulation Fields". In: *North East Graduate Student Water Symposium*. UMASS Amherst, 2017.

[2] Doss-Gollin, J., **Farnham, D. J.**, Lall, U., "Global-Local Interactions Modulate Tropical Moisture Exports to the Ohio River Basin". In: *AGU Fall Meeting*. San Francisco, CA, 2016.

[3] **Farnham, D. J.**, Doss-Gollin, J., Lall, U., "Seasonal climate signals and synoptic circulation patterns associated with regional daily intense precipitation in the Ohio River Basin". In: *Workshop on Sub-Seasonal to Seasonal Predictability of Extreme Weather and Climate*. Columbia University, 2016.

[4] **Farnham, D. J.**, Doss-Gollin, J., Lall, U., "Space-time characteristics and statistical predictability of extreme sub-weekly precipitation events in the Ohio River Basin". In: *AGU Fall Meeting*. San Francisco, CA, 2016.

[5] Habib, E., Tarboton, D., Deshotel, M., **Farnham, D. J.**, "Development of Student-centered Modules to Support Active Learning in Hydrology". In: *ASEE Annual Conference & Exposition*. New Orleans, LA, 2016.

[6] Larson, L. R., Cooper, C. B., Krafte, K., Gibson, R., **Farnham, D. J.**, Hsueh, D., Culligan, P., Wade McGillis, "Characterizing citizen scientists based on project engagement: Data generators, data users, and "onlooker effects."" In: *Southeastern Recreation Research Conference*. Asheville, NC, 2016.

[7] **Farnham, D. J.**, Habib, E., Lall, U., "HydroViz: A Web-based Climate Teleconnection Module for Undergraduate and Graduate Water Engineering Students". In: *AGU Fall Meeting*. San Francisco, CA, 2015.

[8] **Farnham, D. J.**, Lall, U., Kwon, H.-H., Doss-Gollin, J., "Moisture Transport and Extreme Precipitation in Mid-latitudes". In: *AGU Fall Meeting*. San Francisco, CA, 2015.

[9] Habib, E., Bodin, M., Taboton, D., Merck, M., **Farnham, D. J.,** "Stimulating Active Learning in Hydrology Using Research-Driven, Web-based Learning Modules". In: *ASEE Annual Conference & Exposition*. Seattle, WA, 2015.

[10] Hsueh, D. Y., **Farnham, D. J.**, Gibson, R. A., McGillis, W. R., Zheng, Y., Buchanan, R., Eddowes, D., Zain, N., Loiselle, S., Butkiewicz, L., "NYC URBAN WATER QUALITY: MONITORING THE FLOW OF CSOS WITH CITIZEN SCIENTISTS". In: *Aquatic Sciences Meeting*. Granada, Spain, 2015.

[11] Hsueh, D., **Farnham, D. J.**, Gibson, R., McGillis, W. R., Culligan, P. J., Cooper, C., Larson, L., Mailloux, B. J., Buchanan, R., Borus, N., Zain, N., Eddowes, D., Butkiewicz, L., Loiselle12, S. A., "Advancing the Potential of Citizen Science for Urban Water Quality Monitoring: Exploring Research Design and Methodology in New York City". In: *AGU Fall Meeting*. San Francisco, CA, 2015.

[12] **Farnham, D. J.**, Atkinson, J. F., "Flow visualization study: Understanding water circulation in Lake Ontario through physical modeling". In: *The 22nd Annual Great Lakes Research Consortium Student-Faculty Conference*. Oswego, NY, 2012.

Invited Presentations

[1] *Bronx Sewershed Water Quality and Citizen Science (with W. McGillis and D. Hsueh)*. Interdisciplinary Workshop on Urban Green Infrastructure: Reports on Monitoring, Modeling, Performance & Design Work. Columbia University, New York, NY, USA, 2015.

[2] *Extreme Rainfall Mechanisms, Prediction, and Simulation at Chonbuk National University in Summer 2015*. NSF EAPSI closing ceremony presentation series at the National Research Foundation of Korea. Seoul, South Korea, 2015.

[3] *NYC Urban Water Quality: Monitoring the Flow of CSOs with Citizen Scientists (with R. Gibson and D. Hsueh)*. Citizens Advisory Committee, New York-New Jersey Harbor & Estuary Program meeting. New York, NY, USA, 2015.

[4] *Understanding Climate Risks in an Urban Environment (with M. Haraguchi)*. NSF IGERT, Solving Urbanization Challenges by Design summer workshop series. Columbia University, New York, NY, USA, 2013.

[5] *Urban Water Cycle Responses to Climate*. NSF IGERT, Solving Urbanization Challenges by Design Brown Bag seminar series. Columbia University, New York, NY, USA, 2013.

Invited Panel Participation

[1] *2016 Planet Forward Sustainable Cities Summit: Rethinking Water: Solutions for a 21st Century Infrastructure*. George Washington University, Washington DC, USA, 2016.

[2] *Earth Institue Sustainable Development Seminar Series: The Monster El Niño Of 2015-16: What Was Expected? And, What Was Done?* Columbia Univeristy, New York, NY, USA, 2016.

Honors and Awards

2015 **National Science Foundation/National Research Foundation of Korea EAPSI Fellowship**, *National Science Foundation*

2015 **Graduate Research Fellowship Program Honorable Mention**, *National Science Foundation*

2012–Present **Integrated Graduate Education and Research Traineeship**, *National Science Foundation*
2012 **Best Poster Presentation**, *22nd Annual Great Lakes Research Consortium*
2012 **Garmen Scholarship**, *SUNY-Buffalo*
2012 **Robert P. Apmann Memorial Award**, *SUNY-Buffalo*
2012 **Undergraduate Research Award**, *SUNY-Buffalo*
2008–2012 **Provost Scholar Award**, *SUNY-Buffalo*

Select Computer Skills

Languages Proficient in **R**; Experience with Matlab, Python, C++
Software Proficient in Markdown, LaTeX, Microsoft Word/Powerpoint/Excel

Recent Community Involvement

2014–Present **Volunteer**, *Student Sponsor Partners*, New York, NY
High school student mentor

2014, 2016, 2017 **Volunteer**, *International Research Institute for Climate and Society*, New York, NY
Facilitator at Lamont Doherty Earth Observatory open house

2013–2014 **Volunteer**, *Citizen's Water Quality Testing Program*, New York, NY
Water quality sampling site coordinator

Professional Affiliations

Member, *American Geophysical Union*
Member, *American Meteorological Society*

Last updated on November 17, 2017